SUSS

Journal of the Sydney
University Speleological Society

Volume 2
Number 1

JOURNAL OF THE SYDNEY UNIVERSITY SPELEOLOGICAL SOCIETY

VOLUME TWO NUMBER ONE

JANUARY 1955

Journal of the

SYDNEY UNIVERSITY SPELEOLOGICAL SOCIETY

Volume 2 Number 1. Jan. 1955.

Editors.... B.J.O'Brien
D.T.Burke.

CONTENTS

Editorial.

Since the end of 1953, there has been a very marked increase in interest in speleology, or, at least, in the more spectacular aspects of cave-exploring, resulting principally from the increased publicity received, of both welcome and unwelcome varieties. Associated with this public interest has been the formation of several new caving bodies - in Sydney, Canberra, Melbourne, Brisbane, Newcastle and Mount Isa - while the existing groups in Hobart, Cooma and Goulburn maintain their activities. The new Sydney society achieved success in cracking a siphon at Jenolan with the aid of the Underwater Explorers, and, since there is ample scope, the others have done much caving in areas seldom or never visited by S.U.S.S.

All this activity points the need to some central co-ordinating body - a Federation of Australian speleologists. The central location and library facilities seem to indicate that much of the preliminary organisation should come from our society, and all interested persons are asked to contact our Secretary for further particulars. It should be emphasised that the individual bodies will remain completely autonomous - we have no desire to foist bureaucracies upon the most independent of sports - but the Federation will serve as a source of general and particular speleological information, and, if necessary, as a co-ordinating centre for cave search and rescue.

Now, as to this journal. It is the first of our issues to contain maps - this was essential for interpretation of the Cliefden article, and desirable for general interest otherwise. With an article on sketch-mapping also included, there is no reason why every report should not include one or more maps, and every trip should yield a report, even if it is only a case of " who went where and when." For convenience, all reports are being numbered chronologically, and it will be noted that three very early reports have been included, as these remain the most comprehensive ones available to date.

The section "About Our Contributors .. " is intended to introduce what the Hollywood melo-dramatists would term "human interest stuff", since the journal should be, a means of maintaining contacts among our members, as well as dealing with caving itself. It follows that if you have any notes you feel are worthy of publication, you are invited to send them to Box 35.

I hope that the keynote of this and future journals may follow Goethe's direction:

"Enough of words, for, to be candid,
I'd like to see some work begun.
While all this pretty talk is bandied
We might have something useful done...
Command me poetry, good Sirs!
You know our needs: we want a brew,
A liquor with some body in it.
The process waits. Then up, begin it!"

Brian J.O'Brien.

S.U.S.S. Report No. 2. Bungonia Caves. 11-13 Feb. 1949.

Location: The Bungonia Caves are approached from Marulen on the Hume Highway. By road, the distance from Sydney is about 130 miles: a gravel road is followed from just beyond Marulen to the Bungonia township (12 miles) and the remaining six miles of road passes through private property with several gates to be negotiated. The area surrounding the Caves is the Bungonia Reserve. A short route of only six miles from Marulen may be followed by experienced hikers, with a good knowledge of the district.

"The Lookdown" is on top of the limestone plateau in which the Caves are found, and from this position a magnificently picturesque view is obtained, looking into the Shoalhaven Valley. A drop of 900 feet occurs from the Lookdown to the Bungonia Creek where it runs through the massive limestone gorge.

Caves; The Grill or Bungonia Cave is about ¾ mile back along the road from the Lookdown. A track leads off towards the east, opposite the Adam's Lookout turnoff; the entrance to the cave being through a grill in a gully some 150 yards from the road.

The Drum Cave is found about 500 yards NNE of the Grill. The entrance is found on the side of a large depression into which a considerable amount of water must flow from the immediate locality after rainfall, in a creek some 200 yards long.

The Fossil Cave is to be found 100 yards east of the Lookdown.

Exploration: Various outcrops along the road were inspected - mainly towards the Lookdown from the last house. The following description mentions caves in the order of visitation.

A small outcrop was observed close to the fence which crosses the road past the last house, and about 50 yards to the left down the fence. A sink-hole was found at the bottom of a small depression. We roped down 25 feet to an earthen floor. We found a small chamber sloping at 30° - one passage was found and followed for 30 feet before it became extremely small. Near the entrance to the cave another small tunnel ran off to the north, ending in a closed vertical offshoot. A slight surface depression is found above this point.

Across the fence a larger depression was seen. There is a great deal of water erosion about the perimeter, and the hole undoubtedly serves as a runway for a considerable quantity of water. The interior is floored with a dark, highly viscous mud which clogs any possible passages.

Further along the road, several promising depressions were checked and, surprisingly enough, only one produced any caves, though large drainage systems emptied into them. This particular depression has a 20 ft. limestone cliff on one side, while the other margins are steep rocky slopes which converge on a sink. The whole area abounds in stinging nettles. Two erosion gutters drain the surrounding field.

A vertical descent of some 40 feet down a boulder strewn slope revealed an underground stream-bed which may be followed upstream for 50 feet before further progress is prevented by the narrowness of the passage. Downstream exploration is limited by an impossible squeeze-hole. Very small live formations were observed.

The Fossil Cave was entered and soon quitted, though not before the foul air had had its effect. Even near the entrance, the limestone exhibits a festoon of small fossil remains.

The foyer of the Drum Cave is a large high cavern floored by a rough stony slope which ends in the awe-inspiring 134 feet, vertical shaft. (see Trickett's sketch.) This shaft appears to be about 30 feet dia. on the average. A ten foot step from the stony slope of the fouyr, brinks an exceedingly sheer cliff which hangs vertically for 80 feet, recedes a little and then drops into a cavern at the bottom. The inner face of the cliff is extensively waterworn suggesting that, at some stage, this has been the scene of quite a large waterfall.

The floor of the Drum is strewn with small rocks and a few logs, including the remains of a winch which may have been used at some time for descents into the Cave. A passage leading off to the west enters a high (?40') cavern complete with large brown and white formations. Foul air prevented further investigation in this direction

Returning to the eastern side, after we followed a passage "-about 12 feet in width for a distance of 40 feet, a cavern 60 feet in length by abour 50 feet in height and 30 feet in width is entered.....Although not rich in the pure white dripstone formations, this cavern possesses most interesting stalagmitic basin like growths which have formed in a series of terraces on the lower portions of the walls and floor." These terraces are of brown flowstone, each enclosing a clear pool which overflows into the next, the whole producing an intriguing floor formation.

No possible passages lead off from this cavern.

General Comments: Owing to ease of access, Bungonia Caves provide an ideal weekend excursion.

Outstanding feature of the Drum Cave descent was the spin experienced once all contact with the cliff face was lost. This became so violent during one ascent as to cause a brief blackout in the "bosun's chair sitter". The use of ladders in this descent would, of course, practically eliminate this rather dangerous rotation.

Foul Air in both the Fossil and the Drum Caves prevented the negotiation of considerable amounts of known passages and caverns. Fortunately the fouling of these caves is periodic only, and access to lower regions can be expected later.

It is important to note that, due to the porous nature of the locality, there is an almost complete lack of surface water. The only supply handy to the caves is the tank at the Lookdown.

It is apparent that all surface water escaped into the Bungonia Gorge through various underground streams. No waterfalls can be observed in the Eastern face of the gorge, so the streams must enter at or below creek level. A total fall of some 900 feet separates the plateau and the creek. Negotiation of the Drum cave ot a greater depth than has yet been reached (350 ft.) could be adopted as an immediate aim of the Society, in the hope that, eventually, we may follow this underground stream a further 700 feet down to its confluence with the Bungonia Creek.

....

Party: Alan Tapsell (leader), Jack Braithwaite, Mick Hammond, Sam MacKay, Jim Russack, Kath Sudakoff.

....

References: N.S.W. Mines Dept. Reports. 1898(app.),1900 p.198.
The former has an area map, the latter a map of the Drum. A note on the Gorge may be found in 1889-1890, p.232.

S.U.S.S. Report No.7. Wombeyan Caves. June 3-5th. 1949.

Location: The Wombeyan Caves are well known and are 120 miles from Sydney by the "direct" road which leaves the Hume Highway beyond Mittagong and proceeds W.S.W. for forty miles. Eleven miles from Wombeyan, the Wollondilly River is crossed at a ford. When (as frequently happens) the ford is impassible, the "indirect" route is taken; (to Goulburn by the Hume, and then back through Taralga. Total distance: 175 miles.)

The approach from Mittagong, gives the impression that Wombeyan is isolated from the other caves systems. However, the Colong and the Church Creek Caves lie only 10-15 miles away to the N.E.; Tuglow Caves are 25 miles due north, Jenolan 35 miles due North; Abercrombie Caves (approached from Blayney) are 45 miles N.W. from Wombeyan while Bungonia is 35 miles due south. Wombeyan is fairly centrally placed.

Party: Peter MacGregor (leader), Henry Fairlie-Cunninghame, Peter Fielding, D. Herrman, Alan Pearson, Cleven Slack, Alan Tepsell, Fred Jeffries, G. Elsmer, D. Robinson, R. Wilkins; L. Douglas, J. Kelly, Miss D. Duffy, Miss M. Saggers, Kath Sudakoff, Mrs. N. Wilkins, D. Gittoes and R. Wolfe.

Object: (a) To carry out a first inspection of and to gain familiarity with the Wombeyan Caves System.

(b) To provide material for a photographic coverage of the Society's activities by Associated Newspapers.

(c) To carry out any such exploration as the resident Guide, Mr. Clyde Stiff might suggest.

Exploration: The Junction Cave:

After the whole party had inspected this cave, Kelly, MacGregor, Slack, Stiff, Sudakoff and Tepsell set out to explore upstream the Underground River.

For a distance of 250', the tunnel averaged about 15' in width - the depth over that distance being nowhere more than six inches; the passage then narrowed to 10' with the stream occupying the whole width and varying in depth between five feet and a few inches. It continued thus for about fifty yards and opened into a chamber 20' wide, 8' high with water to a depth of 2'6". At the far end the water increased in depth, and an unsuccessful attempt was made by Slack to force what appeared to be a siphon.

No attempt was made to follow the river downstream, although this appears to be feasible.

Features in this cave are the extraordinary high level to which the river may, on occasion, rise. (There is a water mark on certain formations, some 30' above the normal level of the stream). A high air temperature was observed: 80°F. This phenomenon, coupled with the observance of methane issuing from the edges and centre of the stream may

indicate organic decomposition in the clay floor of the tunnel.

Fig-Tree Cave: A party consisting of Fielding, Jeffries, Pearson, and Saggers made an exploration, of which the following account was furnished by Pearson:

"Entering the system from the upper entrance, we roped down the cavity under the first lookout encountered. A mass of debris at the bottom of this hole - opposite the tunnel leading off to the river Cave, and the southern side of the Grand Arch - concealed a small fissure forming the entrance of a narrow tunnel bearing approx. S.E. The tunnel sloped downwards. Its ceiling was composed of masses of broken rock.

"It was apparently the course of floodwaters, as at frequent intervals, branches and twigs of trees were lodged. The abovementioned debris which concealed the entrance was of a similar nature.

"Seventy feet from the entrance, the tunnel emerged into a small cavern through which a small underground stream was flowing N-S. It is considered that this stream flows at a slightly lower level than the main underground river in the River Cave, but on a course approx. parallel to the latter. The water was muddy, as there has been some recent rain.

"The river disappeared under the wall of the cavern, opposite the tunnel mouth, into a deep hole. No attempt was made to force this siphon. Following the river back along its course, we found that, after 25 yards, the roof dipped to within a few inches of the water surface, depth at this point being about 3'6". Then the clearance improved somewhat, but finally a siphon barred further progress. The narrowness of the tunnel at this point would make the sipnon difficult to force.

"However, this stream would probably dry up altogether in a dry summer and an investigation carried out during a dry spell would meet with more success in determining the source and termination of this stream.

"No traces of previous investigation were encountered; there were no formations of merit and tourist appeal was utterly lacking.

"The Fig-Tree Cave is quite large, and, in spite of the attention it has received over many years, it presents, even yet, opportunities for new exploration. One of the most notable features of the Cave, is the existence of a large colony of bats, which, disturbed by the party moving through the Cave, gave a fascinating display of the flying skill with which they are associated".

