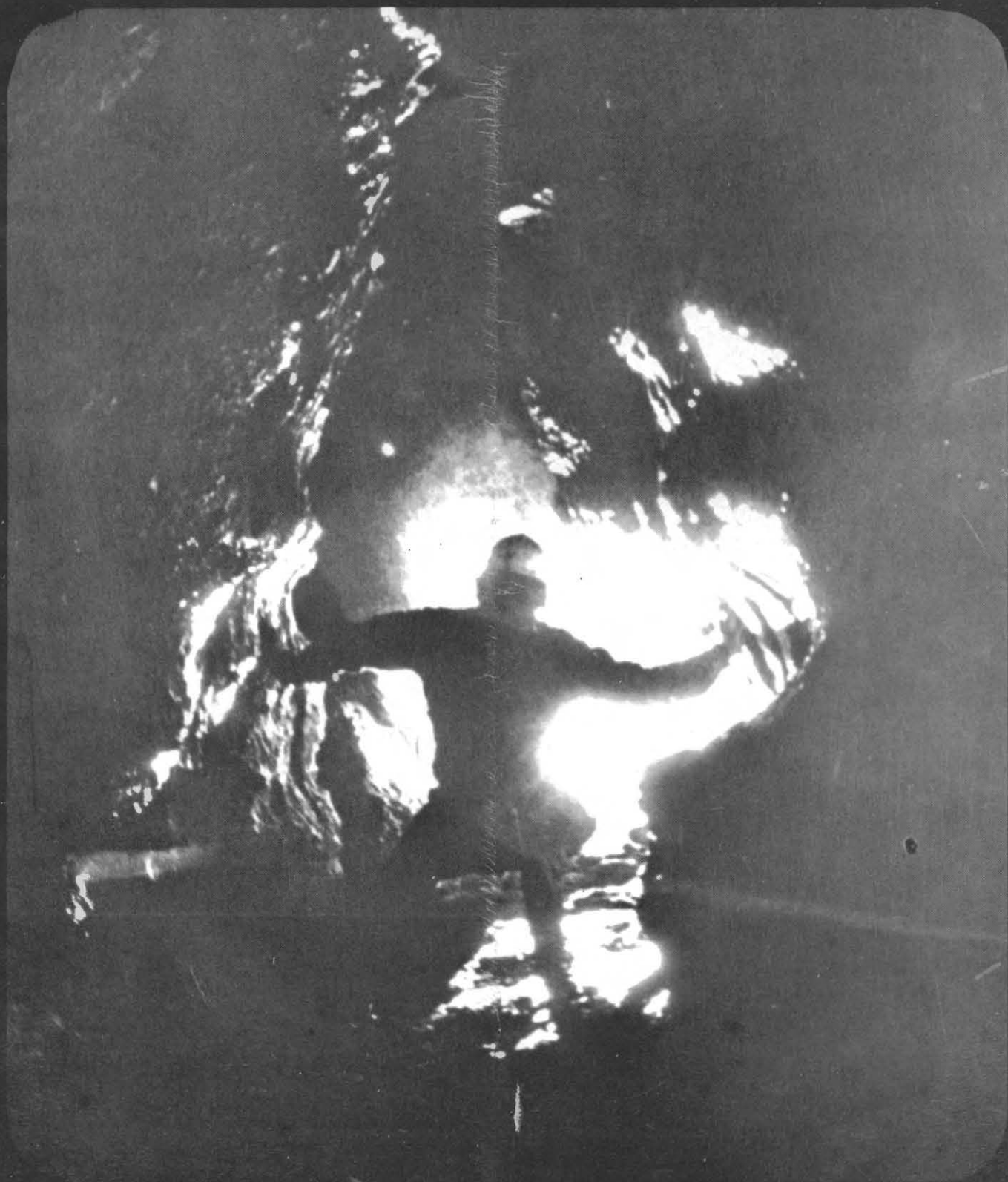


ASF

NEWSLETTER

SPRING
1974

65



The Australian Speleological Federation was founded in 1956 "to further speleology in all its aspects on a national level, to gather together Australian speleologists and formulate national policies in furtherance of these aims."

Publications include ASF NEWSLETTER (quarterly), PROCEEDINGS (biennially), AUSTRALIAN SPELEOLOGY (annually — more or less), SPELEO HANDBOOK (an encyclopaedic work on speleology in Australia) and irregular reports on matters of timely concern, chiefly conservation matters.

The Federation is governed by a committee consisting of a delegate from each member society. Meetings are held annually, each second meeting being coupled with a convention open to any interested person. Continuing activities are administered by permanent commissions, while special aspects of policy are the subject of ad hoc study committees.

The Federation represents Australia on the International Union of Speleology. Correspondents are requested, wherever possible, to direct enquiries to the relevant office-bearer or member society.

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Number 65 , Spring 1974

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E D I T O R I A L

Traffic and pressure of life in Sydney, dreary monotonous predictability of Canberra, frustrations of another engagement with the miners in NSW - there was a time when the less fortunate of us could escape to Tasmania. I mean, caves are still discovered with disgusting ease and regularity, you can still walk for a week and see nobody, the Hobart rush hour is still only ten minutes long, and potholes are still filled by superannuated yokels operating from a bucket of tar in the boot of their FJ or Morris Minor. So, despite the dire rantings of Kevin ("ecocide isle") Kiernan, it still sounded worthwhile and the editor took a flying trip south in August.

It was depressing, and that's an understatement. Every road in the ranges west of Mole Creek had logging or hydro roads, vast acreages were being flattened for wood chip and Reece was being quoted as saying there'd be no more reserves while he was Premier. Practically the whole state being carved up into spheres of considerable influence by and for the timber interests. Still no action guaranteeing reservation of Exit Cave. The HEC launching its next great project on the Lower Gordon. And some local politician still wants to build a road from Cradle Mt to Lake St Clair.

Tasmania has Australia's finest stock of caves for scientific research, recreation and tourism, scenic and aesthetic grandeur. Tasmanian speleologists have been farsighted enough to undertake thorough documentation of the state's underground wealth and keep up a flow of press reports to keep caves before the public. Perhaps the UNSWSS movie on Kubla Khan may help promote the conservation ethic there.

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: (see back cover)

A S F C O N F E R E N C E - B R I S B A N E 1 9 7 4

The Tenth Biennial Conference of the Australian Speleological Federation will be held at the University of Queensland, Brisbane, from 27-30 December 1974. Field trips will be available by private transport to Mt Etna / Limestone Ridge, Texas and Kempsey, while wet weather conditions may impose group transport to Camooweal and Chillagoe. This Conference will be the greatest gathering ever of Australian speleos and a full program has been devised for all tastes. Symposia, heated discussions, films and slides, displays and demonstrations, & add the new improved S P E L E O S P O R T S. There will be no evening sessions - instead films, slides, yak and argument around the keg.

All on the ASF mailing list should have received a more detailed circular. Further information may be obtained from UQSS, the organizers :

The '74 ASF Conference Committee,
P.O. Box 29, ANNERLEY, Qld 4103

START ORGANIZING YOUR TRIP NOW

- DON'T MISS OUT

N O T I C E S

INTERNATIONAL EVENTS

On pages 13 & 14 of this issue is a list of forthcoming events on the international speleo scene. Members of ASF societies interested in these, or even just going on an overseas tour and seeking advice on worthwhile tourist caves or speleo club contacts, are invited to contact the ASF Commission for International Relations (and leave a month or two for replies)

A S F INVITED TO ASSIST WITH CAVE MANAGEMENT PLANS - Jenolan, Bungonia

This year the Federation has received no less than three requests from government departments for submissions and direct assistance in preparation of policies and plans for management of cave areas. A short report on field work associated with the Cutta Cutta plan is on page 10. The other two reports currently in preparation deal with major cave areas of NSW :

JENOLAN - Two major discussion meetings have been conducted to determine policy & procedures and many less formal discussions and written submissions added. A draft of major policy decisions has been circulated to interested societies and individuals, and the final draft is being prepared with a mid to late October deadline. Enquiries and ideas should be forwarded to John Dunley, 13 Garran Place, GARRAN, ACT 2605.

