

Vol 9. No. 6.

Dec 1972.

SPELEOGRAFFITI.

The Newsletter of the

NATIONAL UNIVERSITY CAVING CLUB.

DECEMBER 1972.

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

VOL. 9. No. 6.

The Newsletter of the National University
Caving Club.

Editor (acting): John Brush.

Typing : Marj Coggan & John Brush.

Cover Design: From a slide taken in the Eyrie (Y3).
Drawn by J. Brush.

C O N T E N T S

The Use of Lycopodium Spores in the Tracing of Subterranean Streams.....	Adapted by M. Coggan.....	Page 101.
Some Twits Never Learn Department.....		103.
Michelago Cave Descriptions (M1-M15)....	John Brush.....	104.
Trip Reports Section.		
Michelago.....9/12/72.....	Frank Bergersen.....	108.
Bunyan.....2/12/72.....	Alan Harding.....	109.
Yarrangobilly..16-17/12/72.....	Frank Bergersen.....	110.

EDITORIAL.

There is no editorial this month, folks!

XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX
Techniques For The Tracing Of Subterranean Drainage, **
With Special Reference To The Use Of Lycopodium Spores.

Techniques to evaluate underground flow lines should satisfy a number of criteria. The most important are-

1. The tracer should be unaffected by the pH of the stream water.
2. It should not be freely adsorbed, sedimented out or trapped at syphons.
3. It should not be toxic in the concentrations used.
4. It must be known if it occurs naturally in the testing area.
5. It should be detectable at low concentrations.
6. The technique should be readily applicable and available.

No technique available satisfies all criteria, therefore use of a technique depends on fulfillment of the most important criteria in a particular situation.

Fluorescein is the most common water tracing agent used but suffers from several limitations. For visual detection a concentration of 1 in 5million is required but use of the charcoal method lowers the required concentration to 1 in 100million. Also, humic acids and sunlight appear to decolourise the dye in a very short time. pyranine conc. is more reliable due to greater resistance to adsorption and discolouration but greater concentrations are required. Both these dyes are particularly useful in reconnaissance work or when more sophisticated methods are impractical.

Other dyes used are non-fluorescent and these include rhodamine B and malachite green. Neither dye gives reliable positive results and ambiguous results are often obtained. Rhodamine B is harmful to man, and malachite green which, although harmless to man, is less efficient. These dyes may be used under similar conditions, but involve less work in the field than the fluorescent dyes and

.../102

* This article was adapted from the British Geomorphological Research Group's Technical Bulletin. No. 2. (Authors D.P.Drew and D.I.Smith), by Marj Coggan.

are especially useful for establishing connections between cave systems and for tracing stream connections within a single system.

The most satisfactory mechanical method for tracing involves the release of large numbers of Lycopodium spores into the stream. By dyeing the spores different colours it is possible to consider a number, as many as five or six, possible connections during a single test.

Preparation of the spores can be very time consuming and often expensive. Only a small number of dyes are suitable, these include safranine, methyl violet, malachite green, bis-wark brown and magenta. If the water to which the spores are to be added contains large quantities of artificial impurities, carbamide resin is coated on the spores to preserve the layer of dye on the surface. It is preferable to prepare large quantities of spores at one time, but this introduces problems of storage and the greater problem of contamination of colours. It is also preferable to store the spores as a moist slurry since the dry spore dust is highly inflammable.

In the field, nets, with a pore diameter of less than twenty-five microns, are placed at all possible outlets of the stream. Sampling should commence very soon after addition of the spores with further sampling at intervals of about three or four hours usually being sufficient. It is also best to leave the nets in place for a considerable length of time after the addition, especially where a negative result is indicated.

The simplest analysis of results indicates positive connections between influxes and effluxes. With a little more effort a spore concentration vs. time diagram can be plotted, which gives further information on underground flow conditions.

The greatest advantage of this method is that it is possible to investigate several influxes simultaneously under similar hydrologic conditions. The speed of flow can be fairly accurately estimated since the spore moves at a speed very near that of the stream. The method is particularly useful over long distances under all temperature conditions and in heavily polluted water.