Wollindilly Cave: Two sites, in this cave were investigated on the advise of Mr. Stiff, who, hitherto, had had insufficient rope to do so personally. One proved to be a cul-de-sac. The other was merely a circuitous route back to the tourist section.

A short distance from the entrance, a passage leading directly off the tourist path was investigated by Kelly and Macgregor, and showed much promise. This exploration was not completed.

General Comments: Wombeyan is a system in which work might be done in all branches of the Society's activities. The limestone outcrop is large, and it is possible that many holes await discovery.

In the Junction Cave, the abnormal temperature, the downstream course of the river, and the Hydrology of the system are matters that might repay investigation. A hydrological survey might furnish an explanation for the high flood level. The Bat Colony in the Fig-Tree provides an object for an interesting and fruitful study , as do the many passages in that vast cave.

There are several holes in the steep banks of the Wombeyan Creek below the Victoria Arch, about which little seems to be known; while some of the larger caves have not been visited for years.

The thanks of the party are due to Mr. Clyde Stiff who did everything possible to make us comfortable under the trying weather conditions prevailing, and who did not stop at advising us where to go in the caves, but went with us.

Report No.6. Caves in the District of Comboyne.

Introduction: This exploration was undertaken at the invitation of the Comboyne Progress Association. The aim was to access the value of the caves from a tourist point of view.

Location: Comboyne is a town some 250 miles north of Sydney beyond Taree, on a road which leaves the Pacific Highway between Gloucester and Taree. Beyond Comboyne, the road joins the Oxley Highway at a point 18 miles from Port Macquarie.

Map: Comboyne; 1" to 1 mile, No.353 Zone 8.

Party: 24-28th December, 1949.
Jak Kelly (leader), Peter MacGregor, Clevon Slack, Helen Steel, Kath Sudakoff, Alan Tapsell.

Exploration: The limestone outcrop five miles N.W. of Comboyne was partially explored. The creek shown on the map was followed between 445927 and 447933. The limestone lies predominantly on the eastern side of this creek.

With the aid of Geoff Schubert and Cecil Hood, the largest cavern was found. This proved to be shallow and perhaps thirty yards long. It emerged once more on the same level further up the creek. (For details see Mines Dept. 1918 Jones.) Several shafts sunk into the calcereous earth to three feet revealed a solid rock bed. The cave is at 446930. The area is thick with several varieties of plants and some stinging trees.

About 200 feet higher up the slope and north of this first cave, we found the most interesting cave - it was about 60-70 feet deep and contained two small calcite formations. A bat cavern at its muddy bottom yielded a cockroach; Blattidae Ischnoptera australis (known since 1863) a spider, family Sparassidae of doubtfull genus and species, Eastern Horse shoe-Nose bat; Rhinophyllotis megaphyllus (Grey 1834) was captured and given to the Australian Museum.

Some attempts were made to dig out small sink holes, and time was spent searching among small outcrops at about 452933.

General Comments: Although there is little of scenic interest in the caves we investigated, the surrounding country is beautiful. We paid a visit to the nearby Rawson Falls and were favourably impressed- there are many other falls in this district and lookouts etc. which tourists would enjoy.

The country is different from most other areas of the State, and should amply repay encouragement as a tourist resort.

We are indebted to Mr. L.Jordan, M.H.R., who afforded us the opportunity of visiting the caves; to the Comboyne Progress Association and to the people of Comboyne for their generosity during our stay. Our thanks are due also the Mr. Musgrave and Mr. Troughton of the Australian Museum and Miss Helen Cane, CSIRO. Canberra for the identification of the specimens.

Report No 29. Narrangullen Caves.

Easter 1957.

The caves are 15 miles South-West of Nass, near the Burrinjuck Reservoir. They are four miles from the Nass-Tumut road, on the property of a Mrs. Reid; the homestead being about three miles South-West of Taemas Bridge. A car can approach to within one mile of the caves.

There are two caves about half a mile apart, on opposite sides of an anticline.

The southern cave consists of a series of large caverns containing some good though dead formations. The total length is of the order of 700 feet. A small stream traverses the cave.

The northern cave is about 300 feet long- it is almost a straight tunnel which varies in width from six to thirty feet and from five to forty in height. Several holes and tunnels in the roof and walls were explored but do not extend far. Several more require scaling-pole activities.

Apparently a connection between the two caves once existed. However all possible holes were investigated without success. One promising passage is near the end of the northern cave, on the western side, and is twenty feet above the floor.

A bat taken from Narrangullen was forwarded to the Australian Museum by Bob Chapman. It was identified as a bent-winged bat, Mineopteris blepotis. (See S.U.S.S. Journal 3. P.5.)

Fred Stewart.

.....

References:-

Geol. Survey N.S.W. Records. Vol.3, Part2.

Limestone Deposits . Map of Burrinjuck area.

Yarrangobilly:

June 1953. Report No.32. Fred Stewart.
Laury Bishop.
Bruce Cobbin.
Brian O'Brien.

The object of this trip was to familiarise ourselves with the area, especially with regard to the Eagles Nest Caves.

An apparently new passage was found in the Western Cave. It was blocked after a short distance by a boulder which will have to be removed to make further progress. Also a hole was discovered near the cliff directly above the Eastern E.N. Cave. This hole is about eighty feet above the cave entrance and we found that, after a vertical descent of sixty feet, it was blocked by mud and stones. It would probably communicate with the Eastern Eagles Nest Cave.

A curious temperature difference was noticed in regard to the two caves. The outside temperature was about 40°F by day, falling to 25° at night; the temperature of the water in the stream which flows into the Eastern Eagles Nest was 35°. In the cave itself : 51°F...although the reading in the Western Cave at some distance from the entracne was only 36°F.

August 1953. Report No.35. Fred Stewart.
Brian O'Brien.

The main passages of the E.E.N. were mapped to a horizontal distance of 1500 feet using Abney Level, Compass and tape-measure.

This brought us to the end of the large passages and chambers. The remainder, consisting mostly of small low passages, was left for another trip.

The relative positions of the entrances of the Eastern and the Western Eagle's Nest Caves were determined with a view to future linking of the two.

The maps of the E.E.N. were on display at the Exhibition.

December 1953. Report No.38. Fred Stewart.
Brian O'Brien.

On this trip we intended to complete mapping the E.E.N. to map W.E.N.; and to reconnoitre other caves in the area.

Two of the upstream entrances of the Copper Mine Cave (at the northern end of the Reserve, near the road) were investigated for a short distance. We did not go beyond a few hundred feet, as we did not have ladders or ropes with us at the time. As far as we went , one can follow the stream through rocky passages with small (3-10ft.) waterfalls and cascades.

In the Eastern Eagles Nest, the remaining passages were examined and some 600' of further mapping was carried out.

On the following day we entered the Deep Creek Caves. These two caves are about ¼ mile apart and are 1 mile NNE of the Eagles Nest Caves. Streams flow into both caves - the efflux being into the Yarrangobilly River a short distance upstream from the Natural Bridge.

The first parts of the caves consist of masses of broken rock; however the passages open up into large caverns containing many fine formations. Both caves are extensive. We explored in the Western Deep Creek Cave for about half an hour and intended to be in the Eastern Cave for a similar time, but here an untoward incident occurred which forced us to postpone the remainder of the trip.

(Further information on Yarrangobilly may be found in the second volume of the Society's Journal, and in "Limestone Deposits of N.S.W.". There is a useful map of the Yarrangobilly outcrop in the latter.)

August 14-18, 1954. Report No.43.

Brian O'Brien.
Fred Stewart.
Laurie Bishop.
Dick Crook.
Allan McLean.

Caves entered were: Eastern Eagles Nest, Eastern Deep Creek the "Large Cavern in Cliff-face" as shown on Trickett's Map, ¼ mile down the Yarangobilly River from the Copper Mine efflux, and a small cave at the foot of the bluff a further ¼ mile downstream.

Jim Butler, the newly appointed Ranger at Yarangobilly was taken through the E.E.N.. Both here and in the Deep Creek, the water was two feet above levels previously observed, and this necessitated wading through water, in places thigh deep, for some 200 ft.. The left branch of the latter cave was followed to the end where the temperature was found to be 40°F. We had planned to map this section but broken rock and multiple passages rendered mapping impractical.

The "Large Cavern" which contains some white formations was followed for about 200 ft. and continues on. String trails gave evidence of earlier visitors. The small cave mentioned above, is 100 ft. long and ends in broken rock.

Principal interest lay in the ice formations - stalactites, shawls and stalagmites. These were found in the three caves other than the Eagles Nest. The first two formations were up to thirty inches long with shawls a few inches wide and appear to be the first ice formations reparted by S.U.S.S.. All were within 50 ft. of the entrances and so were due to the purely local seasonal temperature drop.

The Yarrangobilly Incident.

Our reports in this journal have indicated the general plans of Fred Stewart and myself with regard to caving in the Yarrangobilly area, and this article is to give some information about an incident which arose out of our efforts in that locality. I refer to my being lost for some 74 hours in the eastern Deep Creek cave on the Yarrangobilly plateau.

Our December report indicates that we entered the cave intending to make only a cursory examination of its initial stages viz. about 400 feet. With this in mind, we had about 4-5 hours light each, but no individual auxiliary lighting. On the way out I missed the passage leading to the entrance, and, after progressing fairly rapidly in what I thought was the correct direction, tried to retrace my steps and became lost.

From this stage I proceeded to make some sort of systematic attempt to find the way out, but had first to make the choice between dull light over a long period, or a short lived bright flame from my carbide lamp. I chose the former and the consequent dim light was no great help to thorough investigation.

To sum up: I was in for 74 hours with no food and no light after abour 10 hours. The general Yarrangobilly cave temperature is below 50°F, and the effect of this cold was rather extreme, causing continual shivering. Moreover, I had no sure knowledge that Fred had got out, and so had to try to find a way out in the darkness.

Even so, I was able to leave the cave with the rescue party somewhat slowly, but without undue help. From this it seems likely that in any similar circumstances which may occur in the future, the lost person will still be moderately fit after four or five days, assuming a satisfactory mental state.

As to my becoming lost, this due to a certain amount of carelessness. What I might call my staying lost due to further factors, viz.

1. Insufficient light: In such a large cave and when one is alone, a safety factor of 6 to 8, which we each had, is apparently too small.
2. Nature and Size of the cave: These were important, both as regards my finding my way out and the search parties finding me.
3. Uncertainty of the searchers as to whether I was still in the cave. This due to the fact that they thought I may have gone out during the first ten minutes when fred had gone back to see what was delaying me.

(After this, in his various searches, he left notes at entrance).

The first and third factors may be modified by the individual speleos in future, but the second, obviously, will depend to a great extent on the locale.

