THE CASCADE CAVER

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GROTTO EVENTS

AUG 19	Picnic at Bob Brown's. Curt Black and Anne Ruggles will be in town, come down to Bob's and say hello. Call Bob for more information at 569-2724.
AUG 21	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle.
AUG 25	Grotto garage sale. Call Al Lundberg (365-7355) for details.
AUG 25	Deadhorse Cave, this will be a trip to clean out Deadhorse, which has had some abuse lately. Call Bob Brown (569-2724) for more information.
SEPT. 1-3	NWCA meeting at Papoose Cave contact Bob Brown at 569-2724.
SEPT. 18	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle.
SEPT. 29	Windy Creek Cave, call Mark Sherman (524-8780).
OCT. ??	We will be planning a trip to Hell Hole Cave on Cave Ridge sometime in October. Contact Bob Brown or Mark Sherman for more details.
OCT. 16	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle.
NOV. 20	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle.
NOV. 23-25	McLaughlin Canyon Cave, call Ben Tompkins (524-9526).

GARAGE SALE

We will be having a garage sale on August 25, to raise money for the Grotto. Ten percent of what we raise will be given to the NSS Building Fund. Please check through your house for any items that might be donated to the sale and bring them to the meeting on August 21. If you have some donations and you can't make it to the meeting, give Al Lundberg a call at 365-7355.

This month the cover cartoon was drawn by Jerry Thornton.

If you have been on any caving trips lately, please send me a trip report. Remember, there is still time to win the $50.00 for the best trip report of the year. My address is:

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Seattle Wa. 98115

TRANSPACIFIC CAVING

By William R. Halliday

On July 4, 1984 the special introductory Qantas fare from San Francisco to Cairns made it possible for Patricia and me to do some whirlwind biospeleological research in eastern and southern Australia in association with the Explorers Club Chillagoe Caves Expedition.

It was the first time either of us had flown Qantas, and we were quite impressed with the professionalism, quality of service, and comfort of the long flights. In Cairns at dawn, we were met by Brother Nicholas Sullivan, past president of the NSS and leader of the expedition, and several members of the Chillagoe Caving Club, which is centered in Cairns although the Chillagoe Caves are over 3 hours drive away on a road so bumpy that the chattering of my teeth dislodged a large filling from one of my teeth.

Because the plane was late, we did not get to see expedition members Frank Howarth and Fred Stone, who were catching the same plane to fly to the state museum at Brisbane with some of their Chillagoe specimens; it took about an hour to go through Customs and Emmigration. Afterwards, we had a short tour of the Cairns area, then flew to Sydney with Brother Nicholas, thence on at dusk to Melbourne where Elery Hamilton-Smith and John Webb were waiting to drive us to the lava cave area of western Victoria that night. After leaving Wednesday noon, and flying the Pacific with the sun, we finally got to bed in a motel in Hamilton, Victoria around midnight Friday night. I never did figure out how many hours I was up. On the way, we stopped in Geelong to pick up Dave Luckins, a member of the Michigan Interlakes Grotto of the NSS, who had never been lava tubing before. We warned him that it might be habit-forming, but he got hooked anyhow. They were good lava tube caves to start with.

The Byaduk Caves system was our primary target for the weekend. These are just a few miles south of Hamilton, in a pahoehoe flow trending southwest from Mt. Napier, a small complex volcano perhaps of the Snake River Basin type. A sign on North Byaduk Road, at the intersection with the main highway leading south from Hamilton, leads to the parking area for the caves, where another sign tells visitors where they are. The caves have been a source of local pride -- and also, unfortunately, a source of tree ferns for local gardens -- for perhaps a century.

Maps of the Byaduk Caves published in the geological literature do not give a clear picture of the relationship of the caves to the trench system and my pre-visit mental picture of the system was drastically altered as a result of even a few hours here. It is a very complex multi-level braided system with enough lava seals and breakdown obscuring its features that delineation of the overall pattern is unusually difficult. Part of the multilevel development is superposed. Multilevel trench development is present like that at the Big Trench Cave System, Washington; some is nonsuperposed in the form of overflow tubes and upwelling chambers. In the upper part of the system two near-parallel tubes were of roughly similar cross-sectional volume. One of them, Fern Cave, is not quite re-entrant to the main trench (only a very few feet or meters are lacking). A lava seal developed at the lower end of Fern Cave, but while its surface still was plastic, part of the seal drained on into the main tube (now a trench).