The major disadvantages are that it is extremely time and labour consuming at all stages. Also, it can be expensive and depends on the availability of laboratory facilities.

Use of Lycopodium spores would be particularly suitable in Australia since they are rarely found naturally. The spores are obtainable from any large chemical manufacturer, but they are expensive (approximately 15 dollars for 250 grams). It is suggested that 600 grams of spores be used per kilometer of underground travel per $0.7m^3/sec.$ discharge, therefore any extensive investigation would prove very expensive.

The choice of tracer method depends on the geomorphological nature of the problem and also the expense, time required and the problem of toxicity. Dyes are most suitable for short distances of stream with small discharge, the requirement of a high threshold concentration for detection being the main handicap. For detailed work, the Lycopodium spore method is the best tracer available but is limited by time and cost requirements.

VVVVVVVVVVVVVV VVVVVVVVVVVVV
~~~~~  
~~~~~

SOME TWITS NEVER LEARN DEPARTMENT.

Rumour has it that Alan Harding (the driving force behind the Dogleg digging trips earlier in the year) is thinking of digging the sand trap out again.

Readers will remember that only a few weeks after the dig was completed in late winter, rain caused the cave to become flooded again, and in doing so, causing the 15m. sand trap to fill up with sand again.

Anyone feeling like doing some digging should contact Alan as soon as possible.....

~~~~~  
~~~~~

MICHELAGO CAVE DESCRIPTIONS. M1-M15 INCLUSIVE.J.BRUSH.

The Michelago area has never attracted much attention from cavers, (NUCC had only been there once before now), perhaps due to the uninspiring entry in the Speleo Handbook which states that there are two caves about 60' long, and several about 30' long. So armed with this information we set out to locate, tag and map as many caves as possible.

The limestone is in two main sections along the Murrumbidgee River to the South-west of the Michelago township. The northern outcrop is reached through a property which has its entrance beside the 'MICHELAGO' sign on the south side of the township. A track leads right to the limestone, but it may be a bit steep for some cars.

Only the Northern end of this outcrop has been looked at so far, and most of the caves found were in the cliff facing the river.

M1. Small entrance near the shed at the end of the track. Drop of 2.5m at entrance leads to a cave on two main levels. Total passage length about 50m. Has some dry formation.

Survey: M.Coggan and J.Brush.

M2. Second entrance to M1. Old stream fissure.

M3. Small cave 3x6m on hill above M1. Undisturbed fox skeleton at entrance. Survey: J.Brush.

M4. At top of cliff overlooking river, tube about 6m long.

Survey: J.Brush.

M5. Halfway down cliff above M8. 2m. wide entrance leads to fissure about 9m. long. Survey: J.Brush.

M6. Cave at base of cliff, approx. 100m. S. of M8. Two entrances, Lower leads to a dusty 8m. long chamber. Upper one leads to an old stream passage which is negotiable for about 12m. Two levels are connected internally via a 4m. climb.

