



# THE CASCADE CAVER

Official Publication of the  
CASCADE GROTTTO N. S. S.  
INTERNATIONAL JOURNAL OF VULCANOSPELEOLOGY



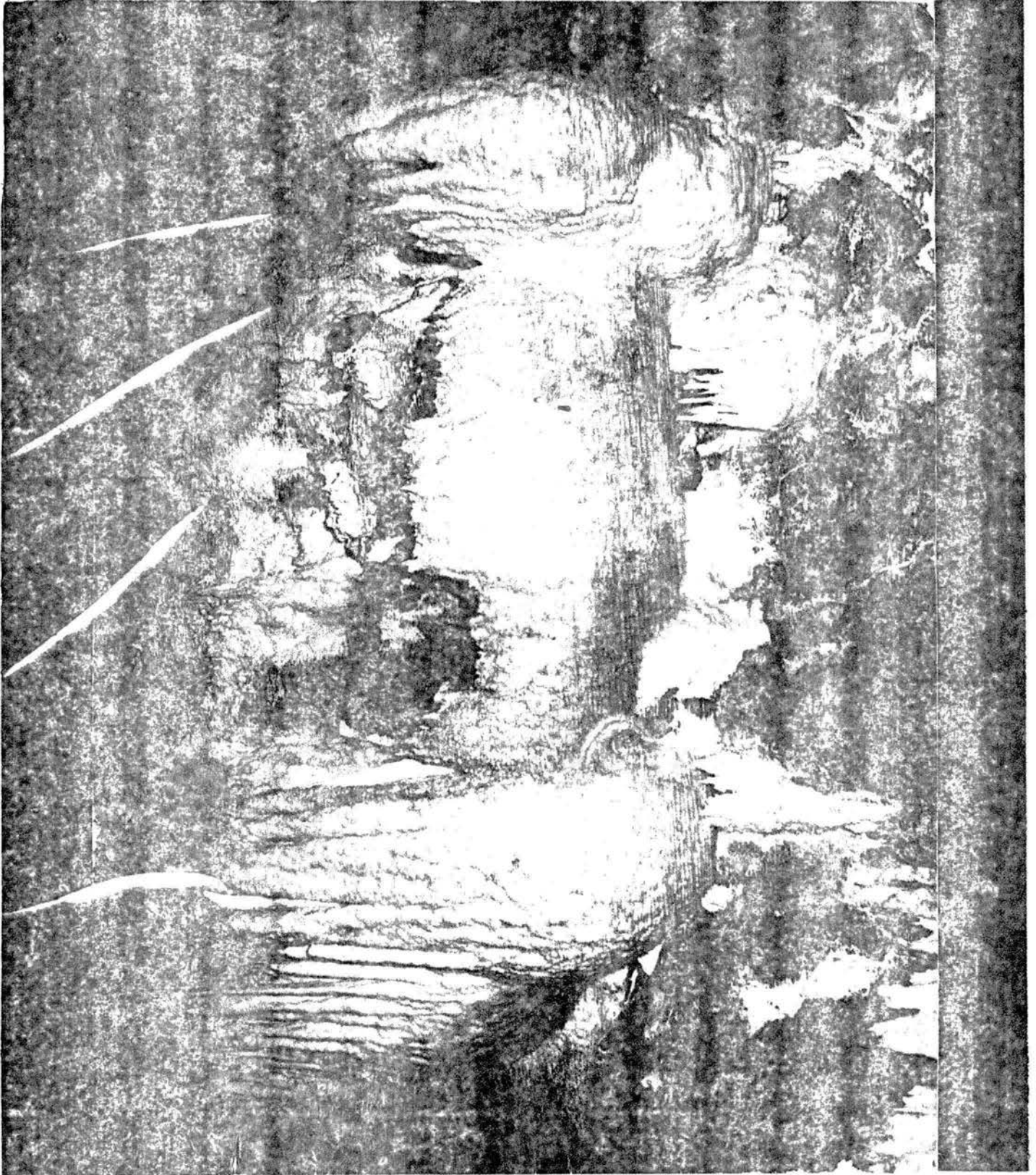
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Editor: Rod Crawford

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#### COMING EVENTS

January 13th, Saturday. Senger's Talus Cave (if good weather). Potentially a very enjoyable trip to a long and intricate cave. Contact Rod Crawford, 543-4486 evenings (ring at least 6-7 times).

