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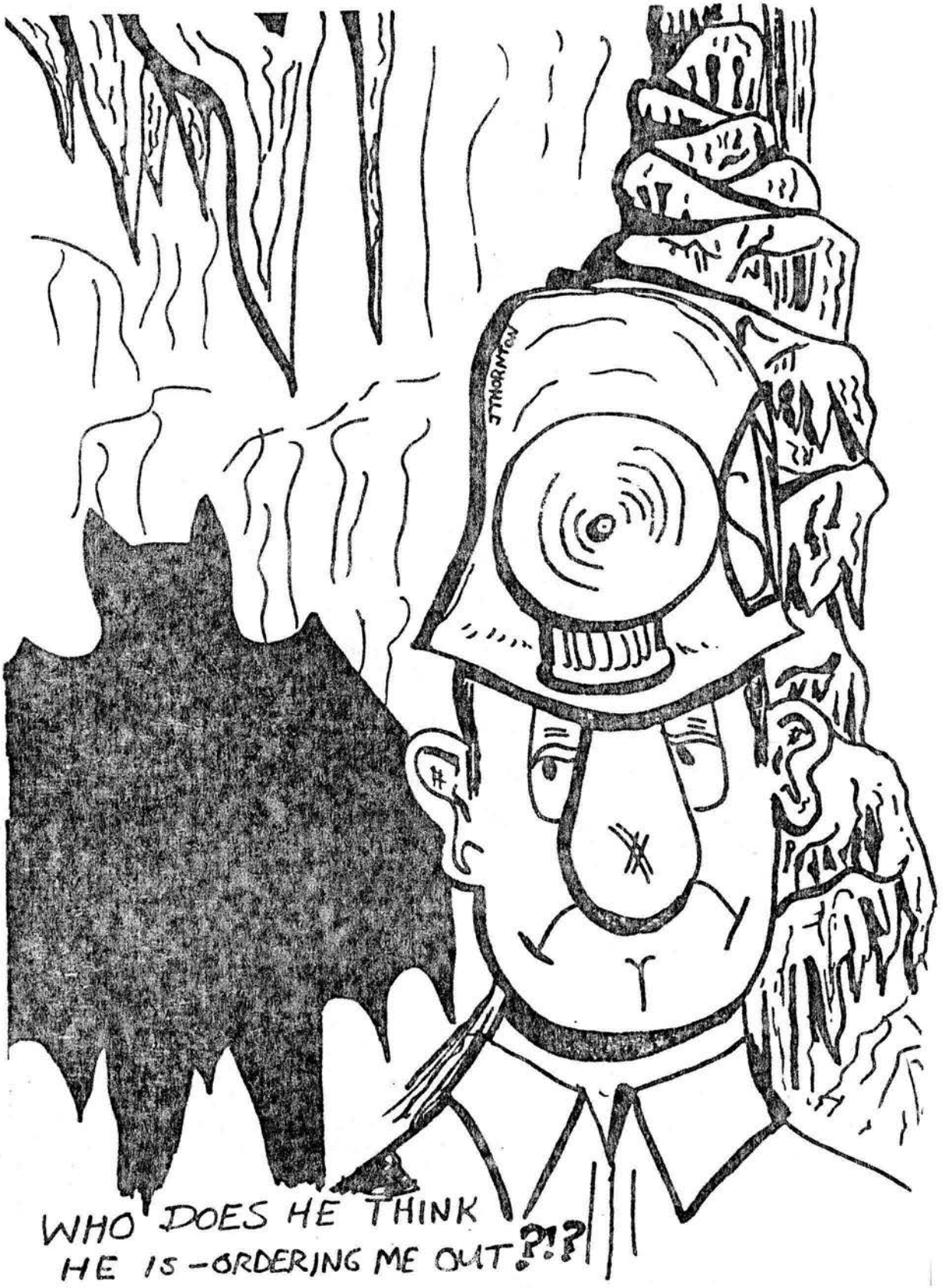

COMING EVENTS

JUNE 21	Grotto Meeting 8:00. 1117 36th Ave. East. Seattle
JUNE 24-26	Trip to Metaline Falls. See Grotto Notes, below.
JUNE 25-26	Deadhorse Cave, contact Bob Brown for details
JUNE 26-JULY 1	NSS Convention, Elkins, West Virginia
JULY 19	Grotto Meeting 8:00. 1117 36th Ave. East. Seattle
AUG. 16	Grotto Meeting 8:00. 1117 36th Ave. East. Seattle
SEPT 3-5	Regional, The Lehman Cave area, Nevada

GROTTO NOTES

The Forest Service has found some caves in the Metaline Falls area of Washington. There will be a trip to that area to check these out on June 24 to June 26. Anyone who is interested in going call Ben Tompkins at 524-9526.