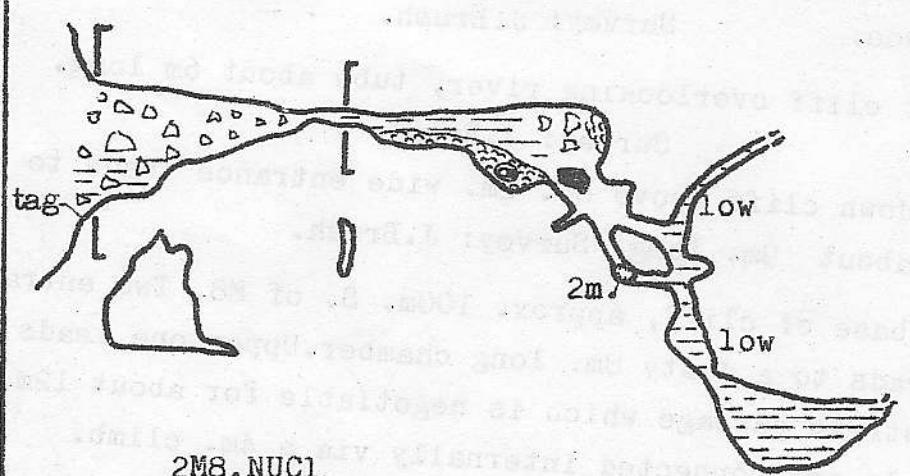
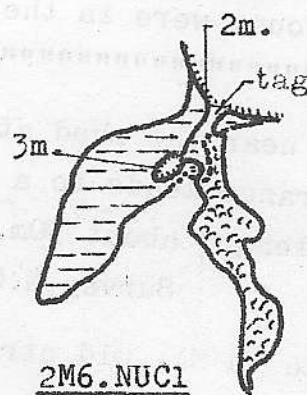
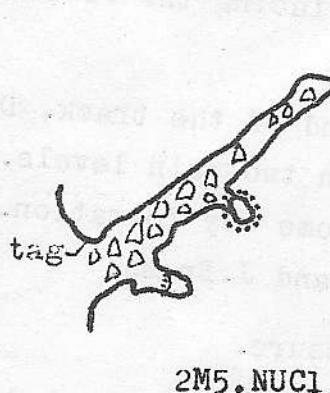
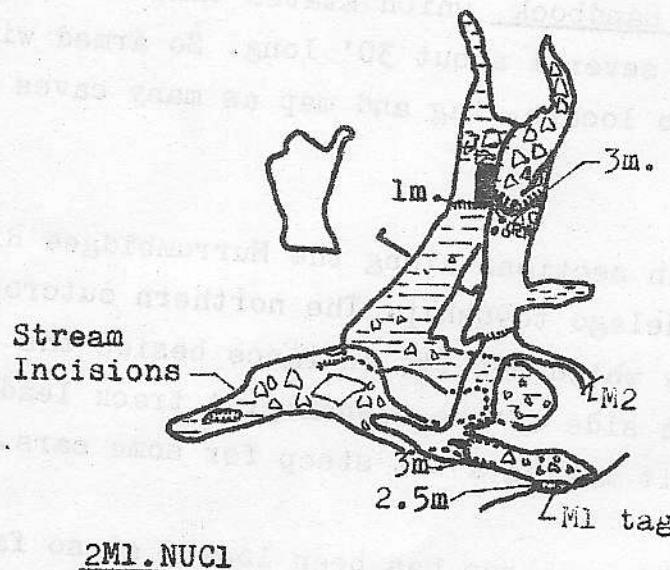
Survey: J.Brush.

M7. At base of cliff immed. to south of M6. Entrance 5m. wide and 2m. high. Large wombat burrow in entrance.

Survey: J.Brush.

MICHELAGO CAVES AREA .PRELIMINARY REPORT.

SHEET ONE.



CRG 2.
(Fibron Tape,
Bearings est.).