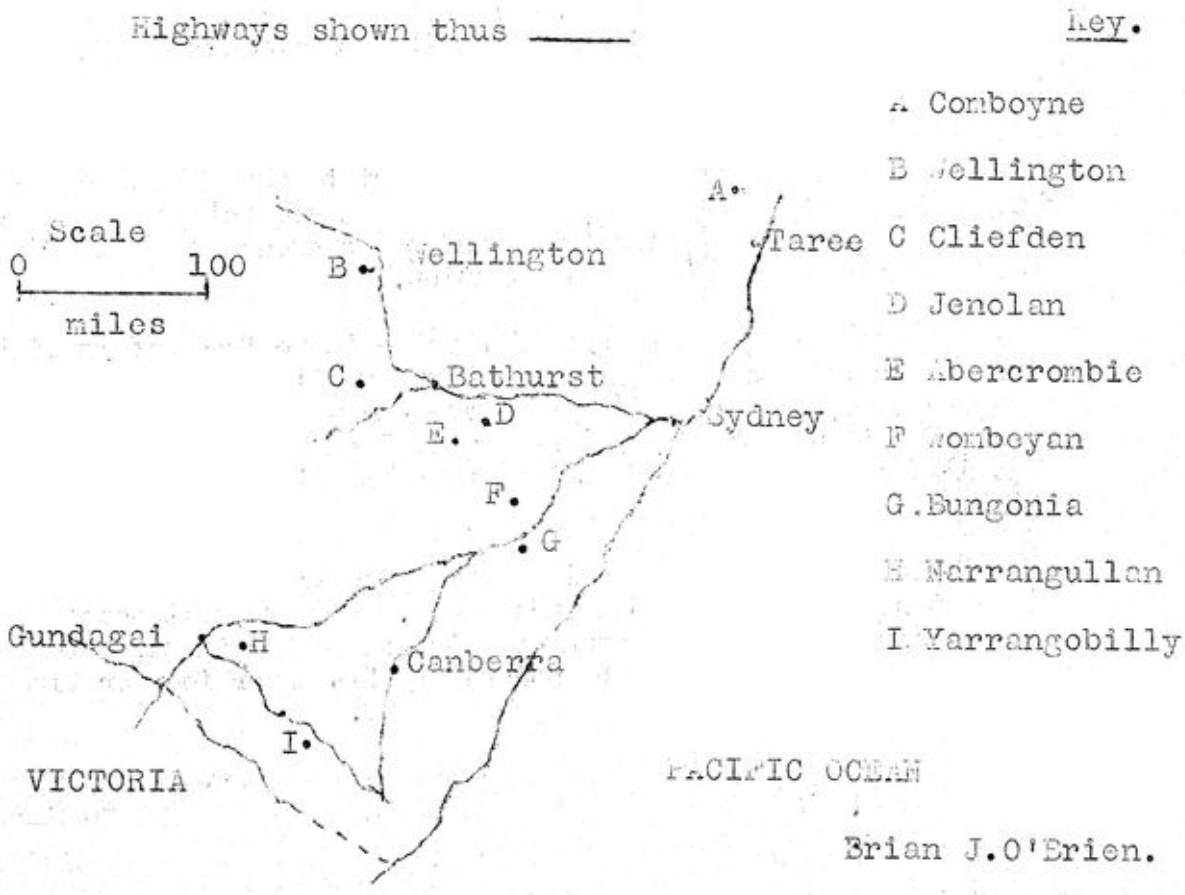
Finally, as to the cave itself, or rather the extension in which I was lost. I went in about 1000 feet. The cave follows the general pattern of the Yarrangobilly caves, having rather sizeable cross-sections and a deal of brokenrock. Within this distance was a group of rather fine formations, mostly clear or pure white, and, from what I have since been told by some of the Cooma Cave Crawlers, the cave continued for at least a further 1000 feet, and contains more fine formations.

This, then, is a resume of the Yarrangobilly incident. I wish to express once more my thanks to Peter MacGregor, Mr.Finney and the Canberra Alpine Club members who found me, to Ray Ferris and his mates from Cooma, and to all SUSS members who were on their way to Yarrangobilly. Also to Fred Stewart for getting out of the Cave, and, equally important, going back in.

TAMAN SHUD. Brian J. O'Brien.

Sketch of

SOME N.S.W. CAVE LOCATIONS.



Brian J.O'Brien.

Report 54. The two Lakes in the Mammoth Cave:

25-26th July, 1953. Report: Ron Wardrop and Les Tattersall.

Party: Ron Wardrop (leader), Les Tattersall, Barry Mason, George Peel and Owen Llewelyn.

25th: Party entered the Mammoth and proceeded to the Lower Level via the Squeeze. From here on, Barry Mason, our mapping expert was continually adding to his map - starting with the mud tunnels. One of these ended in an apparently impassible landslide with several drops in the floor to still water. The party continued on to the Oolite Cavern where some time was spent.

We decided on a meal before crossing the river and, after negotiating a snack, we swam across to the mudslide. Our clothes and lamps were passed through by sling and rope traverse.

At the top of the mudslide, we entered the squeezehole on the right into the Boulder Cavern. The exit from this cavern is through a small tunnel among the boulders (which fill the cavern) and then down a drop of 15 feet. A passage in solid rock with dry flowstone is entered.

Continuing, we dropped 12 feet into a small chamber. To the left is a large crevice, 18" wide, dropping to still water. The main passage varies from 5-15 feet in height and is followed for about 80 feet over flowstone. There are several good formations in walls and roof.

At the end of this passage there is a landslide up which Owen climbed for a considerable distance, until further progress became dangerous, for fear of dislodging the Keystone and bringing the fall down again. At this point, he estimated that the roof was still some 50 feet above him.

A way was found through the bottom of this landslide, and, after the initial squeeze, we dropped onto a mud floor. We were now in a large tunnel which was obviously an old watercourse. The tunnel runs in a S.E. direction. Dimensions are 12 x 12'; and the walls are covered with formations which are mudstained. There are excellent prospects in the whole of this section for Scaling Pole work.

After continuing for a hundred feet, this tunnel sloped gently into a large lake. Here we halted, and endeavoured to see the other side with our lamplight, but the tunnel curved to the right.

Les ventured into the water, at the bottom of which is thick mud. He proceeded for some distance to the corner, but even so, could not see across the pool. The tunnel continued on with its roof still 12' above river level.

(On a later trip we descended to this lake, this time equipped with a rubber dinghy. The water level had dropped two feet in the interval: it was not possible to climb around the edge of the lake. At the far end there was a siphon; but there was also a passage leading upwards at an angle of 70°. We climbed this, and found that it ended about thirty-five feet above the water level).

26th: Beyond the Horseshoe Cavern, we entered a small chamber with several holes in the floor. We were unable to see the bottom of these with our lamps; as our ropes were back at camp, we did not attempt these holes. Instead, we decided to try a crack in the wall on the right of the passage by which we had entered. It descended at 35° and then dropped five feet into another small chamber with two passages leading off.

We followed the Right passage for 40 feet over two drops each of eight feet. Then we dropped through a hole which dipped below the floor level on the R.H.S. of the passage. After negotiating a two foot squeeze, we were in a sizeable passage which, after 50 feet, entered a chamber strewn with boulders. A thirty foot mudslide brought us to a boulder in a deep pool which we crossed. We then continued up a mudslide passing several holes in the floor which dropped to still water. After thirty feet, the passage branched.

We chose the Right branch. It was three feet high and rose at 20° for ten feet and then opened out for 20 feet. It ended in a small chamber.

Swinging through a hole in the roof, we found ourselves in a large chamber which had two levels - apparently caused by boulders jammed part way down. Climbing downwards through these boulders, we progressed along a narrow passage for 100 feet, passing through two pools of water on the way. The passage narrowed down to two feet in height, and rose at 45° up a loose scree slope; it became level and then followed a difficult S bend squeeze.

The Squeeze brought us into a medium sized cavern with many beautiful, though small formations. About 30 feet along the right wall of this cavern, we entered a narrow passage, which descended in stages over boulders and mud to terminate in a large lake similar to the one discovered on the previous day. Again we could not see across the lake which seemed to be fairly deep.

We did not attempt to swim across the lake. Back in the formation chamber, we noticed a small passage to the left of the squeeze hole by which we had entered. This was about six feet above the floor. There was a calcite flow down one wall and onto the floor of the passage. However, time was short and we had to return to camp.

.....

Follow Up. (Les Tattersall),

We returned to the Horseshoe Cavern and went to the pot holes past the Skull and Crossbones. We fixed our rope onto a point of rock and dropped the free end down the largest hole. I started down, hand over hand while Dave Roots waited on top. However, before I had descended fifteen feet, I came to a large overhang and, not knowing how far it was to the bottom, I decided it was safer to try another hole first.

Just as I started back up the rope there was an indignant yell from above, and Dave's troglamp hurtled past me as it plunged into the depths below. It clanged over rocks and slid to the very bottom of a

deep cavern.

I was soon back with Dave, and it was a matter of seconds to move the rope to the next hole. We soon descended into the cavern where Dave found his lamp minus the reflector, but we recovered the latter as we slid down a steep tunnel. Continuing down, we passed a passage to the right and several holes in the floor, dropping to water.

Finally we came to a pool right across the passage. Dave climbed around this, but when I tried to follow, a hand-hold broke away letting me down with a splash. I waded across the pool (already wet, there was no point in trying to keep dry) and up the mudslide on the far side. We were disappointed to find that steps had been kicked into the mud.

I was halfway up these "stairs" when it became apparent that I had been here before - indeed, it was I who had made the stairway. We were, in fact, walking along the passage we normally use to approach the lake on this side.

We retraced our steps to the rope and collected the dinghy and set off for the lake. On arrival, we inflated the noble vessel and launched it. Actually, it was quite a job getting into it as we had to lower ourselves through the small opening into the dinghy, and not press the sides of it too heavily, otherwise it shipped too much water.

Dave went first and found that the lake extended for twenty feet before it passed under a siphon. We had finished our exploration here.

Next: the passage we had found on the previous trip. After fifteen feet, I came to a vertical hole leading downwards. With my back against one wall and feet on the other, I worked my way downwards. The last six feet was a straight drop and I found myself back in the tunnel by which we had entered.

This was, of course, quite handy: for one thing, I didn't have to struggle back up the descent I had just made; also, I found another route along a narrow ledge into the upperpart of this tunnel a far easier route than through the narrow squeeze.

Report No.36. Discovery of a New Cave at Jenolan.

In the early part of 1952, while in the Glass Cave, I noticed a hole some twelve or so feet up a vertical wall of the main cavern. Fred Stewart was with me at the time, and he agreed that the hole was inaccessible.

I thought no more about it until later in the year when I was reading Chevalier's book: "Subterranian Climbers." In his exploration of a huge system in the Pyrenees he made frequent use of a scaling pole. This consisted of a single pole made up in short sections for easy transport. The sections were coupled together inside the cave whenever it was necessary to climb a vertical rock-face or to bridge a gap. Once again I thought of the hole in the Glass.

In Sept. 1953, while others of the party were occupied elsewhere I returned to the Glass with a parabolic reflector fitted to my troglamp. I could see that the hole extended upwards for about twenty feet at a steep angle, and then became quite spacious. There were no signs to indicate previous climbers, and, moreover, it would be quite impossible to climb without a mechanical aid.

The following week, I began construction of the pole from 2" steel tubing. Within a fortnight I returned to Jenolan with Colin Blundell and Terry Dillon, and we set off for the Glass, each of us carrying a length of tubing over his shoulder.

Although the hole is only a short distance from the entrance to the cave, it took more than an hour to get the sections to the erecting site. Assembly went quite smoothly - the sixteen feet of pole was adequate. I climbed the rungs very nervously.

Once off the pole, I climbed the rest with ease and was thrilled to find, on reaching the top, a passage beckoning me on into the darkness. It continued. The others joined me and we set off. We examined the floor for twenty feet, but there were no signs of earlier visitors.

We were stopped after about 150 feet in by lack of equipment for a 20 ft. drop. Although elated by our find, we had to return. We decided to leave the pole in the Glass, and to return to our cave as soon as possible with adequate equipment.

A fortnight later I was back, this time with Ben Nurse and Denis Burke. We made the 20 foot drop to find three passages, all of which soon petered out. There were, however, some beautiful formations, including a pool of large crystals. Here,too, we found deposits of guano which were covered in most instances by a thin crust of calcite. We saw no bats.

Thinking this was the end, we paid particular attention to the passage on the way back to make sure that we had missed nothing.

Suddenly, after thrusting a troglamp through a low squeeze, I was astounded to see a large expanse of crystalline floor extending away into the gloom.

With chips of limestone as our only tools, we feverishly attacked the edge of the fissure, and soon had it enlarged sufficiently for Ben to squeeze through. He, in turn, enlarged the aperture from within and we were able to follow. Then it was that we really saw before us the "New Cave." The first things we noticed were its beauty, freshness and variety of formations, in contrast to the relatively dry cavern we had just quitted.

The cave is in three levels: the upper, intermediate and the "river-bed" levels. The upper one we quickly explored: near the entrance squeeze there were two likely passages. Further along where we could stand up, a passage with a magnificent red floor swept off to the left, spiralling downwards. The upper level continued as a straight passage for perhaps fifty feet more, ending in a round hole which dropped abruptly. To descend here would have meant the destruction of some fine slender columns and so we sought an alternative.

The spiral, too, ended abruptly but blindly: but a passage swung off from it to form the intermediate level. This led into a low cavern with a magnificently patterned floor. Across this, a cleft sloped gently upwards between fossil encrusted walls to a pool lined with clear crystals. We investigated several possibilities here, and then climbed over a massive stalagmite into a winding passage which led us back to the upper level.

We returned to the cavern of the intermediate level and then saw a side passage drop over three terraces into the gloom. The first terrace we slid down; the next required a ladder climb down an orange canopy encrusted with helictites. Finally a rope descent over red flowstone brought us to the River Bed and the Well. We stood for some moments on the brink of the Well, dazed by the sheer beauty of it all. Then we crossed cautiously to the grottoes beyond.

