

ASF NEWSLETTER

AUSTRALIAN SPELEOLOGICAL FEDERATION

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THE PINNACLES,
NAMBUNG NATIONAL PARK.



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The Federation maintains a comprehensive library of Australian and overseas speleo-logical literature. Enquiries to: Sandra Halbert, A.S.F. Library Commission, as above.

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EDITORIAL

The editors wish to apologise for the small size of this issue of the Newsletter. However, you'll notice that more material is being squeezed into each page, so that the total amount presented is not much less than normal. Apologies in particular to Kerry Williamson (WASG), who went to a great deal of trouble writing for this issue but whose copy had to be severely edited to fit into the last page. A most interesting article on Camooweal also arrived just a little too late for this issue but will be featured in the next. Thanks to Ken Grimes.

This has been a singularly successful year for Australian speleology, beginning with the NIBICON field trips following the biggest Conference the Federation has ever held, leading on through such conservation headlines as Precipitous Bluff, Bungonia and Texas, featuring the first Conference on Cave Tourism in Australia and a major exploratory expedition to Niugini, and ending the year with the Federation and its member societies stronger than ever before.

The Newsletter Commission in particular wishes to thank contributors and readers for their continued support and interest in 1973, and to express confidence in the future. Special thanks are due to a band of assistants from several Sydney societies without whom the Newsletter could not appear. Little realized perhaps by interstate readers, these people from ISS, SSS, SUSS, UNSWSS and MSS again threw their support into the several collating sessions, and we are all very grateful.

There will be some further changes in the layout and production arrangements for the Newsletter in 1974, designed to continue bringing to you at reasonable cost news of caving all over Australia.

FORTHCOMING FEDERATION ACTIVITIES

ASF COMMITTEE MEETING - The next Committee Meeting of the Australian Speleological Federation will be held in Melbourne on 26-27 January, 1974. Anyone desiring accommodation in Melbourne please contact Bruce Brown at the address below, not later than mid-January:

TENTH BIENNIAL CONVENTION OF ASF, 1974 - UQSS advise that the next ASF Convention will be held at the University of Queensland in Brisbane after Xmas 1974. More details will be available soon. The Organizing Committee has requested that anyone with suggestions generally on the organization of this Convention contact them as soon as possible. (UQSS address inside front cover)

SEMINAR ON CAVES AND KARST OF NIUGINI - To be held probably in mid-1974 in Sydney, organized jointly by the Australian Speleological Federation and the Speleological Research Council Ltd. At press time there were still no further details of this function.

FEDERATION PUBLICATIONS

Australian Speleology - edited by Andrew Pavey. After some teething problems this new Federation publication will be released in January. A 150-page compendium of the best Australian speleological writings of 1971. Only \$2 a copy (at 1.3c. per page the cheapest speleo reading in Australia. Available from late January onwards from:
Keith Oliver, 44 King Street, ST MARYS, NSW 2760

Submission on Texas Caves - The Federation earlier this year made submission to the Australian Government on the Texas Caves which were being threatened by a proposed dam on Pike Creek. The Australian Government has since announced withdrawal of support for the scheme, mostly on economic grounds. Copies of the ASF submission to the Government may be obtained from UQSS for 30 cents plus postage and are highly recommended at this price.

Speleo Handbook II - editor Peter Matthews. The second edition of the Handbook, an encyclopaedic work on speleology in Australia, the first edition of which sold out completely, is nearing publication. The second edition will be published in two versions, one for restricted sale to members only, the other for sale to the general public. Society agents will handle most sales and you should hear more within the next few months.

NIBICON Proceedings - editor Albert Renshaw. Albert advises that problems in having papers checked by authors has delayed appearance of NIBICON proceedings of the Ninth Convention, but publication is expected about March next year. NIBICON Registrants will receive copies free of charge

asf newsletter - Back issues - There has been a strong run on back issues of the Newsletter this year, and some issues advertised on the back cover are now out of stock. Stocks are available of the following issues only:

9, 11, 12, 13, 14, 15, 17, 28, 36, 37, 39, 40, 42, 43, 45, 46, 47, then 50 to 61

If the particular issue you need is not available, we suggest you obtain a photocopy from your club librarian, or write for a loan from the ASF Librarian. It should be noted that complaints about non-receipt of the current issue should not be sent to the Sales Manager.

CHRISTMAS TRIPS

Looking for a Christmas holiday away from it all? Here is a small selection of trips offering by various clubs, on which members of other clubs would be welcome:

NULLARBOR PLAIN	- Cave diving and exploration	- Ian Lewis (CEGSA), 12 McLachlan Ave,
PRECIPITOUS BLUFF	- Further exploration (January)	- V.S.A. Glenelg North, SA 5045
CLIEFDEN	- Exploration and surveying	- Keith Oliver (HCG), 44 King Street, St Marys, NSW 2760

ADDRESS CHANGES

ASF LIBRARIAN, Mrs S. Halbert, 599 Warringah Road, Frenchs Forest, NSW

ASF VICE-PRESIDENT, Warwick J. Counsell, 5/24 Bay Street, Coogee, NSW

Please take note of other address changes advised in the September issue of the Newsletter. This applies particularly to the addresses of the Federation Secretary, Miles Pierce, and Treasurer John Taylor. Correspondents are reminded that the Federation's box number in Sydney is for external use only; internal mail should be forwarded directly to officer concerned.