None of the individual spelean segments of the system is lengthy, but several are impressively spacious and contain notable speleogens and speleothems. U-shaped Church Cave is especially spacious (it may reach a width of 100 feet) and contains lava drip pendants several inches long and red-brown siliceous (presumably) stalagmites and microgours. It also has an exceptional variety of ferns in its gaping up-slope entrance. It has suffered especially badly from removal of tree ferns, however. Harmon One Cave (the caves are in Harmon Valley, named for a pioneer landowner) has some notable thin multiple wall layers, partially peeled off at a bulge and welded while still hot. Staircase Cave has innumerable lava level rings, apparently from ponding of lava, and also exceptional lava coralloidal stalactites. We only visited about half the caves, and there is said to be much variety of features in the others. H-33 for example, is said to have 400-500 feet of low braided passage, not much of it over 10 inches high.

Biologically, the main interest of the system is in the ferns. Compared to findings later in the trip, there was very little animal life identified despite the potential energy chain arising from decomposing plant materials. Spiders and their webs were present in twilight. One cricket was noted in Staircase Cave. Mounds of bat guano in Fern Cave appeared old, with little odor and no easily observed scavengers. In twilight in The Turk, a 1 1/4" speckled slug and a 1 1/2" yellow non-segmented worm with a tapered head were noted. Elery Hamilton-Smith has done some collecting here. A professional perhaps could find a food chain based on decaying plant life here but the overall impression was that these caves lacked the rich biota of the Undara system visited later.

Before dark, John Webb hastened me to two small caves on the slope of Mount Napier. One of these, The Forge, is of interest for two reasons: it has unique lava needles up to about 1/2" long, almost entirely at right angles to the part of the irregular cave ceiling and wall where each is located. An analysis to see if they are hematite would be interesting. The cave appears to lie in a concretion of blocky material and fluid pahoahoe, and to have been formed by evacuation of most of the fluid lava when the blocky material got hung up as it went down the slope of the cone: a primitive effluent cave. It is only about 20 feet long. Nearby is a longer tube on the flank of the cone, HX-5, about 60 feet long. It has an interesting triangular cross-section, with widening near the floor.

The next morning our main target, before hastening back to Melbourne to catch a plane for Canberra, was the caves of Mt. Eccles which is a few dozen miles away in western Victoria. I had seen slides and diagrams of Mt. Eccles but I was not prepared for the size of the enormous lava trench which leads out of one side of the crater. It is far larger than any lava trench I have seen anywhere else. It is on the same order of magnitude as the sinuous lunar rilles. After a mile or so, it branches and loses volume (is there a huge undiscovered lava cave under there some- where???) and signs point to a short overflow cave called Tunnel Cave. It is somewhat like Thurston Lava Tube on Hawaii, though shorter and more spacious. A much smaller trench (apparently arising from a vent associated with some small cones near the main crater) has a roofed-over segment designated "Natural Bridge" but called Gothic Cave by vulcanospeleologists. Its cross-section also is triangular with a lower widening. It is almost entirely in twilight. Biospeleological studies of these caves do not appear promising.

Before leaving the Mt. Eccles area, we looked down into the vertical volcanic orifice known as the Shaft, about 25 feet deep. It is a very pretty location, with the pit at the lowest point in a collapsed lava dome perhaps 100 feet across, the outer ring still largely intact. Red lava flowstone is present in an alcove adjacent to the pit. It is said to bell out only slightly and we had no reason to descend.

Returning to Melbourne, we stopped briefly at Panmure Cave, just 150 yards north of Highway 1 and 100 yards west of the Ellerslie-Framingham road just east of Panmure town. A large cone is located about one half mile farther NE but the cave is said to be in a flow much older than the cone, 2 to 2.5 million years old. It is wide and spacious after a tight entrance but is relatively featureless with much breakdown. It is considered an isolated tube cave, said to be "sporadic in Victoria". All these lava tube caves appear to be much older than those of the Western United States and the island of Hawaii.

We showered and changed in Geelong, and got to the Melbourne airport in good time for the flight to Canberra; we never did see anything of Melbourne, going and coming in the dark. John Dunkley met us in Canberra and took us to a small reception in the pub at the Australia National University where we had a chance to talk with Joe Jennings, NSS Honorary member and author of many works on speleology and geology, and other Canberra speleologists. They have done quite a bit of work in Thailand and China, where I hope to go within a few years, and we talked until we closed the pub.

The next morning, we set out for world-famous Jenolan Caves, about 3 1/2 hours' drive. This is the same time for the drive to Jenolan from Sydney, which is much closer, but the road congestion in Sydney is said to be intolerable. Jenolan is highly commercialized, and we were not there for comparative biospeleology, but rather to gain first-hand experience in the spelean potential of Australian limestone cave areas before going north to Chillagoe. We were impressed.