Returning, we walked up along the River Bed for perhaps 120 ft. and climbed the Golden Cascade to the Dreamdust and the Mothball caverns. The latter is seen through a small "window" from above. It is an egg-shaped cavern, perhaps twelve feet long, and the entirely black walls, floor and ceiling are uniformly dotted with white spheres of "dry" calcite. Here the exploration ended, but as we climbed down the Cascade, we saw the hole which dropped down from the upper level.

Later in the same evening we returned to the cave, mapping as we went. The vertical drop near the entrance squeeze was the last section to be negotiated. Despite many subsequent trips to the cave, no further passages have been found.

John Bonwick.

(A map will be found at the end of this journal.)

Report No. 37. Wombeyan Caves Nov.1953.

This trip was intended to assess the possibilities for further exploration of this outcrop. The party of sixteen reached Wombeyan at 2.30 a.m.

In conversation with Mr.Stiff later in the morning, we learned that our permit had not arrived, and until such time as it did, he was denying us access to any cave in the area. On Saturday afternoon, after the permit had arrived, we entered the River Cave via the Grand Arch; we also investigated the doubtful possibilities of the Fig Tree Cave.

The party then set off to follow Mr.Stiff's directions to the Bullio (or Condemned) Cave - "the most extensive we have." Directions proved erroneous and we did not locate this cave. Almost the entire evening was spent in and out of likely holes, several large sinks being investigated, and these would bear further excavation.

On Sunday, by scouring the area near the gorge, we eventually located the Bullio. We used a safety rope on the rotted ladders at the entrance. Later, on our return, the timbers gave way and a section of the ladder collapsed. (There is a descent of about twenty five feet down a series of short lengths of ladder attached to the walls, and then a vertical descent of 80 feet on a solid steel-runged ladder). We found ourselves in a small grotto. The formations, once particularly fine, are now dead and broken.

150 feet further along, we followed a small passage above floor level on the left, through a small squeeze into a tiny but very beautiful crystal grotto. The size of the crystals was particularly striking. Several photographs were taken by lying on one's back and photographing the large globules on the roof. Although absent here, we found a great many helictites which, in their prime, would have been very fine.

Continuing on a further fifty feet and dropping 15 ft. down a calcite flow, we found ourselves on a small island in running water. Time was short and did not allow elaborate investigation. It was possible to wade upstream...the passage continued with the water getting deeper. Downstream a deep pool was swum by Myra and Owen to a short drop over a waterfall. Beyond this point the pools are larger and deeper.

SUMMARY. Although very little was done in the area, it shows great promise for further investigation; the outcrop is extensive and much work could be done in the vicinity of the gorge.

Sydney Rockclimbing Club. Ron Wardrop.

Reports 39 & 40. Cliefden Caves:

Location:

The caves are in grazing country on the Western Slopes about 12 miles from Mandurama towards Canowindra. There are several limestone outcrops in the district and two other cave systems are known further down the Belubela River.

Parties:

30th Jan.-3rd Feb.: Jenifer Hiscox, Ted Anet, Otto Gram, Heather McLaren and Don Adamson.

6th-7th March: Jenifer Hiscox, Ted Anet, Otto Gram, Heather McLaren, Bill Shenstone, John Noller, Hugh Bignold, Don Willis, Vivienne Willis.

The Cliefden outcrop is interesting geologically: near the caves is a bare hill on which strata may be seen running over the ridge of it and down the other side. This ridge abounds in marine fossils of various types as does the whole cave area. A barytes mine nearby also has azurite and malachite. The Belubela goldfields are pegged out (and presumably worked out) up and down the river.

Caves Explored:

We saw two Caves: the Cliefden Cave, a very extensive system on the southern side of the river, and a much smaller cave on the northern side. There is another small cave further reported upstream near the transmission lines.

Many holes were noticed on the hillside to the southwest of the Cliefden cave, facing the fossil ridge. These were wired up and only a few penetrated any distance, ending in mudsqueezes too shallow to be followed. If as we suspect, this silt is from within, it may indicate the presence of extensive passages.

Both caves have been known for a long time - 1906 appears in the Cliefden Cave. The caves are well known locally. Consequently, wherever we went there was plenty of evidence of others having preceded us: in easily accessible caverns formations are smashed, muddied deliverately or scribbled on. Locals claim there are eight miles of passages and one man is said to have found a way to the Belubela river. (Our map covers most of the known passages and accounts for about 800 feet only).

There are three levels in the Cliefden Cave. The first is a large cavern with several tall columns useful as landmarks. The roof here is characteristic of all we saw: smooth horizontal bedding looking ready to fall. The floor is strewn with the massive rocks from old falls. Behind one huge rock on the far side of the cavern is a large white calcite flow.

Cavern TWO represents the next level; it is much smaller and the roof is heavily encrusted with helictites. It leads to THREE

which appears to be the base level and is very muddy indeed. This third level is a veritable maze of waterworn passages of various heights. It is also the water level - there are several pools and part of a stream which flows towards TWO parallel to the passages TWO-FOUR. Those passages to the left of THREE go nowhere and have no formations. The third level maze links TWO and FOUR and extends beyond FOUR. The mud is very sticky and wet - in one place we sank halfway up our shins.

In the TWO-FOUR passage the roof was covered with a mass of helictites - clear moist ones which twist in all directions, even into corkscrews. These helictites are typical of nearly all we saw, graceful and fine with no rough surfaces nor crystal faces. A few fine formations occur at the middle and towards the end of this passage where there is a stage setting with side curtains, top curtains and even more flows set back as if on stage.

FOUR is very large - it is nearly twice the size of ONE. The floor is littered with colossal lumps of rock which have fallen from the roof. We have not yet explored it in its entirety. To the left there is a large grotto filled with muddy formations which are quite good. To the left again a steep mudslide leads up to at least one passage which contains a rockfall.

Directly across FOUR, two smaller magnificent caverns, FIVE and SIX were found. FIVE has a fine canopy of white calcite hanging into the entrance. This cavern has a dome in the roof with a shelf from which hangs a pinkish canopy about 30' wide and 2-3' long. In the corner nearest FOUR is a closely packed group of white columns each being 3" in diameter and 2' high. Behind this again are more canopies and flows of excellent quality and profusion.

SIX has fewer flows and canopies but the roof here is a mass of helictites similar to those met earlier. In a higher part of the roof is a remarkable collection of horizontal helictites about half an inch in diameter and up to a foot long: these differ in form, being of a red colour and having a rough crystalline surface. We found several large pieces of calcite formed of collections of single crystals.

A large passage leads from SIX away from the direction of FOUR. On the second trip this passage was found to lead into a large cavern, SEVEN with the highest roof seen in this Cave. Once again the floor is littered with fallen rocks. A passage from beyond SEVEN peters out in some small grottoes with holes in the floor where the water apparently escapes. Side passages along here all end at water-level with large or small pools which are still. There is no link with the third level maze.

Passages also lead from FIVE. Another rockfall in SIX is in fact quite close to that over the mudslide in FOUR. It may be the distal side of the same fall. Nearby there is a hole through which you can see a cavern which does not resemble the area near the other Rockfall. Both these falls are recent and are unsafe to climb over. One may have been touched off by shocks from the other.

On the second trip the hole was entered by chipping away part of a shawl and a few stalactites. We found a small grotto with plenty of formations.

The Cliefden Cave was mapped by compass with visual estimates of a distance from beyond SEVEN back to the entrance. There is still a large amount of exploration to be carried out both in this cave and in the one across the river. (The locals have gone through both thoroughly and we would be lucky to find anything new.) More of the passages can be found by keeping hard left as you enter ONE and also by going diagonally across ONE. There is apparently only one entrance to the cave.

The general impression is that of a very extensive cave with plenty of formations including a profusion of fine helictites. A certain amount of damage has been done by vandals and souvenir hunters in easily accessible sections. The Limestone Cave Exhibit in the Natural History Museum was also built up from Cliefden formations.

The atmosphere of the cave is warm and very humid; exercise is unpleasant. There is said to be a thermal pool somewhere up the river. Bats were seen almost as far as we went. We did not notice any fossils.

The cave across the river is compact and dry. Entrance is gained at the foot of a cliff to a passage which goes directly into the bluff for about a hundred feet, descending at 45°. Then it opens out into a cavern with a left and a right branch. The roof is covered with small red and white stalactites.

At the very bottom is an intensely blue pool; twenty feet above it there is a definite watermark. The surface of this pool is covered with flakes of calcite which have caused an unusual encrustation on the surrounding walls and overhanging stalactites. The flakes have been left as the water recedes and at subsequent floodings crystallisation has occurred around these flakes and caused rounded lumps. The stalactites have become clubshaped. Different stages of this procedure were seen.

Another type of encrustation was found in stalactites in a grotto from the left passage. Here needle like crystals, about an inch long, have formed on staws, presumably during flooding. Here, too, horizontal helictites were seen, being all on the one level which corresponded to the watermark on the walls.

The passage to the right has several formations and some squeezes yet to be forced. On the second trip one of these was attached, by breaking a few stalagmites. A passage was followed for about twenty yards. It was very narrow and had a limited supply of air so it was not continued with. A draught was found in the main passage: it is probably not a convection current as the cave appears to be limited in size by shale above the entrance which slopes down to river level.

Jenifer Higgs

Report No.41 Wellington Caves:

Location: Wellington is 228 miles from Sydney - 62 miles beyond Orange on the Mitchell Highway. The Cave's turnoff is seven miles this side of Wellington: a quarter mile of gravel road leads to the camping ground beside the Bell River. These caves are visited by about 10,000 people annually.

Party: Easter 1954. (This was the first S.U.S.S. trip to Wellington.) Doug. Havenstein (leader), Barbara Benjamin, Holly Borgia, Eva Burgheim, Bob Cater, Barbara Dew, Ray Evans, Alan Ford, Noela Fuller, Margaret Llewelyn, Darryl Morgan, Harry Pemble, Edric Slater, Allan Vause.

Doug. was fairly familiar with the area and obtained the use of a large hut for the base. The guide at Wellington, Mr. Sid Barratt, is middle aged and has a house and kiosk there. He followed with keen interest the work of the Society during this trip and the party appreciated very much his co-operation.

Limestone Outcrop: The country is fairly flat and the outcrop is not large - say a mile by a half, pearshaped. There is a dip of 70°. Across the Bell, there is a long narrow outcrop and a few miles away over the Catombal Range are two somewhat larger outcrops (six miles by a half; and three by one-and-a-half.) Officially, no caves are known here, but local residents speak guardedly of "many caverns."

Ten miles to the north-west there is the very extensive Guerie limestone belt; other caves are found at Molong, 40 miles south of Wellington on the Mitchell Highway while the Belubela and Cliefden Caves are 20 miles south of Molong "as the crow flies."

The Caves are found in the limestone ridge, half a mile east of the Bell River. The age of this limestone is not definitely known, but, as very few fossils are present, it would appear to differ considerably from the Devonian Limestone and have more affinities with the Silurian; however, as there is some evidence of faulting on the other side of the Bell, it is probably in part both Silurian and Devonian.

Caves: The five Caves, the Gaspipe, Mitchell, Cathedral, Bone, and Gaden are found in that order along a pathway less than 200 yards in length. With the exception of the Cathedral, the caves are sinks.

Cathedral Cave: is about 400 ft. long and 50 ft. high. It contains several formations, of which the principal one is a terraced stalagmite rising from the floor to within several inches of the roof. Because of the small annual rainfall with resulting small amount of seepage, most of the formations are dead. The limestone of the roof of the cavern is very much contorted and folded, while the floor is

covered with a hard Red Brecia with a calcerous element, probably deposited by river action. At the bottom of the Cathedral Cave is a deep cavity containing still water.

The Gaspipe: is a narrow sink which descends for fifty feet and then passes horizontally for another fifty. There is a small hole on the right hand side of the ladder. The very nature of this cave precludes entry by stout persons.

Mitchell Cave: is in reality a pair of sinkholes which unite at the underground river. One entrance is shored off. The main passage slopes down to the river and rises beyond it. This cave is about 250 feet long.

Gaden Cave: a total length of 350 feet is made up by a passage which forks. One branch leads off to the Gasbowl which contains a pocket of exceptionally foul air. The Gaden has some fine formations and is the most interesting of the group.