CUTTA CUTTA CAVES, NORTHERN TERRITORY

by Graeme O'Reilly, MUSIG

The area around Katherine has approximately 120 sq. km of outcropping limestone stretching from 24km to the south to 19km to the north of Katherine. The area is completely flat except for outcropping limestone ridges up to 4 m. high. The caves entered were only partially explored due to lack of equipment and only having one companion. A little over 1 sq. km. of surface was covered, with over 40 open entrances found, 15 entered and 8 found with over 40 metres of passage. A sketch map of the area locating all cave entrances can be found in MUSIG records.

The largest cave in the area is the Cutta Cutta tourist cave. ASF records give the length as 1500m. , but the entire cave has never been surveyed and I would suggest that it has passage that would total at least twice that length.

In the general area of the main cave there are many sink holes and 5 other caves were entered in this area.

The second area explored is 9 miles (15km) north of Katherine and 4 more caves are described from there. These two areas were chosen to explore as 1 cave was previously known in each area. Only a few entrances were entered and a more detailed description than that appearing here may be found with MUSIG.

The biological life in these caves is both plentiful and varied, with many species of beetles and other insect life, bats (including the black and white false vampire bat) and blind fish and shrimps. To my knowledge these blind creatures have not been identified as yet.

For the meteorologist these caves are a storehouse of knowledge as well. The temperatures are very high as would be expected and the humidity in all the caves increases to near 100% as you go in. At the end of the tourist section the temperature was recorded at two points 8 metres apart, one 3m. higher than the other, and the difference was 7°C.

Most caves entered were very well decorated with dogtooth spar and helictites very common, especially further in the caves. In Cutta Cutta Main Cave there is a small chamber with a rimstone pool full of oolites.

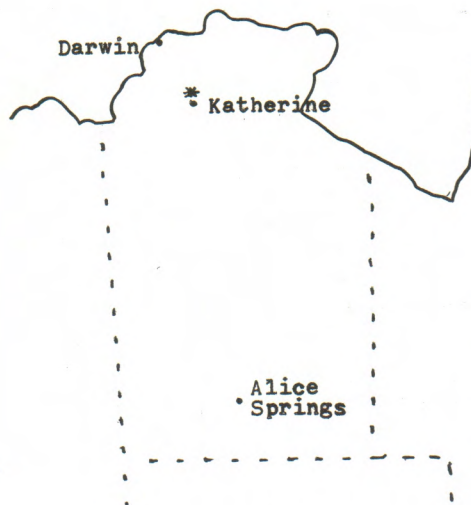
The caves are horizontal although two vertical entrances were found. The only one entered had a drop of at least 30m which was not negotiated due to lack of gear.

For two hours one afternoon I walked about 2 km. to the north of main cave and found 8 sinks with obviously unchoked entrances. None was entered.

CAVES ENTERED

1. Cutta Cutta Main Cave - Basically walk through along a dry stream bed (running in the wet season) for the first 700m. where it gets smaller for 150m. then opens again. This was as far along the main passage as I travelled, although at least 350m. of passage was traversed in an extension known as 'Sportsman's Cave'. There is a lower level with passage covering at least 350m. that in places is half full of water even in the dry. The cave is very well decorated and contains many interesting geological formations including oolite pools, rimstone pool cascades, helictites of all sizes and forests of stalactites. One most intriguing sight was found at an approximate depth of 40m. where termites had burrowed down and had a tunnel of dirt on the wall which led deeper under our feet. A 25cm. portion of this tunnel was removed to see the termites and on inspection 4 days later it was perfectly repaired. I traversed 1200m. of passage without exploring many side passages or going anywhere near the end of the cave. I was told that at 950m. into the cave there is a hot spring with a measured temperature of 55°C.

2. Found two weeks before my arrival by Adolf Seigel (1st Sept.). This has an arch entrance 14m. at the base and 10m. high, and is also walk through along a dry stream bed. Formation is prevalent along the main tunnel, which was traversed for 300m. past one daylight hole slit exit.



3. This is the first cave I found, with its entrance half the size of the last one. I traversed 130m of passage, travelling along a tunnel that led back to the entrance. Side passages, some larger than that traversed were not entered. This entrance is 4m. from the next one but cannot be seen due to the large number of trees around the entrance (Moreton Bay Figs).

4. This tree covered arched entrance measures 14m. along the base, and is 7m. high. This was originally entered through a small drop 10m. away, but 35m. of cave was traversed before the main entrance was reached. Again a dry stream bed was then followed for 270m. to a large daylight hole 8m. in diameter and 10m. high. The stream bed continues past here but we exited through the daylight hole due to lack of time. Another 17m. of passage could be seen. The cave is covered in small red and black beetles clustered in depressions in the roof. One such depression held 1000 of these insects.