BUNGONIA - has recently been declared a State Recreation Reserve under new legislation recently approved by NSW Parliament. The Minister, Mr Tom Lewis said the recreation areas would be permanent reservations and could be revoked only with the approval of both Houses of Parliament. A Management Plan is to be drawn up for Bungonia and the Australian Speleological Federation is honoured to be invited to assist with this project. At the time of writing a convenor for this important task had not been nominated, and enquiries should be directed to the Maison Council Convenor, Andrew Pavey, School of Physics, University of NSW, KENSINGTON, NSW 2033.

COVER PHOTOGRAPHS

This month's cover photograph, by Andrew Pavey, is from Eagles Nest, Yarrangobilly. We apologise for failing to acknowledge the superb photograph of the Khan, Kubla Khan Cave, Mole Creek, Tas. which appeared in the last ASF Newsletter 64. It was, of course, by the inimitable Lloyd Robinson.

C Q S S - NEW ADDRESS

The New address for Central Queensland Speleological Society is P.O. Box 538, ROCKHAMPTON Qld 4700.

VANISHING FALLS REACHED

Congratulations to Jeanette Collin (QCC) and Attila Vrana who recently became the first people ever to reach, on land, the fascinating Vanishing Falls in southern Tasmania. This landmark had become very familiar to air drop pilots navigating in the area but almost impenetrable scrub had deterred attempts to reach it from the ground. The waterfall drops into a large pool of water which sinks underground almost immediately, apparently reappearing over a kilometre away. No way could be found into the underground course of the stream. The successful trip which included exploration of other remote and inaccessible areas of speleological interest, took 18 days walking.

C A V E S O F A U S T R A L I A

No. 10 : EAGLES NEST SYTEM, Y1-2-3, Yarrangobilly, N.S.W.

by Andrew Pavey

"The deepest cave on the mainland is now Eagles Nest at Yarrangobilly, NSW"

... with these words the editorial in Spar 31 announced to the speleo world that, somewhat belatedly, Eagles Nest had been promoted to its rightful place in the cave hierarchy of Australia.

HISTORY

Yarrangobilly is one of the most remote and pleasant caving areas in NSW. The belt of Silurian limestone runs roughly north-south along the Yarrangobilly River for a distance of some 13km and of variable width (0.5 - 2km). The river runs through picturesque limestone gorge and effectively splits the area into three longitudinal sections: The Plateau (alt. 1100m), The Gorge (alt. 900m) and the West (steep slopes and few caves). The area itself was discovered in 1839 by T.A. Murray who explored the caves (Trickett, 1917), and at the turn of the century regular cave inspections were being conducted by a guide in what are still the tourist caves, North and South Glory Holes (Y24 & Y25). Whilst quite a bit of cave discovery and exploration was undertaken by successive cave guides (e.g. James Murray, Harry Bradley and Leo Hoad), it would seem that they confined their attentions to the most southerly part of the area and the River gorge itself (e.g. early discoveries were Tricketts Cave, Y13, and Coppermine Cave Y12).

There appears to be ^{no} known record of exploration on the Plateau until in March 1950 a party from SUSS established a base camp on the eastern bank of the River immediately opposite the downstream side of the Natural Bridge. Many holes on the western bank were investigated but exploration of that side of the river was soon abandoned for the much more promising eastern bank and plateau (MacGregor, 1952). Two caves on the Plateau were located by following up the ridge from the Natural Bridge. The two caves were described as being "very similar, lying about 50 yards apart on a line bearing 240° from the Eastern Cave, each being at the bottom of a large sink about 70 feet deep and 200 feet wide. A stream flows into the Eastern Cave". The party was unable to enter the caves at this time due to a lack of equipment but found the caves most impressive and "the obvious first point of attack at Yarrangobilly" (ibid.)

As to the naming of these caves MacGregor (1952) reports "... as far as can be ascertained, these caves have not been previously named and since the caves lie near the part of the plateau known locally as the Eagles Nest, the adoption of the above name is suggested". The names for the caves have been variously reported as "Eastern" and "East" Eagles Nest (similarly "Western" and "West") but following the above report the current adoption is Eastern and Western Eagles Nest.

In January 1951 exploration of the caves began. The Western cave was explored to a depth of about 100ft and gave no sign of ending. The cave was found to be extremely rough and requiring a stout boiler suit. An initial drop of about 30ft requiring a ladder or rope was also reported (the party was P. MacGregor and W. Woof). The passage is probably that leading south from Y1.

The Eastern Cave was explored for "about 1/2 mile". The party comprised B.Hoad, P.MacGregor, C.Slack, M. & W. Woof and they reported "For the first half of this distance it bears approximately 260°. The tunnels are for the most part large and rough with excellent formation in many parts. No signs of earlier explorers were seen in either cave and it was the opinion of local residents that they had never previously been entered. Much exploration remains to be done in both the Eastern and Western Caves" (ibid.)

In 1953 a party consisting of F.Stewart, L. Bishop, B. Cobbin and B.J.O'Brien (SUSS) found a cave virtually on the lip of the doline between Western Eagles Nest and the River gorge. This was named The Eyrie and was linked to Western Eagles Nest in 1955 by another party from SUSS. In August 1953 the first mapping in the system was undertaken by F. Stewart in Eagles Nest (map number 2Y2.SUS2). As a result of this mapping they suggested that the Eastern and Western Caves

could be linked by digging but this was not achieved until 1957 when H. Myers and L. Hockley completed a dig at what was then known as the deepest point in Western Eagles Nest (Hunt 1957). In 1955 1 pound of fluorescein was placed in the Eastern Eagles Nest stream (in flood) and this emerged from Hollin Cave (Y46) 8 hours later (Rose 1964).

In the late 1950s (particularly 1957) Paull Rose and Hughie Myers were particularly active in the exploration of the system and whilst there appears to be no extant record of their activities they and their colleagues are considered to have discovered most of the currently known system. The dig at (Deepest Dig' (see map) is attributed by hearsay to Paull Rose and/or CSS in the early 1960s, although this cannot be confirmed. In the middle sixties few trips seem to have gone to Yarrangobilly and quite a bit of knowledge was lost. The Eastern-Western link was lost in the rockpile and only discovered again by a SUSS party under J. Lotz in 1965.