Anyone needing helmets or electric lights, the Grotto Store has these for rent at $1.00 per day, $2.00 for the weekend and $6.00 per month. Contact Ben Tompkins. A list of what the store contains is published in this issue.

This month's cover cartoon was drawn by Jerry Thornton.

SPECIAL CONVENTION ANNOUNCEMENTS

For people going to the convention at Elkins, West Virginia on June 26 - July 1

1) The dorm rates are: Double occupancy rate is $16.50 per person per day for 5 or more days, or $20.00 per person per day for less than 5 days. Single rate is $20.00 per day for 5 or more days, $24.00 for less than 5 days.

2) The registration fee for pets, of any kind, is $1.00 per day, or $5.00 for the week. This fee, payable at the door, will be donated to a cave-related charity to be determined later. All dogs must be kept on a leash, and owners are required to clean up after their animals.

DIVING TO FIND FRESH WATER AND SINKHOLES IN FLORIDA

Taken from the Christian Science Monitor

It ranks among the most hazardous ways to gather data, but a group of cave divers wants to use their adventurous sport for scientific research - research that could provide Florida with new supplies of fresh water, protect known water supplies from pollution, and find potential sinkholes.

"One little sinkhole that's no bigger than my desk can connect to thousands and thousands of feet of tunnels and caverns," said Dr. William Fehring. "A lot of people dive into caves for the thrill of exploring the unknown, but there's a place for someone with the interest and the training to search out the scientific unknowns, too."

Fehring spends a great deal of his free time from his job as environmental affairs director of the Tampa Port Authority diving into caves and squeezing through crevices to explore the caverns under Florida. He was recently appointed chairman of the cave-diving section of the National Speleological Society, and he is now trying to encourage interest in the scientific value of his sport.

A homeowner sitting next to his pool in a west Florida subdivision was startled recently to hear a voice come out of a small nearby pond, shouting, "Where are we?" Two divers were splashing around, and as mysteriously as they appeared, they disappeared back underwater. That was Fehring and a fellow diver studying the interconnecting cave system under the subdivision. He said he did not think that the homes were in danger of dropping into sinkholes. But he warned developers to be careful what they dump into the area's ponds, because the water in them is linked directly to a public water supply well.

Fehring is quick to emphasize the hazards of cave diving, and to warn people that unless they are highly trained and have the right equipment, they are taking a great risk. "Sixteen people have died in caves during the past year," he said. "There's a very limited number of people who are willing to make the total commitment to safety that this requires."

Much of Florida north of Tampa and west of the state's central ridge is permeated with tunnels and caverns that have formed in limestone deposits over millions of years. Layers of limestone, which is largely compressed coral, were created each time the sea level rose to wash over the land. Those layers make up Florida's aquifer, the freshwater-ladden rock that supplies most of the state's drinking water.

As the sea level receded, the limestone was exposed to rainwater, which is slightly acidic from carbon dioxide and soil acids. The acidity dissolved the limestone along its cracks and fissures, which created sinkholes dropping scores of feet, tunnels hundreds of feet long, and caverns as large as a football stadium.

The caverns became interconnected by the tunnels to form underground rivers that eventually pop out as springs. Some of those springs are along the marshland that borders the Gulf of Mexico, and the fresh water pouring out of them has become an integral part of the coastline ecology.

Until the mid-1960's, researchers working with drills had only a vague idea that these underground caves and rivers existed. But with the widespread use of the aqualung, people began to dive down into springs and sinkholes and discover the tunnels. "We can actually see the geology laid out down there just like the Grand Canyon," Fehring said in explaining why diving into the caverns produces more information than drilling rock samples. "For the price of one fill-up of air, we can gather much more information than a number of core borings, and we can do it a lot faster," he said. "A core boring can only look at a vertical sample of the rock. A diver can look at the formations laterally."

William Sinclair, a researcher for the US Geological Survey, agreed that cave divers could provide important information that would be difficult to get any other way. "We have computer models of the aquifer, but they are only generalities of what is underground," he said. "The divers are looking at the anomalies. An underground river is a unique thing."

This information could be valuable in providing Florida with a more reliable water supply, he said. Now, most of the state's water comes from well fields where wells are drilled into the aquifer and water is sucked out from the crevices in the porous limestone.

The City of Tampa experimented by pumping water from a sinkhole near its well field and from the well field itself, Sinclair said. The results showed that pumping from the sinkhole lowered the ground-water level less than pumping from the well field.