5. This is a small sink near the Stuart Highway that could be dangerous as it probably goes under the railway line. It has an initial drop of 10m. followed by a second pitch of 24m. This pitch was not negotiable without ladders or belay rope so the cave was not explored further. There was a noticeable breeze coming out whereas I was told that two weeks before the breeze was going in.

* CUTTA CUTTA CAVES

6. Through a small entrance you again come to a dry river bed which was traversed for 200m. before turning back. No side passages were explored, nor the end reached.

7. Through an old rock fall (cemented together) for 18m. until another stream passage is reached, 35m. of which was traversed before the trail forked.

8. Short drop to passage that continued for 50m. before dropping down slightly where I turned back. Rock floor and many formations near the entrance.

9. Two entrances leading to a chamber with a passage to the left and one to the right. Traversed 150m. to the right. Formation and bats present.

10. Kintore Cave - This cave is in an area closer to Katherine, on a reserve, and is reckoned locally to be larger than Cutta Cutta.

THE PRESENT SITUATION

The Cutta Cutta Cave is on a Reserve run by the Northern Territory Reserves Board. The Reserve covers just the one cave. At the present time Adolf and Gisela Seidel have a lease to operate the tourist cave and have put a lot of work into it. Adolf would welcome any group who wished to work in the area and would help in the location of areas already known. Unfortunately, due to decisions by the Reserves Board, Adolf may be forced to leave the area, with the result of the tourist cave being closed down. The results of such an action would ruin the first several hundred meters of the cave as access is now simple and vandalism would surely be the end product even if the Reserves Board close the area to the public.

CONCLUSION

There is a large amount of work to be done in this area that would provide great satisfaction, so if anyone is interested in obtaining more information, write to me through MUSIG and I will let them know how to discover another 'Chillagoe'. Just remember one thing - Katherine is several thousand miles away.

N A M B U N G N A T I O N A L P A R K , W A

by Norm Poulter, SUSS

ABSTRACT

Nambung National Park is situated 177km (110m.) north of Perth, Western Australia in undulating coastal sclerophyll sandplain heath with species of eucalyptus trees to be found the water courses. The Park is located along the coast astride the coastal limestone belt and contains numerous caves in addition to the famous and unique 'Pinnacles Desert'.

HISTORY

The recorded history of Nambung dates back to 1658 when the most prominent features of the region, the North and South Hummocks, appeared on two Dutch maps (Turner 1963). The Hummocks, stabilized sand dunes, rise 119m. (390ft) above sea level. The Hummocks also received mention in the Journal of the navigator P.P. King, written about 1820 (Turner)

In 1839, George Grey (later Governor of South Australia) on a voyage of discovery in the North West was shipwrecked in Gantheaume Bay 480km (300 miles) north of Perth. With little food and no water, Grey reasoned that the best prospect for survival was to walk back to Perth. During this walk, for various reasons, the party split in two, Grey leading the first section that eventually reached Perth to raise a rescue party, the remaining section led by a Mr Walker continued southward at a slower pace. On April 16, a few days after the party split up, Grey entered a valley containing the then unknown Nambung River. He found it to be dry, but later named it the Smith River after a member of Walker's party who was to die a few days later. Walker's party now about two days behind Grey apparently swung further inland before heading back to the coast, was credited as being the first European to find evidence of caves in the area and then Nambung Deserts; to quote from his report of April 17: "WENT INTO THE INTERIOR ABOUT MIDDAY AND FOUND A NATIVE WELL, SIX MILES INLAND; ALSO A LARGE CAVE IN THE ROCKS" and on April 19: "THIS MORNING THEY REACHED THE BEACH, AND TRAVELLED ON UNTIL THEY CAME TO SOME HIGH ROCKS, FROM WHENCE THEY SAW AN IMMENSE TRACT OF SAND" (Grey 1841).

The explorer A.C. Gregory passed by the area during November 4-7, 1848 but did not see the vast sand dunes reported by Walker. During 1874, triangulation plans of the region were drawn up by surveyor J.S. Brooking who renamed the Smith River. The area around the river now became known as the valley of the Namban River (Shoosmith 1973). During the same year a set of Admiralty Charts were drawn up of the same area by Commander W.E. Arshdeacon RN, also showing the valley as that of the Namban River.

From 1889 a stock route, which was also classified as a road, ran from Dongara to Perth (Forrest 1889). The stock route 0.8km ($\frac{1}{2}$ mile) wide crossed the valley of the Namban River and later through what is now Yanchep Caves National Park. The life of the stock route was short and it was soon abandoned. The wheels of government turned slowly however, and it was not officially closed until 1971. While the stock route was in use, several caves were discovered, the most notable being Drovers Cave, north of Nambung, which has since become a National Park in 1972.

The Nambung region did not gain further attention until the early 1900s when phosphates were discovered in the caves of the valley. The discovery of phosphates and the subsequent mining attempts brought the region to the public eye for the first time. This notoriety brought to light conflict of theories as to the formation of the phosphates and later, pronunciation and spelling of 'Nambung'.