Bone Cave: In its present state, this is a man-made cavern of about the same dimensions as an average room. The walls of the cavern contain fossil remains of animals of the Pleistocene Age, approximately 750,000 years old - probably the best and most famous deposit of Marsupial fossils. Among those identified on this trip were teeth of the Diprotodon, teeth and part of a jaw of the giant kangaroo Macropus Sp., and also teeth of the cave lion, Thylacoleo carnifex. An interesting reference to this fossil deposit may be seen in Samuel Cook's "Jenolan Caves", published in 1888. There are thirty drawers of fossils from the Bone Cave in the Geol. Department Museum.

Phosphate Mine: This proved very interesting as the party found several very large patches of calcite crystals, some excellent photographs being taken. There are some natural caverns which are quite high, and it was in these that bats collected in the greatest numbers. This mine contains a great number of passages both natural and artificial, with quite a few openings to the surface.

Underground River: at most a sluggish stream which is met in a few sites. It is thought to connect with the Bell on the surface, but there is no obvious resurgence. The river is saturated with limestone and is isolated in several small caverns.

Exploration: It appears that considerable information may be gained from some of the local inhabitants. One spoke of a cave beneath the Cathedral which may be entered from either the Cathedral or Mitchell Caves.

In the Mitchell, it was found that the proposed entrance was

submerged so Ray Evans and Jan Sculfer investigated the prospects of forcing a siphon on the Underground River. Working underwater, Ray was able to pass his hand through an aperture to break the surface in a cavern beyond the siphon.

Meanwhile in the Cathedral, Margaret Llewelyn and Doug Havenstein attempted to enter the cave beneath the Stalagmite. The fissure certainly opens out into a cavern, but some hammer and chisel work is called for. Fortunately, the floor is only **broccia**.

Although the party did not actually enter the cave in question, it was generally assumed that the information was reliable - in which case the Cave was probably entered from the Mitchell when the level of the river was very low, and contact with the Cathedral was established audibly.

Foul Air: In the Gasbowl, a fifteen foot deep shaft in the Gaden Cave, there appears to be a true pocket of foul air, as distinct from the general occurrence of foul air at Bungonia. A high concentration is found at the bottom of this shaft where it was observed that a troglamp went out abruptly on being lowered only a few inches. The gas, which is seasonal in quantity, is thought to issue from a small fissure. According to the Guide, it contains traces of sulphur dioxide and ammonia.

Biology: A large green frog was discovered and captured in the water area. This frog was greyish when first handled, but, later, this "bloom" wore off, and by the time it reached the surface, it was the typical green of all tree frogs. In the Gaspipe Cave, we found a complete skeleton of a possum, but it was of recent origin; a living possum was also caught in this cave.

There were at least two species of bats within the caves - a very small species and a larger one. Unfortunately, it was not possible to capture any specimins. Bats were seen in the following caves: Cathedral, Mitchell and, especially, the old phosphate mine which is in the same area as the Bone Cave.

Photography: With the exception of the Stalagmite, crystals in the Phosphate mine and fossils-in-situ in the Bone Cave, the colour photographer finds little of interest at Wellington. Shots of the Stalagmite are spoilt by the wire netting and lighting.... in many instances, bisected kerosene tins are used as reflectors.

General Comments: Whether or not the area holds any promise of new discoveries is debatable. Here, as elsewhere, local rumours may be very valuable; it was from one of these rumours that we learned of the existance of caverns linking the Cathedral and the Mitchell Caves. An intensive study of the known caves with an eye to excavation, chisolling and siphon cracking may lead to more discoveries, but there is little prospect for scaling work. Spectacular finds are out of the question, as the top of the ridge is only 100' above river level, and all caves but the Cathedral are sinks.

Review:

'British Caving (an Introduction to Speleology)' by members of C.R.G. Routledge & Kegan Paul Ltd. 1953. 55/- (468 pages).

This book ranks as the best one on speleology known to me, excelling the dramatics of Casteret, Tazieff and others. It yields a well-nigh complete survey of the many facets of the science and practice of caving, including cave formation, cave-dwelling bats and fauna, archaeology, cave exploration and diving, with extensive bibliographies, and a profusion of diagrams and photographs. Each section is written by a specialist, and in general is treated with scientific objectivity. it is unfortunate that the final result is a dry taste in one's mouth, caused by an excess of objectivity and science when read as a whole and not merely used as a reliable reference book.

No attention is paid to the sheer beauty and grandeur of underground scenes and the soul stirring thrills and humour one may find in caving (the section on diving being the only one with a personal tinge) and one feels that this book is not likely to result in an influx of prospective devotees. On the other hand, one has a dislike for the popularity seekers of Casteret's calibre, but surely there is a middle way.

The photographs generally are disappointing, and some are below the highest S.U.S.S. standards. Indeed, those including embarrassed cavers in awkward positions beside interesting formations could have been omitted without loss, and this might have resulted in the unclusion of all relevant photos within their appropriate chapters. Again, although ladders and ladder techniques are treated, no mention is made of rope-work - i nstep-locking and rappelling - which can prove invaluable for drops up to 20 or 30 feet. Also, added fuel may be supplied to the old S.U.S.S. controversy by a categorical statement that rung spacing should never exceed 12 inches.

On the whole, I was gratified that the C.R.G. had combined to produce this book, but I feel that, with a poet amongst the subscribers, the final result would have been more pleasing.

Brian J. O'Brien.

Report on S.U.S.S. Library.

Due to the efforts of Peter MacGregor, and the kindness of Professor Holmes, the Sydney University Speleological Society has obtained a room in the Geography Dept. for use as a library.

It is intended that this contain all relevant information about the Society, overseas societies, about Australian caves in particular and speleological information in general. This article will give some idea of the present stocklist, and also an indication of the utility of the library.

Summary of Stocklist of the S.U.S.S. Library.

Publications are listed under their country of origin.

Australia:

Journals of the Sydney University Speleological Society.
Tasmanian Caverneering Club Handbook. July,1963.
"Limestone Deposits of N.S.W." - C.Trickett.
Various magazines,periodicals and newspapers referring to S.U.S.S. and caving.

Extracts from the Annual Reports of the Mines Dept. of N.S.W. giving references to descriptions of most N.S.W. cave systems.

Maps: Photocopies of Trickett's surveys, including those of Jenolan, Abercrombie, Bendithra, Tuglow, Wellington, Bombeyan and Yarrangobilly.
Also, copies of sketches of Cliefden, a 1943 survey of the Central Level of the Mammoth Cave, details of the tunnels being cut to the tourist caves of Jenolan, and other maps by our members.

Photographs: Some seventy black and white prints of "action" shots and formations, taken by Peter MacGregor, Henry Fairlie-Cuninghame, Edric Slater, Jack Cummings and A.N.F.

Austria:

Report of Federal Cave Commission,Vienna, April 1949.

Great Britain:

Journals:
(1) Transactions of the Cave Research Group - 6 issues.
(2) Newsletter of the C.R.G. - all issues since Sept.1950 and some earlier ones.
(3) "Cave Science" - British Speleological Society, Numbers 9 and 10.
(4) "The British Caver" - G.Platten. Vols. 22 and 23.
(5) Westminster Speleological Group Bulletin.Nos.17-23.

Great Britain:

Books: The C.R.G. Publications, which include booklets on Cave Surveying, the Ogof Ffynnon Ddu system, and Cave Fauna.

"British Caving" by C.R.G. members.

4 New Zealand:

Four issues of the New Zealand Speleological Society Bulletin.

5 United States:

Journals: (National Speleological Society)
(1) Bulletins Nos. 5 (Oct.1948) to 14 (Sept.1952)
(2) N.S.S. "News" - most issues from Aug. 1949 to date.
"The Origin of Helictites" by G. .Moore.
Pamphlets and relevant magazines.

.....

The above list is incomplete, as a number of journals, publications and maps are already on loan to members. It can be completed only with their cooperation in either returning the articles or letting me know their whereabouts.

However, a mere list gives comparatively little information, and, for that reason, I have abstracted the following from a few of the Cave Research Group's Publications. This is not to be regarded as complete in any sense, but rather is indicative of the range covered by these publications.

C.Lewis Railton: "The Ogof Ffynnon Ddu System." Pub.No.6.

This booklet is one that could serve well as a model for S.U.S.S. It deals with the discovery and the exploration of the system over a period of 26 years, with its survey and a theory of its development. In short, the sort of report that might be carried out in the Mammoth Cave at Jenolan, or with various other caves accessible to S.U.S.S.

Besides being the resume of some well-planned caving, the publication is almost a complete guide to cave survey work in general, and deals with equipment (mostly homemade) as well as a variety of useful notations and techniques. To date, S.U.S.S. has neglected the theories of cave development, and here again, the article may prove useful.

.....

Transactions of C.R.G. Vol.2, No.2. Dec.1952.

C.L.Railton: In this issue there is a further virtually complete guide to speleologists, this time dealing with the manufacture and use of all-metal ladders, with comparative tables and diagrams.

.H.Little: This article gives schematic analytic data on air streams in Ogof Ffynnon Ddu, and information deduced from these.

E.A.Glennie: Comparison is made of the two contrasting systems shown in longitudinal sections of caves, viz.
(i) Parallel systems at different levels which are bedding controlled;
(ii) Development in planes at right angles to (i), controlled by joints perpendicular to the bedding.
Particular attention is paid to (ii) with illustrative examples.

G.T.Warwick: A review of theories and observations on "Gours" or rimstone pools, dealing with their formation and development. (Reading of this by S.U.S.S. members will help in their subsequent observations of Henry Fairlie-Cuninghame's photo taken in Croesus Cave, Tasmania!)

.....

The theories of cavern formation, principally those of Davis, Bretz and Swinnerton, are dealt with in various Newsletters and publications of the Cave Research Group. To those of S.U.S.S. who can see little use in these, I put forward the following considerations:-

Something dreamed of by most of us, is a trip entering the Mammoth Cave and following down along the Underground River to emerge in the Jubilee or perhaps the Imperial Cave, nearly a mile away.

We have established already the continuity of the river, so the scheme is feasible. However, the distance over which the course of the river is unknown is about ½ mile. A somewhat similar problem confronts the C.R.G. in at least three large caves.

To take one example: in Dan-yr-ogof a section of some 600 feet of river can be explored from the entrance, when it is lost, temporarily refound at the 4th Lake (shades of the Mammoth and Lake No.2) and lost again immediately at 2000 feet from the entrance. A colouration test has shown a connection with a large sink two miles away, but the intervening mile and a half contain unknown territory.

Thus we are not alone in our problem. Since the Cave Research Group has published a great deal of work on similar problems, we may yet be able to use this at Jenolan, and, from theoretical considerations, discover the missing link that would gladden the hearts of our speleos and the Tourist Department!

Finally, I quote a further passage from a Newsletter, to show the relevance of the work of the C.R.G. "In the old-established caving areas, we must remember that work has been going on for more than fifty years, and the chances of finding new cave systems as a result of digging activity are becoming increasingly slender. There is therefore, an urgent need for a fuller appreciation of the part which speleological science may be expected to play in this sphere as it develops. Such a development requires the closest cooperation between the sporting caver and the specialist." (Newsletter 42.)

We now have a Library in which relevant information and maps and information are available. We also have a variety of caving problems to solve. The rest is up to S.U.S.S.

Brian J.O'Brien.

Was Shakespeare a Speleologist ?

By J.H.D. Hooper B.Sc., A.R.I.C.

Delving through our records the other day, we came across a dusty, faded manuscript. The writing it bore was almost illegible, but we have been able to decipher a brief fragment which would suggest that the author was the great Bard himself. We are therefore proud to be able to publish for the first time this hitherto unknown manuscript which we are sure will be of great interest to all true lovers of Shakespeare.

SCENE. A Cavern.

Enter Hamlet, on hands and knees.