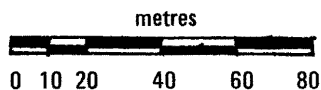
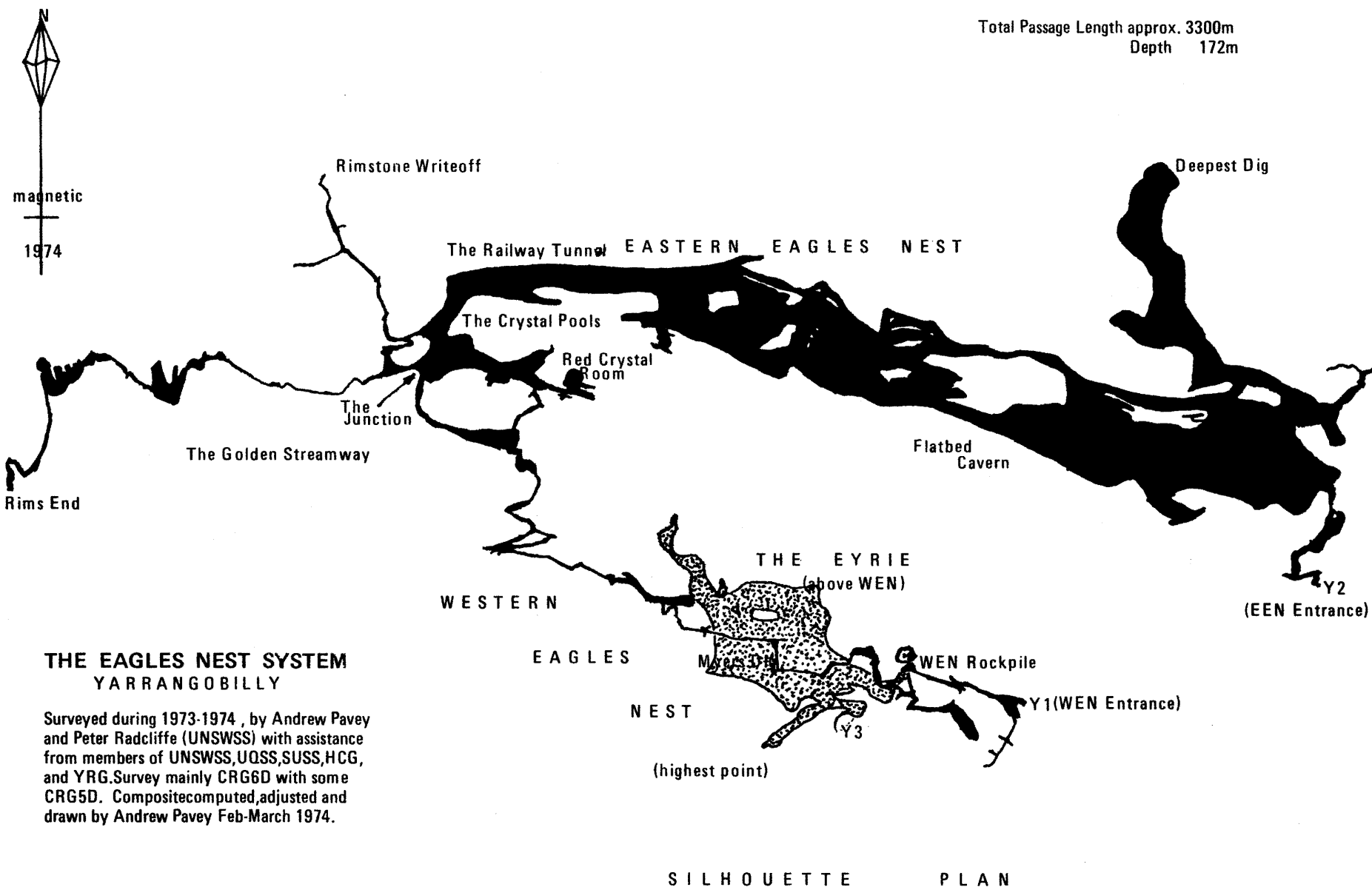
In the later sixties visits to Yarrangobilly again became popular but the new generation mainly limited itself to photographic trips. Several attempts at mapping the system were made all of which petered out rapidly except for a successful combined SUSS/SSS party which produced a Gr. 4 map of the link from the Eyrie to Western Eagles Nest (map no. 2Y1.SUS2).

During 1973 the author became particularly interested in the system and commenced high grade (6D) mapping (see map no. 2Y1.UNS1) (Pavey 1973). As a result of a 2 week trip in January 1974 on a combined UNSWSS/UQSS stint quite a bit of the system was rediscovered and the current length of the cave is 3300m with a depth of 174m (Pavey 1974). It was only after these surveys were computed that the true depth of the system was realised. The cave must have been the deepest cave on the mainland long before Argyle Hole (B31) or Odyssey Cave (B24) were discovered and explored, as the Eyrie was known in 1953 and early parties could hardly have failed to find 'Deepest Dig' during the 1950s. It can only have been due to the difficulties of access to Yarrangobilly in those early years that the true extent of the system was not realised.

The cave numbering system at Yarrangobilly was instituted in 1957 and Western Eagles Nest is denoted Y1, Eastern Eagles Nest Y2 and The Eyrie Y3. Note that the Yarrangobilly surface map ca. 1960 by Nurse reverses Y1 and Y2. The upper entrance to The Eyrie and the recently discovered highest entrance are both as yet unnumbered.

DESCRIPTION

The Eagles Nest blind valley is second only to that of Rules Creek in size at Yarrangobilly but is more impressive due to the terminal wall being approximately 30m high. The situation of the Eastern and Western caves is a classic example of stream piracy, with the stream now sinking in the eastern cave. The Western Eagles Nest entrance is the lowest entry to the system and the typical 20 - 30m high, 1 - 3m wide canyon which is so distinctive of this cave can be seen at the entrance. A pool of cold air is always present at the entrance and ice decorations have been noted from time to time. The canyon is partially blocked by a large pile of boulders which necessitate a 9m pitch to get into the cave. Behind the pitch and leading off to the south-west is a joint controlled rift which is reputed to connect with the rest of the system lower down, though this has yet to be demonstrated. The main canyon takes off in a WNW direction for 30m until the high narrow canyon is blocked by a rockfall. At this point it is necessary to climb and chimney into the roof in order to get around the obstacle. From the top of this climb the route bifurcates; continuing upwards leads to the Eyrie whilst down into the rockpile leads to the lower levels of Western Eagles Nest. The route through the rockpile is a tight corkscrew and leads eventually to a 9m pitch which can be sneakily climbed on one side. From the bottom a passage leads through massive rockpile until the canyon is again encountered. At this point (next to the 'fuck its cold' inscription) is the dig by Myers and Hockley which linked through to known passage in Eastern Eagles Nest. This low flattener leads into a parallel canyon development, past a marvellous draughty dig and on into a superb serpentineous passage before emerging into a much larger canyon. This is then followed down to the junction with Eastern Eagles Nest. The scalloping in this section is excellent and large. This lower part of the Western Eagles Nest Canyon contains a floor of superb red microcrystals and this continues past the junction to Rims End, at the most westerly point in the cave. This section, known as the Golden Streamway, sometimes floods leaving a large standing pool. Whilst the lower portion just described has traditionally been approached through Eastern Eagles Nest, it is distinctively and morphologically part of Western Eagles Nest and it is proposed that the south-western side of the system be universally known as Western Eagles Nest.



The Eastern Eagles Nest entrance is at the point where the stream sinks into the rockpile, depending on stream flow. Parties usually negotiate this section relatively dry. The stream itself has been reported as being followed for 150ft by an early SUSS party but recent attempts (Pavey 1974c) have been stopped by tight rockpile and extensive gravel banks very close to the entrance. After an extensive rockpile has been negotiated for some 50m the cave becomes massive. In plan it appears to be only 40m wide but in fact the chambers are developed from roof collapse slabs and in a north-south direction it drops off for over 100m at a steep angle. The Deepest Dig passage leads off from the bottom of the large 'hole' on the northern side of Flatbed Cavern and leads down as a fairly simple meandering stream passage to the terminal chamber which is the site of the dig. This terminal chamber is large and spacious with a flat mud floor. The dig is situated at the northern end and at the time of writing is 3.5m deep, making the total cave depth from the highest Eyrie entrance 174m.

During the middle sixties several paint tracks through the boulder pile in Flatbed Cavern appeared and it is possible to go over, through or below the massive roof collapse slabs and emerge into the lofty cavern beyond. These caverns are so large that little is seen of them. There are quite large and significant soil and mud levels and abandoned stream courses throughout this section and cavers should respect them for what they are. The Railway Tunnel leads down to the Crystal Pools and on out to the junction with Western Eagles Nest. At this junction there are two side passages, one the northernmost leads to Rimstone Writeoff, a passage blocked by rimstones reaching the roof, and an obvious original route for Western Eagles Nest. To the south east is the Red Crystal Room which has unfortunately been vandalised by mud tracking.