It would appear that local farmers mined phosphates from the caves on an intermittent basis from around 1906. During the early part of 1908 the government sent a Hungarian geologist named Goeczal into the area to look for commercial quantities of natural phosphates to offset the high cost of imported phosphates. His report was so favourable that a follow-up trip was made by Minister for Agriculture, James Mitchell (later Lt. Gov. of WA). The deposits so impressed the Minister that he initiated steps

"TO HAVE ALL CAVES ALONG THE COAST FROM THE MURCHISON (River), SOUTH TO ALBANY, RESERVED" (Despeassis 1908), a distance of 1280km (800 miles)

Some geologists of 1908 concluded that the deposits were made up of, 'LONG EXTINCT SAURIANS AND OTHER AMPHIBIOUS CREATURES WHICH INHABITED THE COAST AND COASTAL ISLANDS OF AUSTRALIA SOON AFTER IT WAS CUT OFF FROM THE CONTINENT OF ASIA. THE GRADUAL BUILDING UP OF OUR FORESHORE BY SEA AND WINDBLOWN SAND HAS IN PAST AGES COVERED THESE ISLANDS WITH THEIR DEEP DEPOSITS OF AMPHIBIAN GUANO AND THE SOLIDIFYING OF THE CALCAREOUS SAND INTO LIMESTONE HAS PRESERVED THE GUANO FOR USE BY OUR FARMERS' (Anon 1908). In his report of 1909 announcing the discovery of the Nambung 'SOLUBLE PHOSPHATES DERIVED FROM THE ACCUMULATED DUMPS OF ANIMAL REMAINS COMING INTO CONTACT WITH THE UNDERLYING LIMESTONE HAVE ALTERED THE LATTER, AND CHANGED IT FROM CARBONATE INTO A LIME PHOSPHATE.' (Goeczal 1909).

However, in his report of the Geological Survey of 1910, Campbell favours the soil leaching explanation of Van Hise (1904): 'IN THE ARID REGIONS NOT ONLY ARE THE RELATIVELY INSOLUBLE COMPOUNDS PRECIPITATED IN THE BELT OF WEATHERING, BUT THE READILY SOLUBLE COMPOUNDS MAY LIKEWISE BE THROWN DOWN, SUCH AS THE SALTS OF THE ALKALIES AND ALKALINE EARTHS. THESE ELEMENTS MAY BE COMBINED WITH ANY OF THE ACIDS WHICH EXIST IN THE SOILS. THUS THERE MAY BE PRECIPITATES OF SUCH SOLUBLE SALTS AS THE ALKALINE CARBONATES, AND EVEN THE ALKALINE CHLORIDES AND NITRATES. THE MORE ABUNDANT SALTS PRECIPITATED ARE SODIUM? POTASSIUM, CALCIUM AND MAGNESIUM CARBONATES, SULPHATES AND CHLORIDES. NITRATES AND BORATES OF THE BASES MENTIONED ARE ALSO LOCALLY ABUNDANT ... THE COMPOUNDS ARE LIKELY TO BE PRECIPITATED IN THE OPENINGS OF THE ROCKS, WHERE EVAPORATION MAY OCCUR. SUCH OPENINGS ARE, OF COURSE, BY FAR THE MOST ABUNDANT IN THE SOILS AT AND NEAR SURFACE, AND DECREASE IN ABUNDANCE WITH DEPTH. THEREFORE IT IS IN THE SOILS THAT THE GREATEST AMOUNT OF PRECIPITATION TAKES PLACE, BUT BELOW THE SOILS ARE FOUND JOINT CRACKS, BEDDING PARTINGS, CAVES ETC? AND IN SUCH OPENINGS THE PRECIPITATION IS LARGELY DEPENDANT UPON THE ABUNDANCE OF THE SOLUTIONS AND THEIR EVAPORATION, AND ALSO UPON THE ABUNDANCE OF THE VARIOUS SALTS AND THEIR RELATIVE SOLUBILITIES, IN EXCEPTIONAL CASES THE REACTIONS MAY NOT BE SIMPLE CHEMICAL ONES, BUT BE LARGELY OR WHOLLY DEPENDENT UPON ANIMAL LIFE. THIS IS ILLUSTRATED BY CERTAIN CAVES WHERE ABUNDANT PHOSPHATES AND NITRATES ARE ATTRIBUTED TO THE EXCREMENT OF BATS. BUT, AS ALREADY SAID, THE PREPONDERANT PRECIPITATES OF THE BELT OF WEATHERING FORM IN THE SOIL.'

Phosphate deposits from caves north of Nambung were described in the Geological Report of the Geological Survey of 1907 and analysed samples were valued at 10 shillings a ton and 132s./ton (Rowley 1908) and later 10s./ton and 363s./ton (Campbell 1910).

Goetzl's report of 1909 mentioned that three caves at Nambung contained commercial quantities of phosphates. One cave, now known as Super Cave (SH1) was estimated to contain about 1780 tons, valued at 60s./ton while the second, Cadda Cave (SH18) contained a further 2000 tons. A further 'FEW HUNDRED TONS OF HIGH GRADE PHOSPHATES' were located in another cave nearby.