→ TN

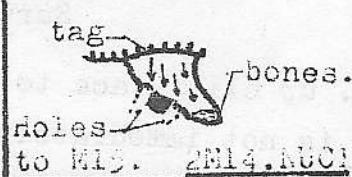
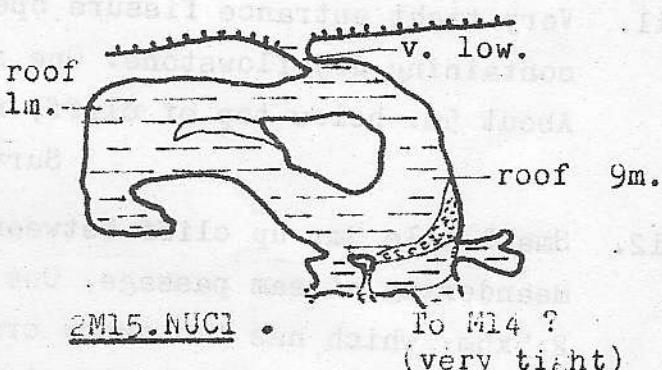
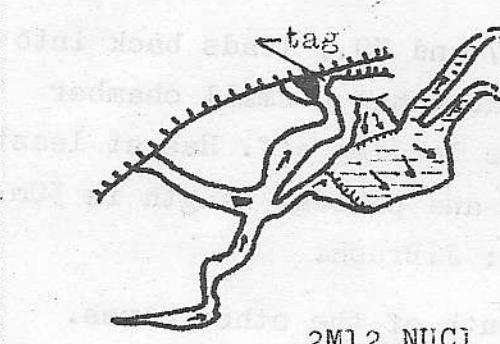
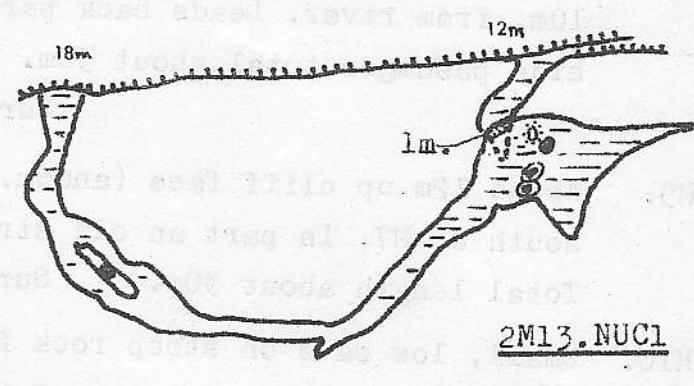
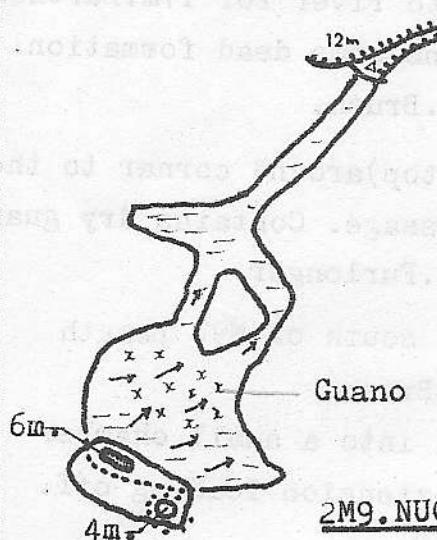
R.F. 1:250.

NUCC Dec. 1972.