Jenolan, like Chillagoe and numerous other eastern Australian cave areas, is in a narrow bed of vertically tipped limestone which apparently represents an age-old Great Barrier Reef. The main cave segment of the system is about 5 miles long within a length of about a mile. The next longest segment is about 1 mile long, and is separated from the main one by a breakdown of 150 feet or less. With the exception of an "Adventure Tour" in Jenolan's Mammoth Cave (still another isolated segment), all the commercial tours are in the main segment. Confusingly, each section of the main cave is called such-and-such cave, and sometimes even one room of such-and-such cave is called the something cave. Thus, all the numerous different cave routes listed on the bulletin board which would seem to be different, isolated segments of the system are actually only parts of the same cave as the IUS looks at matters. As a result of special arrangements through John Dunkley, Patricia and I were given a special through tour which took us through major parts of the Orient Cave, the Temple of Baal, the River Cave, Skeleton Cave, Lucas Cave, and out beneath the Grand Arch. On the following morning, we joined a tourist party for the Jubilee Cave, for which we traversed the Imperial Cave from the other side of the Grand Arch. And it all counts for only one cave under IUS rules.

The tourist sections of Jenolan comprise one of the great helictite caves of the world and the white facetted flowstone reminded me of Lilburn Cave in

California. On some wiring and in some metal gutters, white flowstone, often with microgours, is depositing very rapidly. This locally is attributed to electrolysis, from the wires or gutters, but the same thing is happening naturally in a 1954 tunnel. It is an extremely complex cavern, with large and small chambers, large phreatic tubes and widened joints, canopies, and a variety of fills. John Dunkley expressed the opinion that an expert geomorphologist should study the cave for a time, and I agreed. It is not only beautiful and impressive, but geologically of unusual interest in its geomorphic sequences: a world-class cave by virtually any standard. In the past, it had suffered considerable trashing by thoughtless visitors, but in recent years, cleaning (first by steamcleaning with a compound called Steamex, then with high-pressure water) has done a splendid job. Most of the cave now appears sparkling and pristine.

Because of fresh snow on unpaved back roads that we had used en route to the cave, we returned to Canberra the long way around through Oberon, and were unable to visit Wombeyan Cave farther south. The Sydney Speleological Society has recently published a beautiful book on that cave, which we bought at Jenolan. There are other commercial caves in the general area for those with more time, some quite impressively spacious according to John Dunkley. Most are in the same band of vertical limestone as Jenolan, which extends north-south for many miles.

As scheduled, we flew into Sydney after dark and were shown many slides of recent explorations in St. Paul's Cave, Palaway (Phillipines) and Nettlebed in New Zealand -- both very impressive accomplishments by the Sydney Speleological Society.

At dawn we were off for the 5 hour flight to Cairns for the Undara Lava Tube Caves and Chillagoe itself. Douglas Irwin met us at the airport with news of the first real snag of the trip -- instead of having a bush plane all gassed up for us and ready to go, the flying service owner had mistakenly taken it west himself, and nobody could get in touch with him. After a couple of hours, we all decided we'd better rent a 4-wheel drive rig and get going, and it was the right decision. Gassing up 3 hours later at the edge of the bush, we met the owner who told us he was on his way back to Cairns with the plane down with magneto trouble somewhere farther west.

We were to have met Anne and Vernon Atkinson at Mt. Surprise, the closest airport to the Undara caves, but we never got there. Dark arrived before we got to the turnoff to the caves about 40 miles short of Mt. Surprise. So we left a note at the turnoff and headed for the cattle station (ranch) where the Atkinsons were to have a camp ready. We checked in with Don Pinwill, the owner, got directions, and tried for the camp to await the Atkinsons. But we found ourselves nose to nose with a brush fire across the grassland ruts and chickened out and went back to the Pinwills who generously let us use a bunkhouse and guided us to Pinwill Cave about 10 p.m. I got the impression he thought we were crazy; his brother had gotten histoplasmosis carrying bat guano out of the cave for his garden and had to ask his doctor himself if it might be histo. But it turned out to have a wide and varied biota, including spiders up to 2" across, cockroaches, a "stick insect" like a small praying mantis, a so-called cave tick, and lots more. We turned in by midnight, the Atkinsons caught up with us by 1 a.m. and left a note, and we all got together at 7, and drove to the camp, the fire now largely quenched by heavy dew.

After a nearby bush breakfast we drove all of 150 yards to Road Cave, an impressive but short segment of the Undara system. Big black and white butterflies were swarming in the upper entrance sink. Lava tube slime was present here as well as in the Byaduk caves. Big moths were noted on the breakdown, much as in Washington state caves.