The Minister for Agriculture (Mr Mitchell) put a scheme into operation where it was hoped to mine and sell the Nambung deposits at less than half the cost of imported or locally manufactured artificial phosphates. A vessel was purchased to sail the material from Cervantes Island to Fremantle twice a week. The material was apparently bagged on the spot and transported to the coast in drays, then transported to the ship by whaleboat. The material sold for 25s./ton on the beach later rising to 35s./ton after the first 100 tons had been mined. The estimated value was placed at 63s./ton but the 1909 price was fixed to sell in Fremantle at 50s./ton (Despeissis 1909). Apparently the scheme did not get off the ground:

'THE SHIP WAS THREE WEEKS LATE AND THE UNPROTECTED BAGS (25 tons) WERE ATTACKED BY THE RAINS AND BECAME MIXED WITH THE BEACH SAND. IT WAS REBAGGED BUT THE FARMERS TO WHOM IT WAS SOLD WOULD HAVE NONE OF IT. THE SCHEME THEN COLLAPSED AND THE AREA ABANDONED' (Gollam 1935)

During the 1908 visit by the Minister for Agriculture, he took steps to preserve the caves that contained abundant displays of speleothems by having the entrances sealed. The Minister's description of the caves and subsequent newspaper coverage tended to be somewhat over-exaggerated. These reports however, formed the basis for placing a temporary reserve over the Valley of the Namban River in 1927.

Over the years, confusion often arose as to the correct spelling name of the area. Goetzl, in his 1909 report to the Agricultural Dept. called the river Nambough Creek while Campbell in his Geological Sketch Map of the Country between Carnamah and Moora to the Coast (1909) lists it as Nambung Gully. Most newspaper articles referred to either Namban River or the Valley of the Namban River as did the Annual Progress Report of the Geological Survey of 1934. In November 1938 it was pointed out by the Lands and Survey Dept. that the nearby Midlands Railway Co. had a siding known as Namban in the Moora Rd. District and in July of the same year, the Dandaragan Rd. and Vermin Board stated that confusion was added to by the occurrence of caves at Namban (Siding) also. The Tourist Bureau took steps in December 1938 to have the matter resolved and after consultation with the Lands and Survey Dept., it was determined that the area be known as The Valley of the Nambung River, Nambung deriving from an aboriginal word of unknown meaning.

Despite the activity that took place at Nambung during 1908, the Pinnacles, only a few kilometres south, and visible today from the top of the valley, lay undiscovered. A possible reason for their non-discovery was that they were still covered by sand. Gollam remarks in his newspaper account of the 1908 ministerial trip as having traversed over part of the sand plain: 'IT WAS AN AREA OF UTTER LONELINESS AND IT WILL EVER REMAIN SO.' Indeed, the first recorded mention of the Pinnacles at Nambung seems to be an item in the Annual Progress Report of the Geological Survey (1934):

'THE SURFACE IN THE SWAMP ZONE AND AROUND THE BASE OF THE SAND DUNE IS COVERED WITH A CALCAREOUS CAPSTONE AND THE ROUNDED ENDS OF CALCAREOUS "NIGGER HEADS" SIMILAR TO THOSE FOUND ELSEWHERE ON THE COASTAL PLAIN WITH THE SUB-RECENT COASTAL LIMESTONE SERIES.'

The temporary reserve over the Nambung Caves was apparently made more permanent in 1946. During 1962 a portion of this reserve was removed in order to establish a townsite to serve people engaged in the crayfishing industry. This settlement was called Cervantes, after Cervantes Island which is just off the coast.

In March 1963 a retired farmer from Bassendean, Mr J.H. Turner wrote to the National Parks Board suggesting that an area known as the Pinnacles Desert should be preserved. The Pinnacles occurred in about 404 hectares (1000 acres) of sand dune country and was held by the Lands & Survey Dept. as unvested land. Eventually, in 1966, the Lands and Survey Dept. agreed to vest some 14140 hectares (35000 acres) with National Parks Board for the purposes of establishing a National Park (anon. 1966). Three separate reserves calling for the preservation of caves, native flora and natural formation comprising 17335 ha. (42800 ac) were gazetted between May 24 and August 9, 1968, attaining National Park status in June 1972.

During 1971, the Park Ranger, Mr Alf Passfield discovered a tree with a survey blaze on it. All that remained legible was the letter 'B'. Searches through records of the Lands and Survey Dept. failed to find when the tree was marked or by whom, but that it was done prior to 1913 and was included in a survey by the surveyor Manning in December 1921. Further investigations from other sources revealed that the tree was used as a starting point in the description of lease no. 8895 in 1873 from an old plan of part of Melbourne District drawn by draftsman E.C. Dean in 1868. Subsequent investigation by Ranger Passfield revealed that the tree was originally carved by Robert Brockman in 1854 as a reference point for lease no. 588 granted to him in 1855.

The main dangers facing the Park today are vandals and squatters. Any cave that has scenic value has been gated and locked. Of Nambung's fifteen significant caves, six have been locked. The Pinnacles Desert has suffered in recent years due to the increase of cross-country vehicles and some irresponsible people who drive them. Unlike other states, the Western Australian Government does not fully appreciate the amount of damage that 4WDs, beach buggies and trailbikes can cause, although as a method of preservation, the Parks Board pursues a policy of non-improvement of the access roads within the Pinnacles area, and then, has only one ranger to patrol the entire area.