Whilst Western Eagles Nest is a relatively morphological feature, Eastern Eagles Nest has a more complex history and appears to have pirated itself a number of times, each time to the north and east of the previous one, until now the stream follows a totally different course to that of the cave.

The Eyrie which is situated right on the lip of the blind valley appears to be mainly a collapse feature. The main hall is relatively low but very extensive when an attempt to find the walls. The steep descent to Western Eagles Nest should be approached with caution since, although it can be free climbed, there is a trick in it. For the most part the decoration in the Eyrie is dead and dry but nevertheless quite impressive.

Speleothem development throughout the system is very well separated but where it occurs it is typically superb as only Yarrangobilly can produce. Very white flowstone and shawls are admirably out-pointed by micro crystalline 'rivers' in a number of places.

In summary, Eagles Nest is a large and exciting cave system, unique in its size and complexity and worth preserving for both its morphological and speleothem contents. Meteorologically it is also of some interest and the pool of cold air at the western entrance has resulted in a flora markedly different from the rest of the valley. The prospects for further exploration are small but not extinct. Perhaps the greatest hope for the system is that one day someone will break through from or into the resurgence, Hollin Cave (Y46).

and now for something completely different, a paid advertisement

S P A R

SPAR, The Newsletter of UNSWSS has been awarded the Best Newsletter title by ASF NEWSLETTER and is the only Australian speleo periodical which comes out 10 (yes, ten) times a year with TWO FULL SIZE offset printed photographic covers - plus loads of useful and some (just a little) useless information on the world, Australian and NSW caving scene. Cartoons, maps, diagrams and active progressive caving all get good coverage. Yours for only \$3 per year.

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S P A R

K A R S T A R E A S O F M A N U S I S L A N D , T.P.N.G.

by Geoffrey Francis

Manus Island is part of the emerging nation Papua New Guinea, and lies several hundred kilometres north of the mainland, near long. 147°E , lat. 2°S . Although most of the island consists of volcanics and clastic sediments, limestone is present in a number of areas with varying degrees of karst development. Thompson (1952) gave brief descriptions of some karst forms in a report on the general geology of the island. Kicinski and Belford (1956) examined the Tertiary sediments of Manus, devoting some attention to limestones. Williams (in litt.) has studied the geomorphology of limestone areas on Los Negros Island, and in central Manus Island. Loniu Cave has been described by Gallasch (1973). The following is a preliminary survey, based on the limited information available.

LOS NEGROS ISLAND

This island is separated from Manus proper by a narrow channel known as Loniu Passage. Raised coral reefs of probable Pliocene age may be found near Loniu and Lolak. Each reef forms a steep sided ridge trending slightly north of east; the general elevation of the crests ranges from 40m near Lolak to 75 m near Loniu. A few closed depressions may be found, usually elongated parallel to the ridges. Isolated residuals of limestone occur as stacks or small islands in Loniu Passage and other estuaries. The stacks and limestone cliffs in these localities show well developed marine notches, the most prominent being nearly 1.5m above mean sea level. Caves are present on the heights near Loniu and Lolak villages, and at low levels along the sides of the estuaries. Nge-Pelimat Cave at Lolak leads off from a small collapse doline and has over 100m of passages. Loniu Cave has nearly 200m of known passages and there are possibilities of further extension. The caves of Los Negros Island all appear to be of phreatic origin with well developed solution pockets of varying form. Nge-Pelimat Cave has numerous rock pendants. Cave passages often follow a prominent set of joints bearing between north and north-west. Some large chambers are present, and sections of Loniu and Nge-Pelimat Caves have been modified by breakdown. The larger caves extend down to groundwater level. Entry to the caves is subject to permission by local villagers, and one enterprising Loniu resident charges 50c for guided tours of Loniu Cave.

BUNAI

Bunai is one of a group of villages clustered on the south-eastern corner of Manus Island. A raised coral reef extends parallel to the shore for about 3km. Although much of the reef is only 15m high, each end rises to a hill about 50m in elevation. The hill behind Bunai village contains one sizeable cave and there are several others in the ridge further north. Limestone is also present on Sanders Island, opposite.

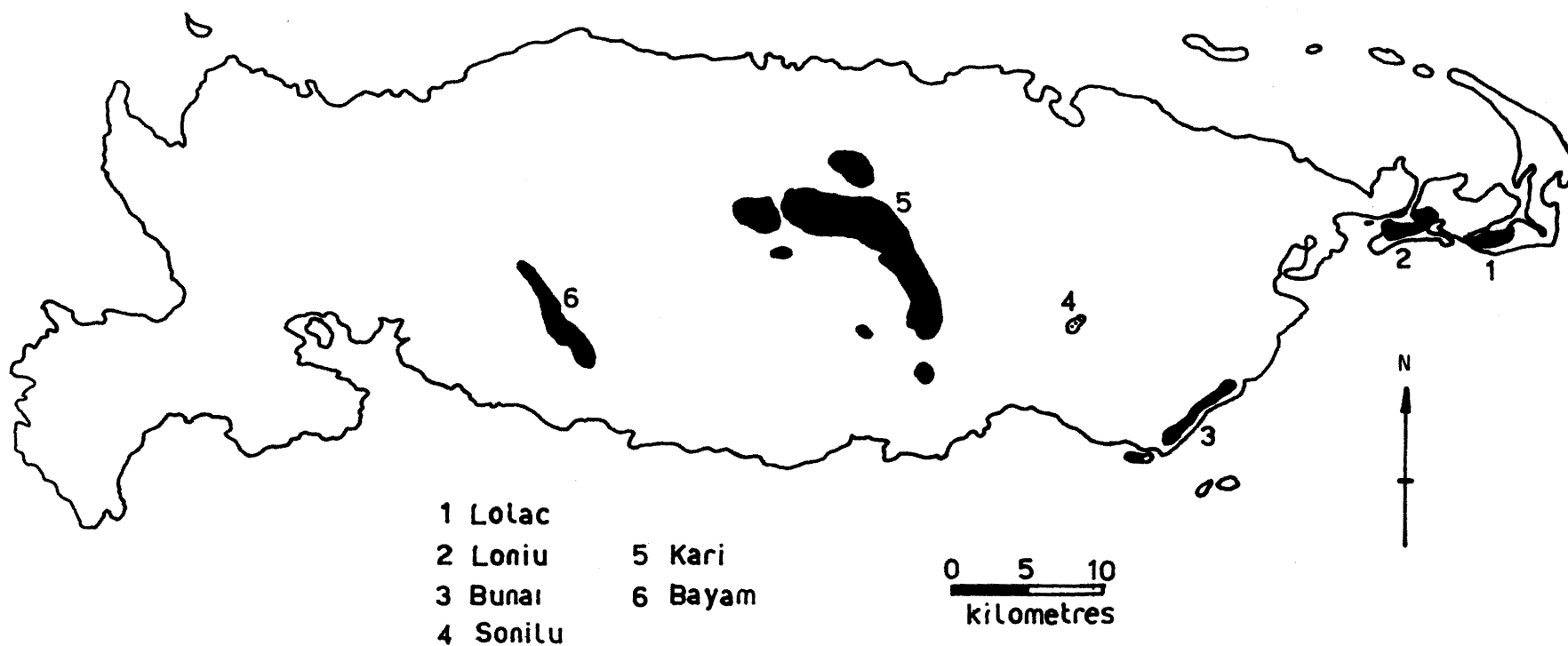
SONILU

In the areas south and west of Sonilu there are a few closed depressions up to 15m deep. In this locality the bedrock is calcareous sandstone and siltstone which is mantled by deep red soils of fine texture. It is possible that these lithologies may be marginally suitable for karst development. On the other hand the depressions could be subadjacent karst dolines, formed by the collapse of cavities in underlying limestone. Limestone is known to underlie the clastic sediments further westward; further investigation is needed.