Finding these underground systems could save Floridians untold amounts of money and controversy in supplying water-poor southwest Florida in the future, he said. "There may already be natural pipelines," he said. "We have to find where they are." And while the divers are exploring, he said, they may be able to spot potential sinkholes.

"If they look and see a dome that's lined with clay rather than limestone, and it's got roots coming out of it," Sinclair said, "they will have found a spot that sooner or later is going to cave in."
Fehring said water conservation and pollution control are as much a part of his group's research as water supply.

Some subdivisions drain their storm water runoff into ponds that are actually sinkholes, he said. That means all the oils, metals, and chemicals that wash down suburban streets are dropping into these interconnecting rivers of fresh water, which may stretch for miles. Some of these tunnels open under the Gulf of Mexico, he said, so that the water running through the system ebbs and flows with the tides. That means the pollutants dumped into sinkholes could be pushed farther inland with incoming tides until they are under water-supply wells. If a garbage landfull is built over a cavern system, he said, toxic pollutants could seep down into the underground river system and be carried farther than anyone realizes.

While Sinclair is interested in using the caverns as a freshwater supply, Fehring said he is concerned about pumping a lot of fresh water out of this underground system. The tunnels that connect to the Gulf, he said, may act like straws, sucking salt water into the aquifer as fresh water is drawn out. During their explorations, the divers have swum through the barrier between fresh water and salt water, Fehring said, and it is a lot farther inland than many researchers know.

But doing organized, scientific research in waterfilled caverns under the earth may be inpossible because of potential hazards, Fehring said. Few government agencies or private companies can afford the liability insurance that would be required to support cavediving studies.

Until they can be supported, Fehring and fellow divers will have to continue their research as a very expensive and risky hobby.

"I think you can cut the risk in cave diving down to a level acceptable for research," he said. "But it's like working in space. You're sending a man into an environment that is every bit as foreign as outer space."

BEWARE THE BLOB

Taken from the New York Times

Science has met the Blob. Princeton biologist David Waddell, the discoverer, has named it Dictostelium caveaium. Waddell's blob is a slime mold that lives in a cavern in Arkansas, grazing on bat excrement. The new species is distinguished by its bizarre, body-snatching mode of predation.

Slime molds generally flow along in a shapeless mass that engulfs any living object in its path. The Dictostelium mold, a coalition of amoebas, dispatches "attack" amoebas to infiltrate a prey species of amoeba. Once inside, the predators multiply and eat up their hosts; cell by cell, the victims change from prey to predator.

It's as if, being infected by the cell of another person, you were gradually to become him. The life of man may be poor, nasty, brutish and short. but holds no horror like the Blob of Blanchard Springs Cavern in Arkansas.

LAKE CAVE MARCH 18, 1983

By Clyde Senger and Rod Crawford

After our first contract meeting with the Forest Service, Rod Crawford and I had some spare time in the afternoon, so we decided to use it by checking in Lake Cave at Mt. St. Helens. I didn't think about it at the time, but it was a little unusual - there was no snow there. I remember the first trip I ever made to Ape Cave many many years ago. It was late in March and we had had to hike in over the snow from the Ape Cave road turnoff. Not this time. There was another difference, too. As we approached the diversion canal, there was an obvious cloud of what looked like smoke ahead. When we got there, it turned out to be volcanic ash. I wasn't sure that it was falling until we got to the Lake Cave parking area and found fresh dust on the other cars and could see and feel the fine material in the air. I never did hear of a cloud going up about noon on Friday, but there certainly was tephra falling from somewhere. Naturally, we hurried to take refuge in the nearest cave, Lake Cave. While Rod checked to see if the ladder was still there, I looked under a few rocks closer to the entrance. Sure enough, I soon located a small pale insect. My first thought was that it was a campodeid, but on closer examination, I decided it was a nymphal grylloblattid. Since it was't an adult, I saw no reason to collect it, and went on checking for other things. Later, when I mentioned it to Rod, he asked to see it. When I indicated I hadn't bothered to collect it, he was polite, but I suspect rather disappointed in me. It seems that no grylloblattids had been seen or collected since the eruption. Here I had a record of sorts at hand and didn't bother to save it. Naturally, when I checked the same area on the return, there was nothing to be found. Sorry about that Rod.

We then headed on down the ladder, except for the two Forest Service people that were with us who declined to descend the ladder (it was in fine condition compared to its state on some previous visits). Rod and I set some plankton nets in the cave stream, in the waterfall from the stream passage, and finally, pumped some lake water through a net. There was nothing obvious in the vials other than dirt, but perhaps Rod found something microscopic in the lab [very little, but possibly a fragment of an amphipod -- R.C.].