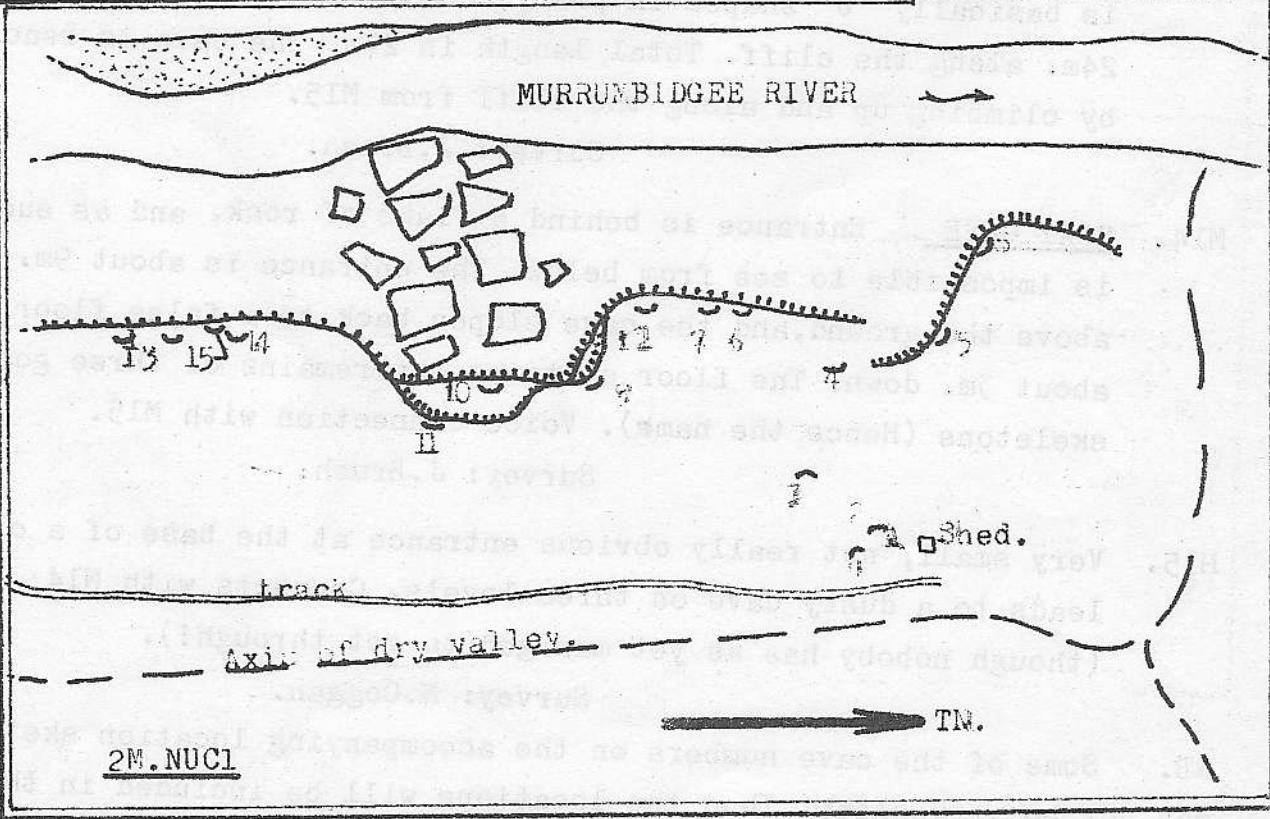
metre feet

- [Symbol] Mud, earth.
- [Symbol] Rocks, pebbles.
- [Symbol] Flowst., column
- [Symbol] Change in height
- [Symbol] Cliff

MICHELAGO CAVES. SHEET TWO.



MICHELAGO SURFACE LOCATION SKETCH.
(Not to scale).
Locations M1-M15.



MICHELAGO descriptions cont.

- M8. Large (3x5m), obvious entrance at the base of a cliff. About 10m. from river. Leads back parallel to river for 17m. Further side passages total about 30m. Contains some dead formation.

Survey: J.Brush.

- M9. About 12m. up cliff face (and 6m. from top) around corner to the south of M7. In part an old stream passage. Contains dry guano. Total length about 30m. Survey: J.Furlonger.

- M10. Small, low cave on steep rock face to south of M9. Length about 6m. Survey: J.Brush.

- M11. Very tight entrance fissure opens out into a small chamber containing dry flowstone. One small extension leading off. About 5m. below top of cliff, near M.10.

Survey: J.Brush.

- M12. Small hole 3m. up cliff between M7 and M9., leads back into meandering stream passage. One branch has a small chamber 2.5x5m. which has two dusty crawls leading off. Has at least four small entrances in the cliff, and passage length is 30m. plus. Survey: J.Brush.

- M13. Entrance 12m. up cliff face to south of the other caves. The entrance is not immediately obvious from below. The cave is basically 'U' shaped in plan, and has another entrance 24m. along the cliff. Total length is 27m. The cave is reached by climbing up and along the cliff from M15.

Survey: J.Brush.

- M14. GOAT CAVE. Entrance is behind a flake of rock, and as such is impossible to see from below. The entrance is about 9m. above the ground, and the cave slopes back to a false floor about 3m. down. The floor contains the remains of three goat skeletons (Hence the name). Voice connection with M15.

Survey: J.Bush.

- M15. Very small, not really obvious entrance at the base of a cliff leads to a dusty cave on three levels. Connects with M14 (though noboby has as yet managed to get through!).

Survey: M.Coggan.

- NB. Some of the cave numbers on the accompanying location sketch may not be very clear. Thus the locations will be included in the next Michelago report.

TRIP REPORTS SECTION.MICHELAGO9th. Dec. 1972.

Party. John Brush, Marj Coggan, Angus Campbell, John Furlonger, and Frank Bergersen (TL).

The merry band grouped at Mr. Brush's palacial mansion and then made rapid progress towards our destination. Permission to enter the property was sought, and duly given, along with directions for finding the limestone via a track which was previously unknown to us. Unfortunately (or fortunately depending on how you look at it) (definitely not fortunately - Ed.), the wagon refused to reach the top of the hill, resulting in about a 2.5km. walk.