KARI

Kari is the name for a group of villages in north central Manus. A belt of gently dipping limestone averaging several kilometres in width extends through Kari southward to Droia. The Miocene limestone was probably formed as a fringing reef on a Tertiary volcanic island. In addition to the main belt there are scattered outliers of limestone to the west, possibly the erosional remnants of a larger original outcrop. Along the Nugu River to the north a limestone inlier has been exposed by the erosion of overlying sandstones and volcanics. The Worei River and its

KARST AREAS OF MANUS ISLAND



major tributaries rise on impervious rocks to the north or west and flow onto the limestone, sinking and resurging repeatedly on the way to the south coast. There is a variety of karst forms ranging from cone hills with cockpits to crevice karst (Williams, in litt.).

The limestone belt forms a topographic low between the ridges of older volcanics to the west and a prominent escarpment capped by younger sandstones and volcanics on the eastern side. Relief on the limestone is up to 150m, and in places the limestone hills are overlain by more recent volcanics. Thompson (1952) believed that the volcanic cover was not sufficiently thick to mask the former limestone topography. Williams (in litt.) has suggested that relief on the limestone is partly inherited from pre-volcanic times and that limestone residuals are being exhumed from beneath a lava cover. But it is also possible that some of the present amplitude in the limestone surface developed underneath the volcanics. As yet there is insufficient evidence to determine whether the exhumed features in the Kari area are palaeokarst or subjacent karst.

River caves are common in the central limestone area. Towards the southern end of the limestone belt the Worei River goes underground, re-emerging about 900m to the south-west. The underground river is navigable by canoe for a distance of 400m upstream from the resurgence (Williams, in litt.). Caves are also present in another outcrop beside the river about 3km downstream from the resurgence.

BAYAM

Near the Bayam River in south western Manus, a belt of limestone about 1.5km wide is visible on the air photographs. The limestone extends in a north westerly direction and is probably similar in age and origin to the limestones of the Kari area (Jaques, pers. comm.). Although a number of gullied cockpits and other closed depressions are present, major allogenic streams like the Bayam cross the limestone without sinking.

ACKNOWLEDGMENTS

Acknowledgment is due to Mr L. Jaques (P.N.G. Geological Survey) and Mr D. Kirwin (Anglo-Australian-American) for information on the geology of Manus Island

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U N S W S S P L A N S C A V I N G M O V I E I N K U B L A K H A N

Following on from a successful small venture into 16mm caving movie production at Cliefden this year, John Carmichael and Andrew Pavey (on behalf of UNSWSS) applied for a grant from the Experimental Film Fund administered by the Film and Television Board of the Australian Council for the Arts. The grant application (\$2700) has been successful and planning is now under way to produce a half-hour 16mm colour movie based on exploration and conservation aspects of Kubla Khan Cave at Mole Creek, Tasmania. Perhaps the most exciting aspect of the movie will be the filming of the truly enormous dimensions of Khan Hall by Diprotodon lighting. As with all such ventures there will be a need for a considerable body of actors, sherpas, assistants etc. to mind generators, lay cables, transport gear etc. through the cave. The on-location filming is expected to take ten days early in February 1975. Anyone interested in participating in this exciting cave adventure should contact the producer John Carmichael c/o UNSWSS, Rox 17, The Union, University of NSW, Kensington 2033.

The result of the first filming venture, "The Crystal Kingdom" of approximately 20mins length will be exhibited for all member societies later this year and at Brisbane Conference.

T H E N A T I O N A L S P E L E O S P O R T S

Secretary of CSS, Bob Dunn was interviewed on local ABC Radio in Canberra on Saturday 12 October. After the usual skirting of questions of great dangers etc., Bob was asked whether there was a competitive element in caving. Ah yes, but not in the usual sense as in America with races up and down ropes and ladders. The competition here, Bob said (most perceptively!) is to see who can produce the most papers or map the most caves!

T H E N O R T H E R N K A R S T R E V I S I T E D

by Andrew Pavey

During the past year at least three speleological expeditions have visited those most distant of karst areas in Northern Australia - Camooweal (Qld) and Katherine (NT). Due mainly to long approaches (Katherine is 4000km from almost any major Australian city) the areas are visited infrequently, often only by small parties or even individuals. This year has been somewhat unusual in that several well organized groups visited the caves . . .

A S F V I S I T T O K A T H E R I N E A T R E Q U E S T O F N T R E S E R V E S B O A R D

The Federation received a letter in January asking for an expert party to inspect and report on tourist development in Cutta Cutta (K1) and Kintore (K2) Caves. In response, Elery Hamilton-Smith (ASF President), Lloyd Robinson and Clive Champion flew to Katherine. Both major caves were visited although little exploration was done due to time limitations. The 'show' section of Cutta Cutta was resurveyed with aid from the caves lessee's manager Kevin Guy and Northern Territory Reserves Board Senior Ranger Cliff Ellis (who is responsible for the two caves reserves). The party also flew over most of the outcrop in the Katherine region, stretching in a band about 40km long and 2-3km wide, beside the Stuart Highway. They are preparing a report to the NTRB and hopefully this will be available to speleos later. The NTRB paid expenses and the field fee will be contributed to ASF funds.

(report compiled by Andrew Pavey with assistance from L. Robinson, Cliff Ellis, Kevin Guy & letters of Elery Hamilton-Smith)

U N S W S S V I S I T T O K A T H E R I N E , J u l y 1 9 7 4

A party of eight from UNSWSS travelled by road to NT and spent 4 days at Katherine near Cutta Cutta Cave. Kevin Guy (manager) supplied a copy of the old DSG survey and further surveying was tied into this. Cutta Cutta was explored 30m beyond that described by O'Reilly (see ASF News1. 62). A short drop was descended, one branch beyond leading to a pool, beyond which progress is possible in dry conditions. No side passages were investigated but the conclusion was reached that the length of the cave has been exaggerated, the UNSWSS estimated it at 1.5km. The large, easy walk through tourist section is quite spacious and impressive though the decorations are dry. One large python snake was encountered 600m from the entrance. The cave temperature was measured at 29°C and the humidity is really bad, resulting in severe sweating, breathing difficulty and lethargy almost immediately the tourist section is left behind. This severe physiological stress affected the temper of what must be considered a very fit and competent party and must be the reason for dramatic over-estimation of length in previous reports on the cave. There is no draught in the inner section but it is of sufficient volume to rule out 'foul' (CO₂) air. The cave reflects many visits over the years, especially locals and RAAF during World War II, with consequent accumulation of rubbish, including beer bottles, scattered through the cave. The site of Penman's live-in attempt over ten years ago was revolting. No sign was found of the reported (O'Reilly) 55° hot springs "950m into the cave". Our recommendation would be to see the tourist cave and then work elsewhere in the area.

O T H E R C A V E S N E A R C U T T A C U T T A - G u y C a v e K 2 6 (U N S W S S n u m b e r)

'Cave No. 2' (O'Reilly 1973) is situated in a large outcrop approximately 2km from Cutta Cutta and is quite extensive. The easiest section is the walk through passage described by O'Reilly, the surveyed length of which is 167m. The decoration was dry and lifeless, as massive as Cutta Cutta but not nearly so much. Several other leads from the impressive arched entrance closed out; only the right hand lead being of interest. After initial difficulties the passage opened out into several branches most of which were not explored due to humidity nearly as severe as Cutta Cutta. A rough survey revealed 700m of passages with many prospects for exploration. One really large chamber 100m x 20m x 20m high was found. Total length of the whole cave is estimated conservatively at 1500m and as stated exploration prospects are excellent.