I ran into a few typed pages about Lake Cave in the Forest Service file. There was no date or indication of either author or origin. It states that the water in one branch of the stream passage is permanent. My sons and I crawled both branches some years ago and I feel sure I would have remembered if I had been crawling in water. Does anyone have notes that indicate the stream does dry up at times? It also mentioned that the lake was about 10 feet below the "high water mark". That is the estimate I made this time and I seem to recall that same figure in another paper. Does anyone ever remember the water being at or closer to the high water line? I think I have heard that the lake sometimes disappears. Anyone have any references to reports on that or recall what time of year that might occur? Finally in that regard, the paper states that a seasonal stream "emerges from the opening of the lower tube" apparently right by the entrance. He also states that the hole in the floor of the west passage by the entrance is 10 feet deep and angles back upward at the bottom. It is presently only 6 feet or so to a sand floor with no apparent upward part. I

have assumed it once connected in some way with the northern end of the lower passage. Now, I wonder if some sand may have been washed into that area after the recent eruption. Does anyone recall details of that area before the eruption? I certainly don't. Any comments would be appreciated very much.

As Rod and I left the cave, I did manage to locate a harvestmen which made Rod have a little more confidence in my ability as a biologist. I am afraid, though, that I am going to have to come up with a grylloblattid before I can convince him.

When we emerged, the ashfall seemed to have stopped and since there was little accumulation on our car, there must not gave been much. We had hoped to see a good cloud go up but since the steam ws blowing our way, we couldn't have seen much anyway. Maybe next time.

GROTTO STORE PRICE LIST

Item	Price
Battery 6V 2.5AH Lead Acid	4.50
Calcium carbide	0.75/lb
Chin strap, used	1.00
Chin strap, new	1.10
Decal. Cascade Grotto	0.30
Gloves, ruberized cotton	1.65
Hard hat, new/L1 bracket	10.00
Hard hat, used	9.00
L1 helmet bracket	2.50
Lens, Justrite diffuser	0.45
Lamp, electric complete	
Lamp parts, electric:	
Battery case	6.50
Bulb, #502 6V .15A 15hr	
Bulb, #27 6V .3A	
Bulb, #425 6V .5A 15hr	
Literature:	
Cascade Caver back issues	0.60
Caves of Washington	4.00
Hypothermia pamphlet	0.60
Map, Windy Creek Cave	4.00
Patch, Cascade Grotto	2.35
Patch, N.W.R.A.	2.20
Tarp, 12' x 12' yellow	100.00
Tarp, 80"x96" storm shelter	1.40

Item	Price
Lamp, carbide complete	16.70
Lamp parts. carbide:	
Bottom, with gasket	3.50
Felt, 1.5"	0.10
Felt, 2"	0.10
Felt holder, 1.5"	0.50
Felt holder, 2"	0.50
Flints	3 for 0.10
Gasket, 1.5"	0.10
Gasket, 2"	0.25
Nut, Justrite cap	0.20
Nut, Justrite hex, small	0.10
Nut, Justrite hex, large	0.30
Nut, Premier cap	0.45
Nut, Premier wing	0.55
Reflector. 4" parabolic	4.50
Reflector. 4" concave	4.00
Spring, 0.5" flint	0.15
Striker mechanism complete	1.50
Tip, Justrite	0.40
Tip, Premier	0.50
Tip, cleaner	1.00

VULCANOSPELEOLOGICAL ABSTRACT

By William R. Halliday, M.D.

Guest, J.E., Underwood, J.R., and Greeley, R. 1980 Role of lava tubes in flows from the Observatory Vent, 1971 eruption of Mount Etna. Geol. Mag. Vol 117. no. 6, pp. 601-606.

English-language articles on the lava tubes of Mount Etna are rare and this short contribution is especially notable because it emphasizes that some significant lava tubes form in aa rather than pahoehoe, and that they can be a major factor in the development of aa flows. It may be that many of us have been too certain that tube-containing flows are automatically in pahoehoe; the curiously phenocrystic lava of Conepickers Caves, Skamania County, comes to mind for example. The Observatory Vent Cave, like most of those at Mount Etna, is small by American standards, but is associated with an interesting complex of open channels and a large closed depression. The aa flow has numerous "boccas" where lava burst to the surface from a complex tube system. Hopefully, this interesting area will be on the field trip schedule of the 4th International Symposium on Vulcanospeleology in 1983.

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GROTTO MEETING JUNE 21 at 8:00