Dating back to 1962, squatters have been causing concern. The squatters are made up of local crayfishermen and residents of Perth. Despite warnings the numbers continued to grow and some established elaborate residences. In January 1972, the National Parks Board started legal proceedings against 43 people alleged to be squatting within Park boundaries. Seven squatters were allowed to remain, but for a limited period only. The longest extension granted being to the end of February 1974 (Passfield 1973).

CONCLUSION

Although pinnacles occur in other parts of the State, the Nambung Pinnacles are the most notable and therefore every effort should be taken to preserve this unique and little known region when within the confines of the Park.

The best times to view the Pinnacles is in the early morning or late afternoon. Access to the Nambung National Park is best done in 4WD vehicles although it is possible to get conventional drive vehicles to within 5 km (3 miles) of the Pinnacles Desert during the summer months without running the risk of becoming bogged on the sand tracks.

ORIGIN OF THE PINNACLES, NAMBUNG, WA

by David C. Lowry,
WASG

The Pinnacles are karst features which developed at a soil-limestone interface and which were subsequently exposed by deflation.

The Pinnacles consist of eolian limestone up to 3 metres high. They are roughly cylindrical or fluted with a diameter of 0.5 to 2 metres and are spaced about 2-10m apart. The geologic setting has been described by Lowry (1972) and the geomorphic features of the limestone have been discussed by Jennings (1968).

Dune systems of several ages can be recognised on the west coast of Western Australia and the following stages in a cycle of weathering can be pieced together:

1. Sand with varying proportions of grains of quartz and calcium carbonate is blown off beaches into dunes. The dunes become stabilized by vegetation and cementation of the sand begins around the roots of the shrubs. After 8,000 to 10,000 years has passed, there is weak cementation throughout the bulk of the dune.
2. After about 20,000 to 25,000 years, downward percolation of rainwater has removed all the calcium carbonate at the surface thus leaving a leached yellow sandy soil of quartz grains. The calcium carbonate is precipitated as a cement throughout the dune but is precipitated particularly strongly just beneath the soil where it forms a hard "cap-rock" consisting of cemented calcarenite, recrystallized micritic limestone and banded secondary limestone ("kankar"). Vertical solution pipes also develop. These downward tapering approximately circular pipes are 0.2 to 2 metres across and can reach as much as 10 to 15 m. down into the dune. At first the pipes simply cut through the limestone and are filled with quartz sand that is continuous with the overlying soil; later they may become defunct and are gradually infilled with concentric layers of kankar.
3. Continued leaching sculpts the dune limestone into pinnacles. The pinnacles may have a relief of 4 or 5 m and be surrounded and covered by yellow quartz sand a further 4-5 m thick. This corrosion at the soil-limestone interface cuts across the early-formed structures of bedding, root concretions, solution pipes and kankar.
4. Ultimately the leaching reduces the dune to a subdued heap of loose quartz sand and lateral movement of ground water may cause ferruginization.

In the vicinity of the Pinnacles the wind has continually blown northwards, and successive dune systems have blown over the top of each other. In the last few centuries a dune system in Stage 3 was buried by a mobile parabolic dune, and the banksia scrub that covered the old dune was killed. When the young dune moved on, the yellow quartz soil, no longer stabilized, blew northwards with the younger dune, exposing the pinnacles.

i) There is a mobile dune to the north of the Pinnacles in which the quartz grains are a mixture of clear fresh grains and yellow-stained grains that are probably derived from the soil that covered the Pinnacles.

ii) The tops of the Pinnacles align to form a smoothly curved surface that probably represents the level of the top of the original cap-rock.

iii) Pinnacles that have been knocked over do not show the concentric lamination that would be expected if they were exhumed solution pipes as suggested by some earlier accounts.

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N I U G I N I N I U S

by Michael Bourke

in TPNG

- BOUGAINVILLE** : In June a party of five led by Hans Meier visited and surveyed Kovana Cave in the Rotokas area. The cave is about 300m long. This is the first cave report from this part of Bougainville. A group of senior scouts was taken through Boromai Cave in the Kieta area in August. Again villagers were unwilling to allow access to the cave.
- CHIMBU** : After the Muller Range Expedition, Kev Wilde (NZSS) took a party of Australian, Kiwi and NZ and TPNG speleos to one of the burial caves in Kundiawa area for surveying, photography and sketching drawings. Janet and Neil Ryan (ex-UNSWSS) revisited the Chimbu in October, spending a few hours in Irapui (4km surveyed passages length) and locating Kurakomdoko II Cave.
- NEW BRITAIN** : Chris Holland has located another tuff cave, and Hal Gallasch (ex-CEGSA) found few more caves in the Rembarr Range. A party led by Mike Bourke (UQSS) visited the Iuvare caves in October and surveyed part of Luminas Cave (ca. 400m long)
- NEW IRELAND** : Two small water supply caves were visited in October by Mike Bourke. Caves on New Ireland are found everywhere and are commonly used by villagers for a variety of reasons.
- PORT MORESBY AREA** : Mike Noone (ex-VSA, UQSS & Westminster SS) recently organized a trip to one of the Javavere Caves. Mike hopes to start a speleo society at the Uni in the New Year, 1974.
- SOUTHERN HIGHLANDS** : The biggest speleological expedition ever to visit TPNG was run to the Muller Ranges in August-September; 26 cavers from Australia, TPNG and NZ spent month in the area. The Muller Ranges has now been established as a major deep cave area. The 2 deepest caves explored were bottomed at 329m and 311m, making them 4th and 7th deepest in the Southern Hemisphere. Longest pitches were 113m, 81m, 73m and 71m. One of the most interesting caves, the Atia River submergence, took a river of 9-12 cumecs (300-400 cusecs) flow. Exploration of this cave was halted 108m inside by the river. Already a return expedition is being planned. Depth potential of the area is about 1500m (plateau level to resurgence). A report appears in Niugini Caver 1 (4), a short report in ASF Newsl. 61 : 3-4, and a longer monograph on the expedition is being prepared.