A likely looking hole was found near the end of the track on the Eastern side of the limestone belt. All climbed inside to indulge in a little grovelling, and also to escape the soaring temperatures of the surface. This turned out to be one of the larger caves found. It had a passage that looped to return the exploring bod to the entrance, but on a higher level than the one entered.

Returning to the surface, JF, Gus and I made a rapid inspection of some more limestone to the East of the dry valley, while JB and Marj went about the more earthy task of mapping the cave, as well as affixing a temporary tag to the entrance. This procedure was repeated many times throughout the day.

After a few more holes had been located and examined, the dinner bell was heard to ring, and thus all immediately stopped what they were doing so that they could stuff themselves. After JB had finished conversing with a randy old ram across the river, JF and Gus scaled the cliff up to an impressive cleft which produced about 30m. of cave. The trip leader and Marj took on the more arduous task of exploring the river on lilos, while all this disgusting activity was taking place on the cliff. Soon after this considerable time was spent in getting a ladder up to JF, who, although he had free climbed up the cliff, could not get down again.

A number of other holes were entered during the afternoon, and

Michelago cont.

at the end of the day 14 caves had been found, with four having over 30m. of passage, cf Speleohandbook I, which states that the longest caves (two of them) have 18m. of passage.

Only the Northern end of this outcrop was looked at, thus there could be many more caves to be found.

FRANK BERGERSEN.



BUNYAN

2nd. Dec. 1972.

Party. John Brush, John Furlonger, Marj Coggan, Allan Harding, visitors Ken Lochner (U.S.A.) and Ed Elenzer (U.S. teacher now transferred to Woop Woop and a member of Florida State Uni. Grotto of N.S.S.)

After a leisurely trip to Bunyan, we stopped at Mr. Pfeiffer's to sign the necessary forms indemnifying him from any injury we might claim on while on or under his property. We then headed for the undulating limestone outcrop, arriving at the entrance of BU1 and descending about midday.

The cave has an entry pitch of 90-100 feet, laddered with scaffolding. It appears to have two levels, the upper one mostly very tight, the lower one larger but mostly filled with formation and clay. Access from the pitch chamber to the only other large chamber is via the upper level. The cave contains many crystalline formations on walls, roof and floors, the inner chamber being the best preserved.

After surfacing and lunching a surface survey was undertaken and John Brush produced a sketch map locating BU1 to BU9 and several others, all other caves are vertical holes 30-40 feet deep with little or no passage evident.

At about 3.30 p.m. we returned to Bredbo, refreshed and refueled ourselves and returned to Canberra about 6 p.m.

*N.B. Somebody, (possibly a former N.U.C.C. member) has numbered (by chipping the numbers into the rock) most of the holes at Bunyan using a "BU" prefix. The area code proposed by Middleton and Ellis in March 1972 (A.S.F.55:9-10) being "R". (Eo)

YARRANGOBILLY16-17th. Dec. 1972.

Party: John Brush, Marj Coggan, Maurice Bell, Noel Call,
John Furlonger, John Holland, Lindel ?,
Eugene Collins, Wayne Allen, Chris Collins, Ken Palmer,
and Frank Bergersen (TL).

Diffuse groups of individuals departed from Canberra in the early hours of the morning and rendez-voused at the park in Cooma to formulate a battle plan for the attack of North Deep Creek and other caves in the area. After checking in and flashing our permit down at the rangers station, all cars converged at the top of the Deep Creek track where an emotional debate took place as to whether we wanted to make the supreme sacrifice of camping at the bottom of the hill (bearing in mind the steep walk back up again heavily laden with gear). Most of the opposition to this plan came from a certain Mr. Palmer (well known for his boundless lethargy). The forces of good triumphed, however, and the party proceeded down the hill to pitch camp alongside JF, Noel and Maurice, who had arrived the night before.

Because much of what Noel and Maurice did over the weekend remains a mystery to me, I have asked Noel to write a supplementary trip report (Ar!, but will he ever do it, that is the question! - Ed.).