"Cave No. 5" (O'Reilly) (Red Banded Tree Snake Cave, Road Drop Cave, Roadside Cave) was another which reportedly was large. A single vertical drop of 18m with passages aggregating 50m opening off at the bottom was the total. Four or five red banded tree snakes ('harmless') and a number of as yet unidentified 'pig-nosed' bats were seen in the cave.

In summary, the area has great potential and should reveal a number of large caves. Surface searching requires active grass burning off. The main deterrents are seen as snakes and the humidity, aside from obvious access problems. As regards driving up, the roads are quite good but unless you want to see Australia and its garages, we recommend taking a plane to Katherine and hiring a car.

A full report on the expedition will fill forthcoming Spar 37.

U N S W S S A T CAMOOWEAL, July 1974

The UNSWSS party en route to Katherine spent three days at Camooweal and managed to miss the UQSS party (see following report) despite driving within 100m of their campsite on about a dozen occasions! One 'possible' cave marked on a set of Henry Shannon's air photographs to the north of Camooweal Cave proved to be just a shallow featureless depression after one day's careful quartering of the area in car and trail bikes. A second day was devoted getting to "Cave no. 28" (Shannon) using the 2WDs to bush basheross country, only to come across UQSS Land Rover tracks from 2 days previously!! The doline was extensively explored and three digs started, one of which was successful to the extent of a 463m cave (named Kooailabah and numbered 27). The entrance rockpile is 17m deep and extremely tortuous, the main passage typically 1m high, 5m wide and very humid. Several wide but low side passages were not explored - take a portable air conditioning plant!! With the success of both the UNSWSS and UQSS trips, Camooweal must be considered to still have a great deal of potential.

BARRY CAVES, N T

A roadhouse over the border from Camooweal is named "Barry Caves". The UNSWSS party reports two small caves, simple shelter variety (see Holt 1966), hardly worth the effort, however they are located very close to the western margin of the Barkly Tableland and may well be worth investigation of further cave development in the area.

DARWIN'S FAMOUS "DRIPSTONE CAVES"

Whilst driving around Darwin's northern suburbs we chanced upon a "Dripstone Caves Shopping Centre" sign and decided to investigate. Well, the local beach is called "Dripstone Caves Beach" and indeed there were five scungy tunnels the largest of which was 8m long and 1m high, but with no sign whatever of dripstone. Perhaps we missed the real caves but the area is rather flat and apart from pillboxes the only relief was the small cliff containing the caves.

U Q S S CAMOOWEAL - LAWN HILL EXPEDITION, June 1974

by Ken Grimes

The expedition comprised only three people - Grimes, Shannon & Brown and travelled by TAA, hired 4WD and a light plane for reconnaissance.

In the first week Ken Grimes was alone and spent most time in the Burketown area where there are "laterite pseudo-karst" features, and the Lawn Hill area at the NE extremity of the Barkly karst region. In the Lawn Hill area a broad depression in the western end of the Dentalium Plateau, SE of Lawn Hill (see map in ASF News1. 63) was visited. This contained a mud floored stream sink, grike fields, several small dolines and several cave entrances. Only one of these was checked, leading to a small humid cave with several hundred bats.

SW of Lawn Hill the Lawn Hill Gorge and Colless Creek Grike field were visited, an area about 1km square of large grikes up to 10m deep and 4m wide with caves leading off the bottom. Only one of these was entered to the point where a short pitch stopped further solo caving. The area has great potential for horizontal 'street directory' type systems but little vertical range. A canoe through Lawn Hill Gorge would be the most pleasant access, rather than tramping several miles over hot stony ridges.

On 28 June, Henry Shannon and Lex Brown flew up and the second week was spent mainly in surface exploration, with underground work as required. The aim was to check on my air photo interpretation (see ASF Newsl. 63). Of the previously known caves, Niggle, Great Nowranie, Shannon's "No. 2" and "No. 18" (1970 list) and Whirlpool Cave were visited. No. 18 is almost certainly the "Haunted, or "Bat Shit" Cave of Mt Isa Speleological Society, and in this cave alone one lead was followed to a pitch and paced back at 500m, with unexplored branches going off everywhere. 19 dolines and "possible" dolines spotted on the air photos were checked on the ground. 5 "possibles" turned out to be large gilgais or just tree stumps. The remainder were true dolines or stream sinks but many had earth floors and the only prospects lay in heavy digging in the rockpiles about their margins. UNSWSS dug out one such (see UNSWSS report above - ed.) Four other small caves were found, two after digging, and one large cave east of Nowranie Cave had at least 300m of passage, included in which was an incredible 100m long squeeze so wide that the sides couldn't be seen with a carbide lamp. Two of the small holes (Hornet Hole and Windtrap Cave) ended in tight squeezes which could yield to further digging. Both had a draught and strong condensation at the entrances. Windtrap had a howling gale in the final squeeze which repeatedly blew out the lamp.

3½ hours of flying was done mostly between Camooweal and Lawn Hill, checking photo-interpreted dolines and photographing grike fields, sink holes and the Lawn Hill Gorge. A major stream sink was spotted and several large cave entrances in the grike field area. Among other dolines, we saw a huge shaft (10 x 30m?) going straight down out of sight; but it would be almost inaccessible from the ground (20-30km cross country from nearest track, over dissected dolomite terrain). We called this Skydiver Shaft as Lex nearly became the first to explore it while taking photos out the rear door of the plane. In general we found that, with the exception of obvious things like Skydiver Shaft, and completely sedimented depressions, it was very difficult to estimate the cave potential of a doline from the air.

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WEE JASPER CAVES, THE HUME HIGHWAY, CSS & NUCC

In what may well be the first such case in Australia, the Commonwealth Bureau of Roads has commissioned a detailed study of the effect on Wee Jasper Caves of proposed rerouting of the Hume "Highway" between Goulburn and Albury. Canberra Speleological Society and National University Caving Club were retained as consultants at an appropriate fee and a team of Canberra speleologists under former ASF Vice-President Andrew Spate is preparing a lengthy report for the Bureau.

NSW LIAISON COUNCIL MEETING

A meeting will be held of the NSW Liaison Council of the Federation at 10am, 7 December 1974. Venue will be 1 / 2 Grace Campbell Cres. HILLSDALE 2036. Enquiries may be directed to the convenor, Andrew Pavey, School of Physics, University of NSW, KENSINGTON NSW.

A SALES PITCH

Sales Manager Keith Oliver advises that the following issues of ASF NEWSLETTER are still available : 12, 13, 15, 36, 39, 40, 42, 43, 46, 47, all from 50-64. Rest out of print.

Other publications available from Keith are "Caves of Australia", "Conservation of Mullamullang Cave" and "Report of Ad Hoc Committee on Conservation".

PLEASE MAKE OUT CHEQUES FOR THESE TO Andrew Pavey, N O T to Keith Oliver or to A.S.F.

More bad news : Australian Speleology 1971 has been upped in price to \$3 (THREE DOLLARS) due to production costs being higher than anticipated. Three, not two dollars,

INTERNATIONAL NEWS

from INTERNATIONAL UNION OF SPELEOLOGY

The Australian Speleological Federation represents Australia at the International Union of Speleology, headquartered in Europe. We have been well represented at every international congress since 1961; four members attended the Sixth International Congress of Speleology in Olomouc, Czechoslovakia in September 1973. The following extracts from the latest IUS Bulletin give some idea of the scope of IUS activities:

INTERNATIONAL CAVE CONSERVATION YEAR

The General Assembly of the International Union of Speleology has proclaimed the year 1975 as International Cave Conservation Year, and has asked all speleologists and speleo organizations to carry out appropriate activities in support thereof.

Details of the contribution to this program by ASF will be worked out at the Brisbane Conference at the end of this year.