The next segment up-slope is Bayliss Cave, a much hotter cave and one said to have bad air, especially past a low barrier. The temperature was over 80 degrees Farenheit at that point, and our carbide lamps burned poorly, with a gap in the flame at the nozzle in that part of the cave. I had no dyspnea at a slow pace, but we all found ourselves breathing unusually hard with minor exertion. We left. Anne has gone farther with fireman's oxygen equipment; the cave was named for the fire chief of Cairns who provided the equipment. I noted a millipede but we didn't do much collecting here.

Then on down the system several miles to Barker's Cave, noted for having a lake which has not been explored to its end. It is a spacious, impressive cave with an impressive biota like Pinwill's Cave plus whatever the tadpoles in the lake are eating: biologically it has really impressive potentials.

Nearby is little Matthew's Cave, which has kangaroo bones and possibly is a dingo's lair. We saw mostly wallabies and wallaroos in this area rather than kangaroos, as well as some so-called kangaroo rats (or rat kangaroos) at night. Numerous brightly colored birds were all around us on the surface, and in a pond on the way to the caves we saw black swans.

Overnight was at the Atkinson's cattle station about a 2 1/2 hours drive, and just after dawn we started for Chillagoe, about 3 1/2 hours away by dirt roads through a fascinating succession of microclimates. Part of the trip was over the abandoned bed of a narrow gauge railroad, slow going but not bad. Ruts in the main road later were worse; that is where my teeth bounced together so much I lost the filling.

At Chillagoe we were met by Tom Robinson and a German student of archeology, Chris Meier. The fantastically fluted, largely hollow limestone towers and their caves were all they were rumored to be, and the geology and geomorphology even more complex that I had expected. So were the conservation problems. Copper ore is visible in the wall of one of the most important scientifically - Tea Tree Cave, with bone breccias which already have yielded surprising finds. The entire little tower which contains the cave is in danger of being quarried away, and this also is true of some of the other important caves in other towers. There is a national park here, but it includes only a few of the towers of limestone. Other gelogical features of interest in this area in addition to the karrenrillen and hollow towers is a wide range of metamorphism of the vertically bedded limestone (with possibly some reverse metamorphism) and spheroidal weathering of marble much like that of granite in the Sierra Nevada. And unique in my experience is what the Australians call phytokarst -- plant - generated erosion of spelean limestone in the twilight zone, producing a spiny form like grey pencils pointing to the light. Characteristically, the caves are phreatic mazes with frequent large chambers, numerous light holes some of which are very large, and beautiful white speleothems much like the flowstone and dripstone of Jenolan Cave although dry at the time of our visit. Aboriginal art is present, rock polish (probably by wallabies) can be found at

some narrow points, and swiftlets navigate by audible sonar and nest in some of the caves. When sitting in darkness, it is interesting to hear the swiftlets fly click-click-clicking through the cave, then stop abruptly as they settle into their hanging nest -- hardly more than hanging wisps of grass on the side of the rock. Flying foxes also roost in some of the vertical shafts here, but we lacked time to try to find them. Besides general familiarization with the area, we needed to check further on a cave Frank Howarth had found a few days earlier but had not had time to explore. Beyond the hole where Frank stopped was another room but beyond that it became a crawl. We confirmed it was a swiftlet cave and gave it the name "Transpacific Cave". Howarth's Hole was a vertical slot about 12" X 18"; Doug Irwin was first through it. Next was a click-click-clicking swiftlet that came right back out expressing its opinions of Douglas in no uncertain terms. So Doug just checked things a bit and we left the cave to its owners. It was a wild but wonderful day. We returned to town for a late dinner and took in two national park show caves after dinner, leaving for Cairns a bit after 10 p.m. and getting to bed almost by 2 a.m. With an evening flight to Honolulu, that left us just enough time for a quick boat trip to the Great Barrier Reef. We are greatly indebted to members of the Chillagoe Caving Club and many other Australian speleologists for the opportunity to conduct so extensive a reconnaissance in a remarkably short time.

And on the way back, we met with Frank Howarth and Fred Stone to compare notes and visit two small lava tube relic caves in the suburbs of Honolulu. But that will be the subject of a separate report.

P.S. I don't know if the vertically bedded speleoiferan limestone at Chillagoe is of the same age as the vertically bedded limestone at Jenolan and points south. If so, the paleo - Great Barrier Reef must have been even more extensive than that of today.

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Grotto Meeting: AUGUST 21 at 8:00