Hamlet. To squeeze or not to squeeze - that is the question:
Whether 'tis nobler in the mind to suffer
The stings and arrows of outrageous fossils,
Or to put arms against a sea of puddles,
And by advancing end them? To lie, - to creep:
No more; and, by a creep, to say we end
The back-ache, and the thousand natural shocks
That flesh is heir to - 'tis a consumption
Devoutly to be wished. To lie, to creep:-
To creep! perchance upstream; - ay, there's the rub;
For in that creep uphill what streams may come,
When we have shuffled up a waterfall
To saturate our pores; there's the wetting
That makes favour of two long a lie;
For who would bear the chips and stones of lime,
The compressing rock, the fat man's agony,
The pangs of icy pools, the cold delays,
The flickering candles and the burns
That rash experiment with carbide makes,
When he himself some stalactite might take,
Like a bare bodkin? Who would ladders bear,
To grunt and sweat along a weary mile,
But that the thought that something further on,
The undiscovered chamber, from whose dark
No potholer returns, weakens the will
And makes us rather bear those crawls we have
Than creep to others that we know not of?
Thus darkness does make cavers of us all;
And thus the pendants caused by re-solution
Are flickered o'er with the pale gleam of torch;
And helmets of hard pith, and dome-like,
Do these contact, before we crawl away
And leave the scene of action .....

.....

Underground Mapping.

Good maps of caves are few and far between, and with speleology becoming increasingly more popular, there is now an acute shortage of useful maps. Besides, there is fun in mapping, and who can help feeling a little excited when the pattern of a complicated system is gradually revealed on paper?

The purpose for which a map is intended will indicate the accuracy required. Here I will only deal with sketch maps as these are adequate for general purposes. By comparison, the meticulously accurate survey is an extremely slow job and is only warranted in special cases.

For quick sketch maps, the requirements are a compass, a pencil and a notebook. My procedure is:

1. Estimate the general direction of the cave.
2. Align the book with this direction across a double page.
3. With the compass draw a N - S line.
4. At each point, orientate the map by the N-S line, and stand facing the direction of the passage.
5. Pace off or estimate the distance to the next bend. (If you estimate this, obtain also the opinion of others in the party)
6. Draw a straight line away from you in that direction according to scale.

When you reach the edge of a page, turn it over and carry on as before. The actual scale depends on the detail required. In most cases, a scale of 1 inch = 50 feet, is adequate. If not too sure of your powers of estimation and pacing is not practicable, use a tape measure. However, these soon get very dirty in a muddy cave. It is a good idea to practise estimating distances and check your opinion with a tape measure until such time as you have mastered the technique.

Vertical drops are hard to estimate, and various devices may be resorted to. I usually carry a length of fishing line with a knot at every foot, two knots at 20 ft., three at 30 ft., and so on. It is also handy to count the number of ladder rungs.

For greater overall accuracy, a prismatic compass, a long tape and some device for measuring elevations would be necessary, as well

as an assistant to hold the other end of the tape. A theodolite will give readings entirely uninfluenced by local magnetic effects but the use of this instrument in caves requires infinite patience.

This by no means exhausts the subject of sketch maps. It does, however, serve as a guide for those who wish to increase their knowledge of our cave systems by getting them down on paper.

Barry Mason.

(Editor's Note:

Maps by members should list the expected accuracy by means of the C.R.G. grades of surveys(1) These range from
Grade I : rough diagram from memory, to
Grade VII : bearings and slopes using theodolite; steel tape, etc.

Reference: (1) "British Caving" by C.R.G. p.393. (1953)

The Scaling Pole.

If we can judge by the success of its first trial, the scaling pole will be a valuable asset. Elsewhere in this journal the events which led to the construction of the "pole" and the discovery of the Chevalier Cave are described in detail.

Other work has been done by Colin Blundell and myself with the scaling pole:

1. Another shaft in the Chevalier Cave.
2. A hole in the roof of the top of the cemented rubble slope in the Upper Level, Mammoth Cave. This leads through a squeeze into the "Fire Cavern".
3. A shaft in a newly discovered passage leading from an extension of the Orient Cave.

Also with the assistance of a small party, Henry Fairlie-Cuninghame and I set up the extended pole on the massive stalagmite at the top of the Dragon's Throat (Temple of Baal) and made a spectacular climb up through a hole in the roof. A sloping passage was climbed for some distance until it was finally blocked by flowstone.

As for the pole itself, the present length of the sections (3'9") appears to be quite adequate for handling. Any increase in length would mean buying stock material at a high price. The total length of the assembled pole is 30 feet.

There is in the Chevalier above the well, another shaft of unestimated height. More lengths will be added to the pole before this is attempted. Hopes for success are based on the size and height of the shaft, and also the existence of a rodent's skeleton at the base of the drop.

Future improvements in the scaling pole will consist of an attachment by which ladders may be fastened at the top, & a new design for the couplings. The present "loose sleeve" couplings require a certain amount of play to facilitate assembly. This movement is added to with each section, resulting in considerable sag in a long pole.

John Bonwick.

LADDERS.

The need for flexible wire ladders was realised immediately after the formation of S.U.S.S., but it was not until about a year later that the first ladders were built. In the meantime quite large drops, including the Drum at Bungonia, were descended on rope without mishap, but with considerable effort on the part of the haulers at the top.

The first ladders were in three lengths of nearly fifty feet each, and they were constructed with the idea of using them on a scheduled trip to the Drum. Two lengths were made with due care and skill and have proved satisfactory ever since, but the third was made almost in one night and was so badly done that it has seldom been used since.

The construction was as follows. Wire: 6x19, $\frac{3}{8}$" circumference, galvanised steel cable as used on yachts etc. Rungs: $\frac{1}{2}$", 16 gauge hard dural tube, 6" long. The rungs were fixed to the cable at 15 inch intervals by drilling holes through the ends of the rungs and passing the cables through. A short length of copper wire was passed through the cables just below each rung and the ends of this wire twisted around the cables and soldered to it. This should have been done above the rungs as well so that the ladders would be reversible, but this was not done through lack of time, and has not been done since. As a result, the first person down the ladder has to push all the rungs into place, often by hand.

The couplings were made from $\frac{1}{4}$" x $1\frac{1}{4}$" bright steel bar cut into 1" lengths. Two $\frac{1}{2}$" diam. holes were drilled in each piece and two hacksaw cuts at right angles were made from one side into one of the holes. The cable was spliced around a thimble through the other hole. The couplings fit together like flag clips. These couplings were put on only two of the ladders, and this is another reason why the third has seldom been used.

Last year (1953) it was decided that as the Club and its activities had increased, it would be highly desirable to have more ladders. It was decided that four lengths of 30 feet should be made, and the writer undertook the major part of the work. Fortunately we had received a C.R.G. Transactions describing several methods of making ladders, and although none of their methods copied, the design was a modification of one of their ideas. The couplings were copied from them.

The construction was as follows. Cable: 6 W.9., 10 cwt. aircraft control cable. Rungs: 9/16", 10 gauge hard dural tube, 6" long and 12" apart. This is very much heavier than required, but was available from disposals for 6d. per foot which was much less than the lighter tubing. The inside diameter of this tubing is a little less than 5/16" which is too small for the method of fixing that was adopted. Thus the inside of the ends

of the rungs had to be enlarged to 7/16" for a depth of about 5/8". This was done in a drill press with the rung held vertically in a small vice mounted on a right angle bracket.

The holes for the cable were $\frac{1}{2}$" diameter and $\frac{3}{8}$" from each end of the rungs. They were drilled with the help of a jig consisting of two flat bars with V notches in them separated by two blocks of wood, the whole being bolted together. Across the top of the blocks, a ba with a $\frac{1}{8}$" hole in it was bolted so that the hole was over the line joining the centres of the V's and $\frac{3}{8}$" from the outer face of one of the bars. This acted as a locating hole for the point of the drill and prevented it from wandering off the centre of the rung, thus eliminating the need for centrepunching. The jig was bolted to the table of a drill press so that the drill came down into the locating hole. Nearby was clamped a block of wood into which a 12 gauge nail was driven perpendicularly at exactly $5\frac{1}{4}$" from the drill and in line with the V notches. Then the head was cut off.

In operation a rung was placed in the V notches so that its end was flush with the outer face of one bar and the hole drilled. Then the rung was slid through and the hole placed over the headless nail and the other hole drilled. This ensured that the holes were evenly spaced and parallel and eliminated the need for marking.

The method of fixing the rungs was to thread 5/16" lengths of copper tubing on to the cable inside the ends of the rungs and solder them in place. The tubing was 3/16", 20 gauge and each piece was drilled out to $\frac{1}{8}$". This ensured a perfectly clean inner surface for the solder to stick to, but was a long job and prpbably satisfactory results could have been obtained by using 22 gauge tube and cleaning it with hydrochloric acid. Each piece was fluxed with G.U.D. flux and dipped into a pot of molten solder to tin it. Surplus solder was shaken off and then it was dropped straight into carbon tetrachloride to remove the burnt flux. Later each piece was carefully inspected and any which were not properly tinned were rejected.

Next the cables were cut into 31 foot lengths and stretched out along a pathway. A tape was laid beside them and spots of indian ink were placed $\frac{1}{4}$" on each side of the foot marks. An electric soldering iron having a special tip with a slotted, flat end was held vertically in the vice and the cable, after being lightly fluxed between the ink marks, was laid in the slot and resin cored solder applied. The cable was bent backwards and forewards slightly to work the solder through, and when it had been thoroughly impregnated and tinned it was taken out, being careful not to leave lumps of solder attached, as these would hinder threading. It was found that fluxing, although undesirable, was necessary to obtain good tinning. It was found unnecessary to clean the cable with any solvents. Test pieces of cable treated as above and then sectioned were thoroughly impregnated and tinned, and pieces that were cleaned showed no advantage. The ends of the cables were impregnated with solder for a length of about 2" and then they were ground to a point to assist threading.

Fifteen rungs were threaded from each end of the cables and

as each one was put on, a copper tube was held in the end of the rung with long nosed pliers, and the cable passed through. The rungs were slid roughly into place and then one clamped in a vice. The cable was pulled through until the tinned part was inside the copper tube, and then the tube soldered to the cable. This was done with a soldering iron tip similar to the one already described, but with a wider slot that fitted over the copper tube. Also the side of the end of the tip was ground away so that the resin cored solder could be poked down beside it into the ends of the rungs. The idea in soldering was to slide the copper tube to one side of the inside of the rung so that about $\frac{1}{8}$" of cable was visible on the other side. The iron was then placed on the tube, and when it was hot enough, the solder was applied to the uncovered cable so that it ran down and filled the space between the cable and the inside of the tube. This could be checked by the solder starting to run out the other end. Each joint was thoroughly inspected before going on to the next.

The couplings were made and fixed as follows. The couplings themselves were cut from 5/16" welded chain by making two saw cuts through the link intersecting at right angles. They fit together like flag clips. They were fixed to the ends of the ladder by means of a copper ferrule. One inch lengths of $\frac{1}{4}$", 20 gauge copper tube were flattened in the vice so that two cables would pass through side by side. They were then immersed in hydrochloric acid, fluxed and tinned on the inside with solder. A thimble was placed in the coupling link and the cable passed through the ferrule, around the thimble and back into the ferrule. The cable was marked where it passed through the ferrule and was then taken out and tinned as previously described. It was put back, pulled tight around the thimble, and the assembly held upright in the vice and heated with a gas flame until the solder melted. Solder was applied until it completely filled the space inside the ferrule. Great care was taken in doing this not to overheat the cable as this would weaken it. The flame was directed only at the ferrule and as soon as the solder melted, it was taken away and only brought back occasionally as the solder started to set. A soldering iron would have been better, but the one in use was of too low a voltage to heat the job adequately when held in a vice. The excess cable may be cut off with a hacksaw, which becomes blunt very quickly, or a cold chisel. In both cases care must be taken not to cut the main cable. The cut end was covered with solder to make it neat and smooth.

Each ladder was provided with a six foot length of 6.W9, 15 cwt. cable with a coupling oneach end fixed as above with $1\frac{1}{4}$" lengths of 20 gauge, 5/16" copper tube as ferrules. These wires can be passed around a rock or stalagmite and clipped to the ladder to hold it in place.

The advantages of this method of construction are its simplicity, strength and the ability of the wire to rotate in the rungs.

The tests carried out in the Engineering School at the

tubes holding the rungs were only ¼" long instead of the 5/16" used on the actual ladders. A bar was placed through the thimbles on the ends of the cables and a 3" wide steel block on the centre of each rung in turn. Force was applied between the bar and block and in each case the rungs slipped at 1000 lbs. ie. 500 lbs on each end. The exact coincidence of the two readings was due to the fact that this force was held for some time while the travelling weight of the testing machine was wound back and another weight added to the end of the beam. It was while this was being done that the rung slipped each time. The failure was caused by the solder shearing and the copper tube slipping on the cable. There was no permanent distortion of the rungs.