COMMISSION ON KARST EROSION

After meeting in Olomouc in September 1973, the Commission resolved to organize a symposium in September 1975, the main theme to be the standardizing of measurement methods for research into karst denudation, which is defined as "the chemical and mechanical erosion of the surface and underground karst rocks". The Symposium will be held in the classical Yugoslav karst area at Ljubljana, and there may be excursions to the gypsum karst of East Germany. The Commission will also be preparing a bibliography of all works dealing with karst denudation.

COMMISSION FOR PROTECTION AND EXPLOITATION OF CAVES

Following discussions at the 6th International Congress at Olomouc, Czechoslovakia, 1973, the Commission was divided into separate secretariats for protection and for exploitation aspects. There will be close collaboration with working groups of the geography of tourism and recreation of the International Geographical Union. The Commission has undertaken to prepare a list of all the commercial (tourist) caves of the world and has requested IUS member organizations to contribute to this program.

COMMISSION FOR CAVE DIVING

Aims of the Commission are :

1. To contribute to development and increase of safety of cave diving all over the world
2. Effective international exchange of experience and solving of important problems of cave diving.
3. Contribute to effective utilization of cave diving as a means of scientific research in other branches of speleology.

To reach these aims the Commission will follow this program:

- a) recommend equipment, methods and techniques of cave diving, training, safety and rescue procedures and draw attention to problems requiring solution.
- b) help in organizing cave diving instructor courses.
- c) organize international camps of cave diving and help in organization of international expeditions for solving of important speleological problems.
- d) help in improvement of equipment by means of exchange of documentation for selfmade equipment exchange of experiences with commercially made equipment and suggestions for improvement of existing equipment
- e) publish regularly information on Cave Diving developments and utilize all possibilities of publication and information exchange.
- f) keep world statistics of cave diving accidents and near accidents, aimed to prevent repetition of accidents with the same causes.
- g) co-operate with other commissions of IUS, with World Underwater Federation (CMAS) and with other organizations having underwater exploration of caves in their program.

ASF needs volunteers to represent Australia on these and a number of other Commissions of the International Union, and several appointments have already been made. For further information, please contact the ASF Commission for International Relations (addresses inside front cover).

FUTURE INTERNATIONAL MEETINGS

The following international meetings are being organized under the auspices of the International Union of Speleology. For details, contact ASF International Relations.

- | | |
|-------------------------|---|
| 3 - 6 October, 1974 | COMMISSION OF SPELEOTHERAPY, Working Session
Badgastein, Salzburg, Austria |
| 24 - 28 April, 1975 | THIRD INTERNATIONAL MEETING OF CAVE RESCUE
Eisriesenwelt, near Werfen, Salzburg, Austria |
| August, 1975 | INTERNATIONAL SYMPOSIUM OF CAVE BIOLOGY AND CAVE PALEONTOLOGY
Oudtshoorn, South Africa |
| early September, 1975 | SYMPOSIUM OF THE COMMISSION OF KARST EROSION
Ljubljana, Yugoslavia |
| 22 - 29 September, 1975 | FOURTH INTERNATIONAL WATER RESEARCH CONFERENCE
Nairobi, Kenya |
| 13 - 18 September, 1976 | NINTH INTERNATIONAL CONGRESS OF PREHISTORIC AND PROTOHISTORIC SCIENCES
Nice, France |
| September, 1977 | SEVENTH INTERNATIONAL CONGRESS OF SPELEOLOGY
To be organized in Great Britain. No details yet released |

A B S T R A C T

The Nullarbor Karst, Australia

D.C.Lowry & J.N.Jennings

Z. Geomorph. N.F. 18 (1) : 35-81 (March 1974)

The Nullarbor Karst, about 200,000 km² of pure Upper Eocene and Miocene limestones in almost horizontal attitude, has been subjected to very slow subaerial erosion since Middle Miocene times, greater in its southern semi-arid part than its arid interior. This has left it with an almost planar surface inclined very gently southwards and eastwards. Unbroken vertical sea cliffs form much of its coast; elsewhere three coastal plains cut in the limestones are backed by remarkably continuous emerged cliffs, modestly weathered subaerially except where buried by dunes and eolian calcarenite.

Part of the karst plateau has a residual soil and kankar cover but deflation has generally removed this to give a thinly soil-covered and bare karst with subdued surface solutional relief, usually joint-guided. This relief takes the nature of low ridges and corridors or scattered very shallow, gentle circular depressions, sometimes aligned in chains. Weathering has indurated the limestone near the surface. The plateau is pocked abruptly by collapse dolines, few in relation to the karst area. Though most have slopes degraded by surface weathering, the proportion which is sharp featured and well preserved is significantly high. In the southwest crystalline basement inliers are rimmed by moats in the limestone. Minor solutional sculpture (karren), rare and poorly developed, is found mainly around dolines, along the emerged cliffs and the hogbacks of 2-cycle cliffs on the present coast. There is a direct relationship between amount of surface diversification and rainfall.

The same relationship holds for caves, which are few in relation to the karst area, particularly large caves. Various types of caves are described but there are pronounced common characteristics notably the prevalence of breakdown forms and deposits, and rarity of bedrock solution forms. In a large number of caves salt weathering forms and products are especially well developed. Blowholes (circular entrance shafts) may be closely related to blind pipes and may have developed from below upwards. Vadose modifications of shallow caves and of the forward part of deeper caves is not great and may be younger than the deflation of the clay and kankar cover. The origin of a near-surface zone of perforation is variously interpreted as due to tree-root activity and salt weathering, on the other hand, and to shallow phreatic solution on the other; it needs further study. Deeper caves reach down to brackish large and small lakes in a regional watertable where present-day solution is negligible. Deep cave characteristics are mainly due to upward stopping from a former zone of shallow phreatic solution along joint-guided trends, probably during the last glacial low sea level when the watertable was lower and the groundwater more aggressive. However earlier higher zones of shallow phreatic tube formation are known which may have weakened overlying rock and promoted collapse. Speleothems are poorly developed and are marked by the relative importance of gypsum and halite in their makeup.

There is a variety of evidence relating to climatic history; geomorphic, such as relict river courses in inner parts, deflation of cover, halite speleothems following calcitic ones, and biologic, namely subfossil and fossil fauna and pollen from surface and underground sites. Effectively drier and wetter oscillations can be recognized, if not dated. Overall, however, climate appears never to have departed from an arid / semiarid aspect very far, or for very long, since mid-Miocene times.

In conclusion attention is drawn to the many attributes characterising this karst which derive from its dryness in the present and prevailing in the past.

D O W N U N D E R A L L O V E R

. . . . News from around the Societies

Conducted (mainly) by Andrew Pavey

B S A have taken responsibility for documenting sea caves and non-limestone caves along the south coast of NSW, and Bermagui Caver 2 (2) carries descriptions and maps of 4 sea caves up to 50m long at Burrewarra Point, Pretty Point and Turingal Park. In August a very wet but successful trip carried out work at Bendethera, one of the closest caving areas (in straight line distance, anyway) to Bermagui. On the way back the party examined the collection of guns the Robinsons have for shooting people that plough across their lucerne paddock. They wonder how speleos will survive as the lucerne grows higher and the farmer's aim better!

(J.D.)

C E G S A The Group has just taken delivery of new standard map sheets - A2 size - which are considered more appropriate to South Australia's never ending horizontal mazes. They are also engaged in the preliminaries to constructing about 400m of ladder ~~to~~ in 8m lengths, 250mm rung spacing. Anyone interested in good ladder at about \$20 for lengths of 8m is invited to contact CEGSA. Those Group members who are working seem to be getting results. About 300-400m of passage has been recently added to Blackberry Cave at Naracoorte, including some well decorated chambers. New caves are still appearing all over the state although progress in Corralynn has slowed considerably.