WHERE THE ACTION IS
IN TPNG

1. Bougainville
2. Chimbu
3. New Britain
4. New Ireland
5. Port Moresby
6. Southern Highlands



Exploring caves on Government time with any amount of new gear and a helicopter in a new cave area must surely be the way to do it. That is what Mike Bourke, together with Gerry Jacobson were doing in June in the Waga River area in Southern Highlands. They were on a preliminary investigation for a hydro-electric scheme in a karst area. The party explored and surveyed a series of caves, the longest being 400m, and investigated some fascinating hydrology - distributaries for example. For those whose favourite cave area does not boast a distributary, they are stream that take water from a river - the opposite to tributary. The largest of these was really something to behold; it took no less than some 330 cusecs, or 10 cumecs, which is one half of a flow. Even Henry could not claim 330 cusecs, the equivalent, for Texas. Another of the four distributaries found displayed peculiar behaviour - like reversing its flow after heavy rain, with each of its four channels behaving differently. The distributaries explain why the river seemed to be losing so much water in the study area.

TPNG cavers must be some of the most mobile around. From August to November ten cavers have shifted location, arrived in the country or left permanently. Not bad for a caving fraternity of less than 40. Small wonder the 2 caving groups of the 1960s folded. Caving is going on all over the country in small groups. There is no functional club as such; cavers in TPNG can consider themselves a member of the informal PNG Cave Exploration Group. Perhaps the best part of the cave scene here is the amount of surveying done, and cave descriptions being published in Niugini Caver, newsletter of PNGCEG which started early in 1973.

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Quietly, almost unnoticed, caving as a sport has grown up over the past few years. Where once the devotees of the dark cult could be numbered in their dozens, if you could catch them, now there are many hundreds in Australia alone - tens of thousands if you look at the worldwide picture.

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

N E W S F R O M A R O U N D T H E S O C I E T I E S

This is definitely the quiet season for Australian cavers - the students are sitting and the teachers are marking them . . . and little noteworthy caving has been done.

V S A organized a symposium on caving in Victoria which was well attended. Seventeen topics were covered in twenty minute lectures. An interesting trip to the Portland area in western Victoria revealed a number of phreatically formed dune limestone caves containing distinctive reptilian fauna. VSA are also planning a caving trip to Precipitous Bluff in January 1974. See addresses on page 2 for details.

CEGSA are still revelling in their discoveries of significant bone deposits in Victoria Cave, Naracoorte, and the current hint of a suggestion that a new Research Centre will be built to handle the estimated 3000 cubic metres of fossil bearing silt in Fossil Chamber alone! The powered jackhammer has been used with continuing success and CEGSA are now well on the way to producing an easily negotiable tunnel through to Fossil Chamber.

BMSC were by far the best represented society at the recent gating of Tuglow Cave. The lousy wet weather and flooded Kowmung deterred all but BMSC and a few hardy SUSS hardy types in their 4WDs. The gating materials were located on site but not finally fixed due to a lack of a welder. However most of it was done and was scheduled for completion a few weeks later.

SSS have entertained their usual round of Wombeyan, Jenolan and Bungonia. Cave tagging operations at Jenolan are now well past J130. Also at Jenolan meteorological projects in Serpentine Cave and Wiburds Lake Cave have been continued. An active October long weekend saw exploration and tagging in the pine forest region of Yarrangobilly and in the gorge as well as a continuing fauna survey in

SUSS although relatively "dead" due to exams, have still managed to fit in trips to Wombeyan (surveying on surface and underground), Cliefden (slothing with some surface surveying), Bungonia (sporting and "familiarization" type caving) and Jenolan (geomorphology and surveying).

HCG so far has had 11 trips to Cliefden this year with SUSS and UNSWSS. Mapping, RDF over Taplow, Burambangal surveying, also Nibicon Cave and coolies for UNSWSS of Trapdoor Cave (CL4). Other trips have been to Cheitmore (1), Wyanbene (1), Bungonia (2), Wee Jasper (4), Yarrangobilly RDFing, and Gloucester (1). BURAMBURANGAL, by the way, is the correct spelling of that name at Cliefden, according to the Department of Lands map, Parish Malongulli, Country Bathurst 1961.