Next a short length of cable with a ferrule on each end was tested and broke at 1380 lbs. The break was in the centre and there was no indication that heating while fixing the ferrules had caused any weakening. ¼" chain links were tested and straightened at 860 lbs. This was not considered strong enough and thus 5/16" links were tested and found to fail at 1100 lbs. which was considered satisfactory.

One of the features which the author considers to supersede most other designs is that the lay of the cable is not disturbed and the rungs are supported on all the strands and not only a few. Nearly all other designs encountered by the author have relied for the fixing of the rungs on passing wire or pins through the cable, clamping with screws which in most cases bear directly on the cable , or kinking the cable sharply inside the rung. All these methods tend to seriously weaken the cable.

The ability of the cable to rotate in the rung is a decided advantage as it relieves torsions in the cable. It is common when a ladder is unrolled over a cliff for the roll, as it unwinds, to pass through the ladder between two rungs and thus twist the cable. This twist can distribute itself over the length of several rungs and thus not be serious, whereas if the cable is fixed, the twist remains between two rungs.

Use and Care of Ladders.

The life and safety of a ladder depends largely on the way it is handled and stored. Every effort should be made not to sharply kink the cable, particularly while the load is on it. When a cable is stretched around a curve the outer wires take most of the strain, and this effect is greater the sharper the curve. If the curve is a sharp edge, then a very few wires may take all the strain and be stretched almost to breaking point. Also the lay of the cable, ie. the uniform way the wires are wound together, may be altered which always results in some loss of strength. Thus it is desirable to place a bag under the ladder where it must pass over a sharp edge.

A frequent cause of kinking is the ladder hanging so that the rungs are not horizontal. There is then a kink at each rung. This is serious as the kinks always come at the same place and the effects are cumulative.

When there is excess ladder at the bottom of a drop, every

care should be taken not to tread on it, as this may pinch the cable between a hob nail or heel plate and a rock and do considerable damage. If there is a lot of spare ladder it should be rolled up and put to one side.

When descending a drop for the first time, loose stones are often encountered, and these have to be removed for safety. However, every care should be taken that these do not strike the ladder if they are of any size. If the stones cannot be thrown clear, then the ladder must be pulled up by the climber before the stone is dropped. It may be preferable for the climber to carry spare lengths of ladder in a pack and couple them on as he goes down rather than lower all the ladder from the top before the descent.

Unattached rolls of ladder should never be thrown over large drops, but should be lowered on the safety rope.

Correct rolling of ladders after use is important for their preservation, and there is nothing worse than carrying a roll that keeps falling apart. More often than not such a roll is carried partially unrolled, thus increasing the risk of damage. The author finds the most satisfactory way of preventing the roll from coming undone is to leave the inner ends sticking out when rolling the ladder, and then clip them together over the outside after the roll is finished. Then they make a convenient handle as well as holding the roll together. The outer ends of the ladder should be clipped together around one of the rungs on the outside of the roll. The six foot length of wire used to fasten the ladders to rocks should be wound several times around the outside of the roll, pulled tight and the ends clipped together. Having the inner ends of the ladder brought out and clipped around the outside prevents the fixing wire from being lost if it should slip off the roll. Two wires have been lost already through not doing this or through general carelessness.

It is easiest for one man in a tight spot to roll a ladder by turning the roll round and round, and it is easier still if there is some pull on the ladder to help keep the roll tight. When there are two people it is best to turn each alternate rung over so that the cables cross from one side of the roll to the other. This makes the roll unwind more easily when it is thrown over a drop and there is less likelihood of the roll going through the ladder and twisting the cables. This type of rolling must be done tightly and carefully or the roll will fall apart easily.

Ladders should always be kept well away from lead accumulators or other potential sources of acid during transport or storage. Most acid bottles have a little acid on the outside from drips running down after pouring, and hydrochloric acid gives off fumes which will corrode metals nearby. The ladders should also be well protected from salt water if they are ever to be taken on a ship or used near the sea. Salt will rapidly attack the cables and rungs, particularly at the junction between the two.

When transporting ladders, never allow them to bounce around in the back of a truck, as this will rapidly wear the galvanising off them in spots and corrosion will then set in at a later date.

Ladders should be washed or hosed to remove excess of mud before storage, and they should be allowed to dry thoroughly, preferably in the sun, before putting in any closed cupboard. They should never be put away in or in contact with damp bags, rope, etc. and they should not be left on the floor of sheds or garages as they are then vulnerable to dampness, accidental spilling of corrosive liquids and the urine of dogs or other animals, as well as having some heavy or sharp object dropped on them.

Most of the above remarks are fairly obvious if one stops to think, but is surprising how much is done without thinking. Already there are signs of damage, which, although not serious in itself, shows that the ladders have not been treated with the care that they deserve. Unless the handling is improved, the ladders will have to be scrapped before their time.

Remember; lives depend on the safety of the ladders and no effort should be spared to maintain them in a safe condition.

H. Fairlie-Cuninghame.

.....

.... and Snakes.

Jim Tasker, a foundation member of S.U.S.S., has made many acquaintances through caving. Most unpleasant and of shortest duration was at Yarrangobilly while crawling along a narrow ledge above the river, when he saw a black snake doing the same but coming in his direction. Following the etiquette of caving, Jim left the original occupant of the cave in possession.

B.J.O'B.

.....

About Our Contributors ....

John Bonwick (aged 21) has concentrated most of his two years of caving on the Jenolan area. He is a fitter and turner, and his construction of a scaling pole gave him access to one of the most beautiful caves found by S.U.S.S., as described in his article.

Denis T.Burke (23) is a medical student who has gained his B.Sc.(Med.); he is noted for originality in his caving plans,having instigated a study of 'foul air'in caves and also the attempts on the Imperial siphon at Jenolan.

Barbara Dew (26) has been caving for two years. She gained a B.A.,majoring in Zoology, and is now at the Dept.of Fisheries,C.S.I.R.O.

Doug Havenstein is the official photographer of the Department of Geology at Sydney University.

Henry Fairlie-Cuninghame (24) joined S.U.S.S. in 1949, and was President for 1952 and 1953. He graduated in Physics and Maths. in '52, and is now working with S.T.C.at Liverpool. His activities as a photographer have gained him prizes in several N.S.S. competitions, with his best work coming from Croesus and other Tasmanian caves.

Jenifer Hiscox (23) after taking a B.Sc. in Physics and Maths. in '52, is now engaged in research at C.S.I.R.O. at Homebush. She recently married Ted Anet, and they have been principally responsible for bringing Cliefden to prominence as a caving centre.

John H.D.Hooper is a member of the C.R.G., and has done extensive work on bat-banding in Devon. His poem was sent to us by Geoff Goadby, a Brisbane chemist and speleo.

Jak Kelly (27) was the first President of S.U.S.S., and holds the same office at present. A graduate in Science, he worked as a physicist in C.S.I.R.O. for some years, but will shortly be leaving for England with his wife Irene to take up a research position.

Peter MacGregor (24) is the only Hon. Life Member of the society being a foundation member and past President. He graduated in Science from Sydney, and is now undertaking research for Kodak in England; his photographs have gained a number of awards in N.S.S.competitions, and he was primarily responsible for the formation of the Library.

Barry Mason is a member of S.S.S.and the Cromach Club, and was in the first party to climb Federation Peak in Tasmania.

Brian J.O'Brien (20) has been caving for four years. He gained a B.Sc. in '53, and is now proceeding to a Ph.D. in Physics at Sydney.

Fred H.Stewart (21) is a medical student who has been active with S.U.S.S. since '51. His principal interests are in photography and in making equipment which has led him to be one of the best-equipped members of the society.

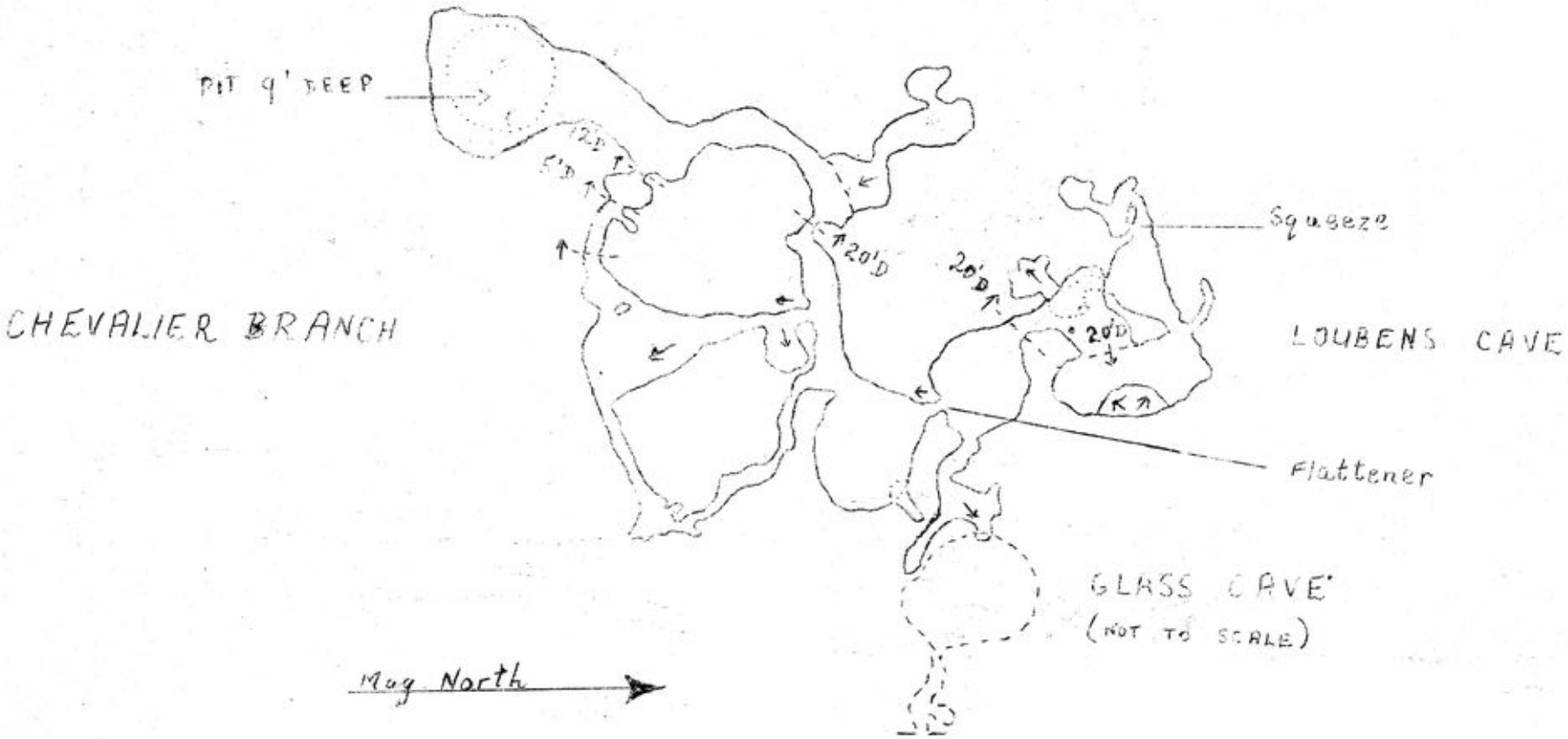
Alan Tapsell (24) was a foundation member of the society. Over the past two years his studies and work at Adaminaby Dam, leading to graduation in Civil Engineering, have restricted his caving activities to some extent.

Les Tattersall came to caving through his activities with the Sydney Rockclimbers, and is now a member of the S.S.S.

Ron Wardrop (23) also began caving two years ago as a member of the Sydney Rockclimbers. The University by-law restricting the non-University membership of S.U.S.S. to less than 25% resulted in Ron and others forming the Sydney Speleological Society early in '53.

.....

EXTENSIONS OF THE GLASS CAVE, JENOLAN.