(news from David Hawke)

C Q S S have changed their address (see page 2). The Explorer continues to give prominence to the continuing struggle against mining at Mt Etna, which has included excellent press coverage and a program of showing visitors from sympathetic conservation and similar organizations over the caves and environment of Mt Etna. Good local publicity was obtained when Conservation Secretary Jeff Simmons announced that Ballerina Cavern in Johannsens Cave had been named "Joh Bjelke-Petersen Cavern" in honour of the Premier. Let's hope that if the cave must go, so will the Premier!

(J.D.)

C S S have been very active at Wee Jasper, where a dozen or so society members are engaged in a thorough documentation of the caves and the environment generally. As a result of the more intensive surface exploration work, the cave list now stands at 100, with more envisaged. At Yarrangobilly most of the work has centered about installation and maintenance of a rather troublesome automatic recorder monitoring stream flow at Hollin Cave Y46 which is the subject of hydrological study. The Very Latest has reappeared with an offset A4 format, new editors and some very well executed maps of Harriewood Cave Y26 and Meat Safe Cave Y76.

(J.D.)

I S S are still working on the slow job of numbering the caves at Bendethera. The heavy rains over the months hampered the finishing of the job as farmers do not like vehicles driving across the paddocks. A party was actually marooned on the far side of the upper Shoalhaven but managed to get out without help. ISS will soon commence the surface survey of Bendethera. Bill Wilton has completed ten continuous years as President (is this a record?) and was recently made a life member.

K S S have followed up reports of a new cave at Yessabah, which turned out to be only a most disappointing 10m deep. However a nearby promising hole was enlarged sufficiently for a ladder to be dropped. Further prospects for extension were evident at the bottom but report author Dave Kemp remarks that if any work is to be undertaken it will have to be soon as the quarry face is fast approaching!

M S S Lynton Goldsmith reports unprecedented floods in Mammoth Cave, Jenolan, including waist deep water in Horseshoe Cavern and 20cm air space in Forty Foot in southern section. At Bungonia activity has centered on B70 and the surveying at Abercrombie Caves has continued with plane tabling by Ken Keck and Derek Peffer. An interest has been taken in Yarrangobilly where Restoration Cave Y50 was surveyed, there being stories that this was the last of three surveys of Y50 by various people, none of which looked similar!

P S G have continued their systematic search and exploration of sea caves along the NSW coast, the latest session being coverage of the area north from Redhead Beach, near Newcastle. A surprising number of small to medium sized marine caves has been tagged and mapped. Elsewhere, trips have gone to Bungonia and Wee Jasper, while a mid-winter trip to Great North Cavern, Mammoth Cave, proved wet, cold and muddy as only Mammoth can be. The Dry Siphon wasn't, of course, a 7cm air space having to be negotiated, then the tummy muscle wrench up North Tunnel, suitably lubricated with the odd pool of water, and then after the muddy descent of Gordian Knot Pitch, water was found in Twiddle-om-Pom and digging was therefore abandoned. It is recorded that the first party members out of the cave (at 2am on a very frosty morning) had their muddy trog suits frozen up while waiting for the remainder to jumar out of the cave.

(J.D.)

N C have had a new lease of life under the prodding of Andrew Skinner who is working in Launceston for a year. Although trips have gone to several northern cave areas and even south as far as Exit Cave, the most activity has naturally been at Mole Creek where joint trips have been arranged with another Launceston caving group, and with SCS/TCC members from Hobart. Exploration has continued in Croesus and nearby caves, and track marking has been done in Croesus and Kubla Khan Caves.

S C S report 18 trips in the April-June quarter, the most notable news being a profitable bash on Herberts Pot at Mole Creek. A five day underground trip in June camped in the downstream sand passages and carried out extensive exploration, surveying and watching for fluorescein dumped in Kellys Pot. During surveying some extensive new discoveries were made totalling 300m, with exploration not yet completed due to lack of time. A whole day was required just to haul gear to the surface. Elsewhere, further surveying has been done at Hastings and Junee-Florentine areas and an Easter trip to Mt Ronald Cross located some eight new caves. This area, near the west coast, is reported to have extremely good exploration prospects; so far only the higher, open slopes of the mountain have been explored, necessitating air drops of food. The lower slopes could prove worth an intensive exploration.

S S S have shown most activity at Bungonia where the JULES (Julia's Underground Laboratory Experiment - Sedimentation) is being installed in B24. The aim of the experiment is to continuously monitor physical and chemical characteristics of Knockers Cavern sump and to relate this to the extensive banded sediments therein. Recent floods in this cavern resulted in the sump rising at least 10m above normal, covering instruments to depth of 5m.

T C C report an active period with plenty of people caving but not much in the way of discoveries. It seems that unless at least one major cave is discovered each month, apathy sets in in Tasmania - even so a successful foray into the western Florentine area in June located some unrecorded caves, one of which, JF55 has been mapped at about 60m long. President Laurie Moody says that this area, on the western side of the Florentine River now looks extremely promising. In parts the river banks are heavily timbered and as the limestone apparently extends further west than previously thought, follow-up trips are to be held. Elsewhere, TCC members have been busy documenting and tagging systematically at Mole Creek and Gunns Plain.

U I N S W S S have had some marked success lately. Following on from the discovery of Noonameena Cave at Cliefden comes yet another major discovery in this area which was once considered almost 'caved out'. The new cave, CL69 Malongulli Cave, was the result of a rather short dig above Limestone Creek, on the first visit giving access to 190m and on a later push a further 80m. The cave is extremely well decorated and as well as a genuine sump boasts a number of promising digs. The latest Spar (no. 36 for July 1974) reports in detail on the caves at Gloucester which have been the subject of investigation by the Society. Maps and a description of two major caves and a further 4 minor ones are included. The two major caves, each of the order of 200m long are both active and feed a resurgence some 500m distant, the underground drainage breaching a surface divide. Both caves end in sumps with possibilities for diving, but entering via the resurgence appears very difficult. Spar 36 contains an account of an exploratory trip into one of the longest 'caves' in NSW, a stormwater drain in an unspecified part of Sydney. Some 3km of drain pipe, ranging from 3m to 5m in diameter was explored at high speed on bicycles, the riders equipped, of course, with bash hats and electric cap lights.

S R G W A have commenced publication of a regular newsletter, a copy of which was forwarded to the Newsletter Commission. Unfortunately this had been mislaid when the time came to write DOWN UNDER ATL OVER. Sincere apologies but more next issue.

W A S G : News on activities April-June 1974

by Kerry Williamson

AUGUSTA - a dive site reconnoitring trip was made to the end of Easter Cave, past the Chamber of Tresses. The water table has continued to rise, there's even a few inches of water in first duck

WITCHCLIFFE - using a sextant the straw in Strongs Cave, WI63 was measured at 22'6" ± 10". It's still a world record! A small inflow cave near the Swamp Inflow and the elusive Zamia Nut Cave have been found. The survey of Block Cave was completed and Arumvale Cave WI57 surveyed to Grade 5.

COWARAMUP - a cluster of approximately 50 bats (species not yet determined) has been sighted in Lake Quininup Cave C01 during a survey trip. This is the first recorded sighting of a number of bats inhabiting a southwest cave. Some shafts to the north west of C01 were found but not descended due to lack of a ladder at the time.

SOUTH HILL RIVER - Diving in the small lake in Woolka Woolka Well Cave (SH21) has yielded a large underwater phreatic maze which is still going. Lake Tethis was also investigated and found to be an interdunal depression. A new extension and entrance were found in Pretty Cave SH9 by same party.

CAPE RANGE (NORTH WEST CAPE) - saw a trip in May with a dozen or so new caves found and several old caves were repositioned. The area still holds great promise . . . quote: "There's a nice 30m pitch every couple of hundred metres or so."