UNSWSS have been active at Yarrangobilly. SPAR 28 devoted almost an entire issue to Yagby with details of exploration and surveying at Nibicon and later. SPAR continues to lead the field in cave map drafting and publication again. The October long weekend saw a determined 'bash' on the CRG Grade 6 survey of the Eagles Nest system at Yarrangobilly, with 4000ft of very mixed difficulty cave being surveyed in just 2 days. Future projects for Yarrangobilly include integrated surveys East Deep Creek, Y10 and Coppermine Caves, all of which are under way. At Cliefden, surveying in CL1 has proved that the cave is definitely bigger and more complex than was previously thought

UQSS report a decline in both active members and numbers of trips, but an increase in visitors. 17 "areas" were visited during the year ranging from Frog Butress through to Niugini. On a recent long bushwalk to Stockyard Creek (Kempsey) all known caves in the area were explored. Walls Cave depth has shrunk somewhat, from 250ft (KSS) to 160ft (UQSS) and now a (final?) 140ft (August, UQSS), also a new cave was found near Rolys Cave. On a more exciting note the lava tunnels of Mt Surprise - Einasleigh district were visited by helicopter (BMR) and several lava tunnels were entered.

News from Western Australia at bottom of next page. Apologies to Kerry Williamson for having to cut it short. There is not much news this issue as the copy had to be written and typed by mid-November. However, the next issue will carry more club news.

LETTER TO THE EDITOR

Garran Hall,
Australian National University,

Dear Sir,

Recent issues of the ASF Newsletter have mentioned the problem of over-use of caves. I feel the ASF policy on this matter is somewhat selfish and arrogant.

The Report of the Ad Hoc Committee on Conservation states, "... no person or body should deprive the community of a resource for which the community has a value..." However ASF appears to be guilty of this very act. It seems to be dedicated to the preservation of caves for the private use of its members.

Gating programmes, concealment of information about cave locations and other practices are all indicative of a desire by some members to keep speleology for a select clique. A senior scout once said to me at Tuglow, "The speleos do a good job, but they don't own the caves. This comment illustrates how ASF is depriving the community of one of its own resources.

Some will say that anyone may participate in speleology if only he will join a recognized club. However, many people are justifiably unwilling to join in the petty politics of the speleocracy, or to pay a fee for a pastime that is their right.

I admit that allowing freer public access to caves will result in damage. However, with proper education, damage through vandalism will be minimal. Moreover, if more caves are accessible, cases of extreme over-use (e.g. Punchbowl, Colong) will become less likely. This is because the 'peak' load of human usage could spread over more caves. But the point remains that we must accept some degree of damage, for caves are the property of the community for its use.

Certainly free access should be prevented to some caves (e.g. dangerous caves, those of special scientific interest.) But it ought to be remembered that the cave may as well not exist if it is never visited.

Finally, a word about 'pseudo-speleos' (so-called). I doubt whether they are more of a menace to cave conservation than accredited speleologists. Scouts and others also take great care of the caves they use, and they do not partake of such ecologically and aesthetically dubious activities as underground camping and giant digging programmes.

The caving of activities of scouts especially have been needlessly maligned. Many scouts are particularly skilled at caving techniques. Discouraging the activities of these cavers deprives the caving movement of valuable members.

Yours faithfully,

David Shaw,
NUCC.

EDITORS NOTE : It should be pointed out that ASF itself does not control access to any caves and it does not maintain records of cave locations, hence cannot conceal information, though it is true that ASF does not encourage unwarranted publicity. Furthermore, the Federation is only an advisory body in this respect and societies are free to adopt their own policies.

Publication of Mr Shaw's letter does not constitute endorsement of the views expressed, but the editor welcomes correspondence on the subject for publication, subject to space availability.

NEWS FROM WESTERN AUSTRALIA

by Kerry Williamson

SOUTH HILL RIVER AREA: The Nambung National Park was visited during the October long weekend and extensive surface and underground surveying indulged in. The cold waters of Brown Bone Cave (SH17) were also entered and a small extension found.

LOWER WEST COAST : Caves near Mandurah were visited to collect insects and a few well decorated chamber found in Morfitt Cave (LW)

YALLINGUP : Two new previously unlisted caves have been shown to the Group by a local resident

MARGARET RIVER / COWARAMUP : Milligans Cave, a nearby pit and a collapse doline, all marked on Marjude Terry's original traverses in the Margaret River area were entered. Milligan Cave and pit were surveyed. Meekadorabee Cave in the Cowaramup area was visited and found sumping.

WITCHCLIFFE : A large new cave (about 500metres) has been found near Conference Cave. Access is gained to a large stream passage by a 17m shaft. Water analyses have shown that the stream in the new cave to be same stream that is in Conference Cave (downstream) and Mammoth Cave (upstream). Mammoth Cave stream, an inflow, has previously been dye traced to Conference but resurgence is not known. Surface and underground surveys show the three caves to close together and separated by breakdown. A very large broad doline has been found far to the west of Conference Cave.

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