A party of six - JF, JB, Eugene, Wayne, Chris and myself eventually set off for NDC, whilst the remainder split into small groups for indulgence in Bushwalking, Cave finding, Swimming Sun bathing and so on.

NDC was soon entered and the party gradually made their way down through the boulder pile to the 8m. drop into the stream passage. Following the stream for most of the way we came to the small chamber a little way from the duck-unders (at the base of the pitch from Y58. -Ed). Here we all stripped down to shorts, and put dry clothing into numerous plastic bags for the trip through the water. Some ugly scenes followed! Leaving the chamber we soon reached the first duck-under, paused to rake out the gravel, and then sat down to muster enough courage to push us through.

Yagby cont.

As leader, I had the honour(?) of going first. Many bawdy and uncouth comments flowed from the other five as they repeated the icy trick. Twelve metres further, and the other duck-under was met. This one has a larger air space, but can prove to be more difficult to negotiate. On the other side one is rewarded with a low passage strewn with rocks and sharp gravel, which did wonders for a bare gut. From here it was not far to the end as we previously knew it. At this stage we changed back into dry gear.

This end chamber was confusingly different to those who had seen it before (JB and I). Either some rocks had been moved, or more likely, we were too bloody cold to take much notice on the last trip. The stream passage, previously thought unnegotiable past this point, could be followed for at least another 12m.

Last trip it was also thought that nothing was to be gained by climbing upwards (this was actually tried without any success), whereas this time there was this great big hole, just begging to be climbed. This leads into a large (at least 10x15m.) chamber. This chamber at first appears to be roughly circular, and about 15m high. The floor is composed of loose rocks, largely coated in gravel and mud, and this has a thin coating of flowstone over the lot - not the best for climbing on. The stream is to be found in one corner, at the bottom of a 6m drop. It disappears behind a huge rock. At the top of this rock, after a 2.5m. climb the chamber continues. Here there is a cascade of pure white flowstone, marred only by the footprints (not ours) across it. There are also two straws only a few cm's apart and approx. 2m. in length, whilst another nearby was longer, but now joined to the floor as well.

Retracing our steps back to the climb up the rock, two small holes in the floor were noticed. They appeared to drop about 8m. into a chamber. A ladder was then put down the hole which allowed it to hang away from the well decorated walls, as well as not having everyone trampling the rimstone pools around the other hole. The chamber was found to be very well decorated, and the stream (only a trickle) was once again found in one corner, but unfortunately ran down a 10cm hole in the floor. This was disappointing,

Yagby cont.

but all the possibilities had not yet been exhausted, for a small passage was seen to continue behind a small hole in the wall. At this stage it was decided to leave the cave as some were getting rather cold. The ladders were left in the cave, as it was decided to come back the next day.

SUNDAY.

Sunday saw four of the same bunch (Chris and Wayne thought Y58 was more akin to their idea of a cave) return to NDC. On the way some of the others (Marj, John H, Chris and Wayne) were shown the entrance to Y58.

The foolish four challenged the duck-unders again, returned to the chamber to check out the hole noticed the day before. The hole was enlarged and found to continue about 3m. to a small completely silted passage. Returning to the main chamber, several holes were noticed in the roof; there appeared to be another chamber above!

An attempt (unsuccessful) was made to reach this chamber, but the walls are too unstable to free climb. At this stage it was decided that we should return to the surface.

Meanwhile, it appears that the other group in Y58 had lost their way; they got through the rockpile, but couldn't find their way on from there. Someone looked at the flowstone wall, but pronounced it 'no go'. At the same time Maurice and Noel apparently found another cave on the western side of the river near the natural bridge. (Y80)

One thing noticed by all members on the trip was the amount of silt in the streams feeding the caves. Obviously the DMR silt traps are not doing their job, or more likely, they are not being cleaned out as often as they should.

All the gear was carted back up the hill without too much effort and the bulk of the party left about 7pm. FRANK BERGERSEN.

A WORD OF WARNING TO ALL. ALL TRIPLEADERS FOR YAGBY AND COOLEMAN MUST CHECK IN AND OUT, AT THE RANGER STATION, ON EVERY TRIP.