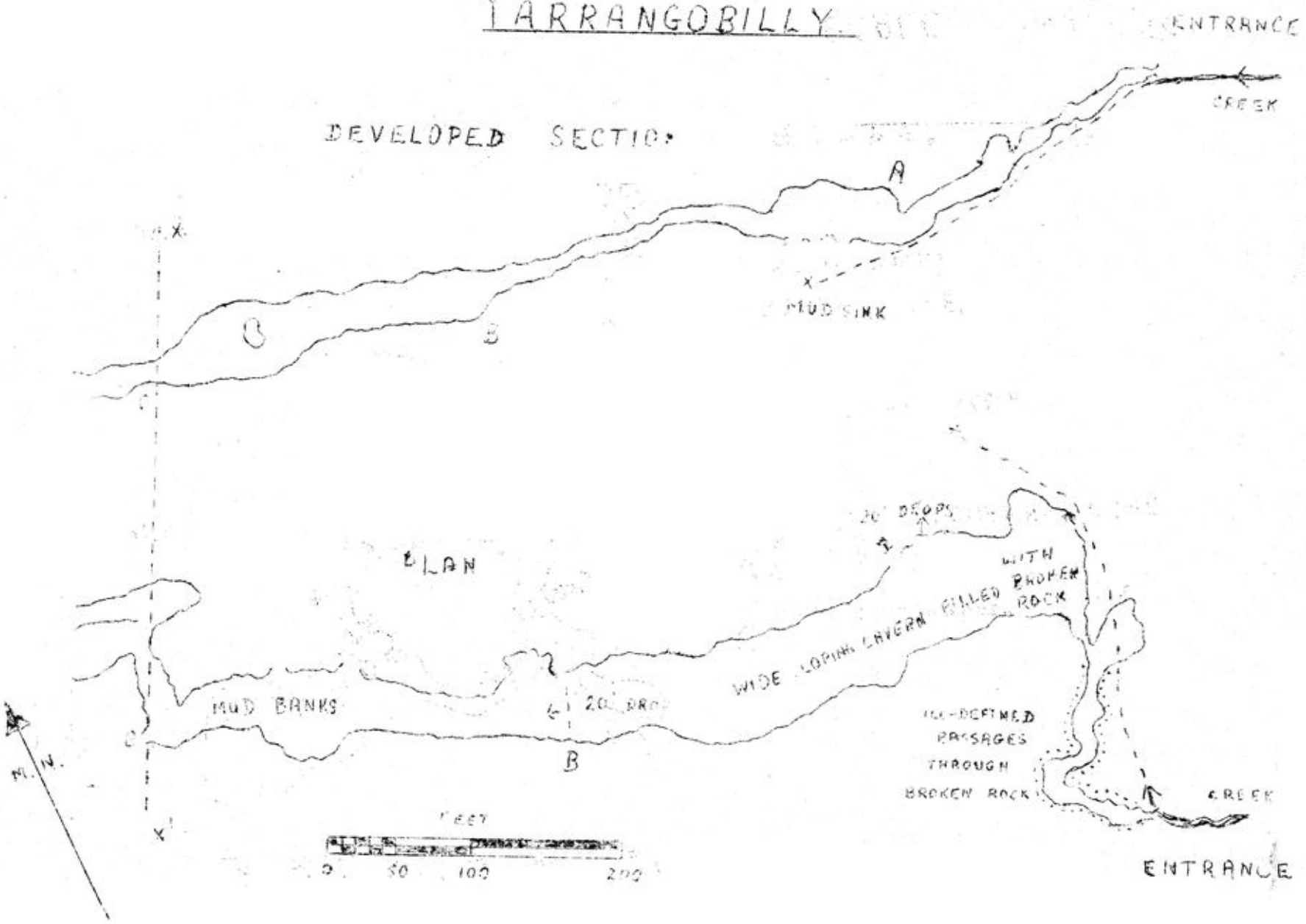
B. Mason
Survey Grade III

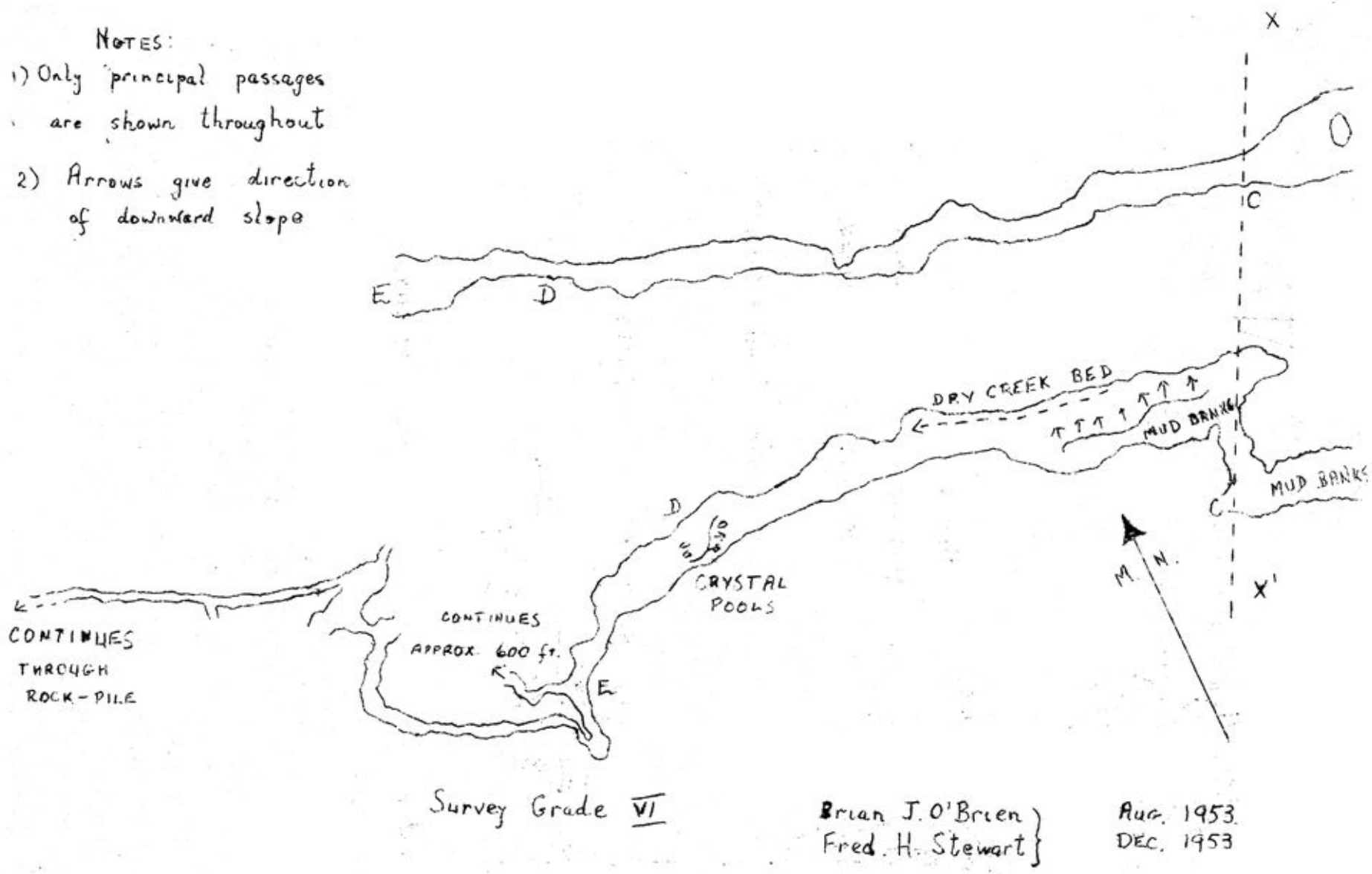
SCALE: 1 inch = 50 ft.

ARROWS DENOTE DOWN

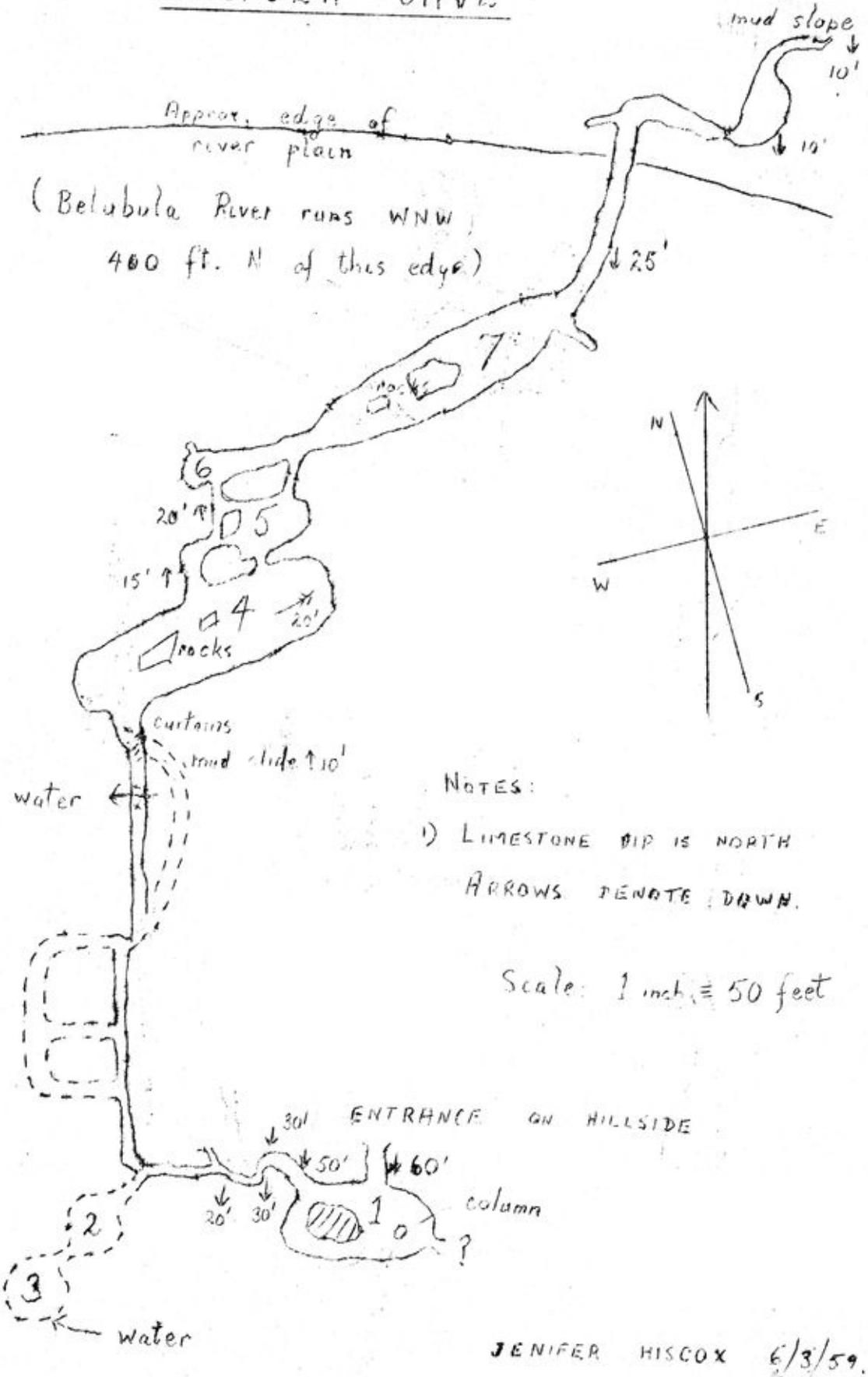
EASTERN EAGLES' NEST CAVE,

YARRANGOBILLY.




NOTES:
1) Only principal passages are shown throughout
2) Arrows give direction of downward slope
X
O
C
E
D
DRY CREEK BED
MUD BANKS
MUD BANKS
D
E
CRYSTAL POOLS
CONTINUES
APPROX. 600 ft.
CONTINUES
THROUGH
ROCK-PILE
M
N
X'
Survey Grade VI
Brian J. O'Brien
Fred. H. Stewart
Aug. 1953
DEC. 1953

CLIEFDEN CAVE



JENIFER HISCOX 6/3/59.

SURVEY GRADE II

Correspondence and contributions to be addressed to:

The Editor
c/o The Sydney University Speleological Society
Box 35, The Union
University of Sydney

AUSTRALASIAN MEDICAL PUBLISHING CO. LTD.
SEAMER AND ARUNDEL STS., GLEBE, SYDNEY