Jan. 16th, Tuesday. Regular monthly meeting at the Hallidays, 1117 36th Ave. E. Seattle. Doors open at 7:55 and the program starts promptly at 8:15, to be followed by the business meeting, trip reports, and trip planning. Bring your slides of the past year's caving!

Jan. 27-28. Cleanup trip to Cascade Cave on Vancouver Island. For details contact Bob Brown, (206) 569-2724, or someone in VICEG.

February, Presidents' Day (Washington's Birthday) Weekend. Gordon River area, Vancouver Island. Limestone Caves and a warm cabin to sleep in. Bob Brown is going; contact him.

February 20th, Tuesday. Regular Meeting, as above.

April sometime. An important Oregon Grotto trip to the Saddle Buttes lava tubes, Oregon. Watch this space for further details.

#### NEWS AND NOTES

The Gem Caver reports that after severe vandalism, the Gen State Grotto arranged to gate recently discovered Pot O' Gold Cave. This gating was recently accomplished (Frank Ireton's report doesn't mention the date) with a Papoose Cave style culvert gate. They have an entry permit system with the BLM, similar to that with the Forest Service at Papoose. The Gem State Grotto has the responsibility of certifying trip leaders. Many persons in the Cascade Grotto are experienced lava tubers; if you wish to be certified, contact them. Evidently the cave is well worth the trouble.

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Carol J. "Crickett" Crockett, of the Vedauwoo Student Grotto, is seeking any information on animal life in Wyoming caves. [Yr editor, personally, has none.] Correspond with her at P.O. Box 232, Laramie, Wyoming 82070.

\* \* \* \* \*  
The Black Butte area, north of Shoshone, Idaho, site of a number of notable lava tubes, has recently been filed on for mining purposes. The claimant intends to start development in the spring of 1979, so immediate action is needed. Send letters, citing the speleological value of the area and the possibility that it may qualify under the wilderness study plan, to: Charles Haszier, District Manager, Shoshone District BLM, P.O. Box 2 B, Shoshone ID 83352.

+ + + + +  
Jan Roberts reports finding the word "cavern" on a map between Port Angeles and Dungeness, and closer to the former. It is on the shore east of Morse Creek and west of Green Point. Does anyone have any information about a littoral cave in that location? The reference is: Hilson, Stephen E., 1975. Exploring Puget Sound and British Columbia. Van Winkle Publishing Co., Holland, Michigan, p. 31.

\* \* \* \* \*  
COVER: Silica speleothems in the cavernous volcanic chimney of Algar do Carvão, Island of Terceira, Azores. Photo supplied by Os Montanheiros. See our feature.

## FEATURE

### VOLCANIC CAVES OF THE AZORES--A COMPILATION

#### I. Caves of Terceira

##### VULCANOSPELEOLOGICAL ABSTRACT

Anon., no date. Grutas da Ilha Terceira. Os Montanheiros, Angra do Heroísmo, Açores. 11 pages, duplicated. Abstr. by W. R. Halliday.

Os Montanheiros is the speleological society of the Azores Islands, with headquarters in Angra do Heroísmo, the largest city of the island of Terceira. This report briefly describes three lava tube caves, one remarkable cavernous volcanic chimney, and two "furnas", a cavernous form insufficiently described for the term to be clear. Also included are a few lines about the museum and photographic resources of the group, its philosophy, and tributes from visitors.

The Gruta or Galeria Dos Balcoés is the longest known in the Azores, at about 3,200 m. It was mapped by the Mocidade Portuguesa de Lisboa and Os Montanheiros have explored more. It contains columns of limonite and many notable lava forms. Its name derives from superposed levels. Besides the principal corridor there are subsidiary ones also. Two entrances are 750 m apart. It is not clear whether either segments the cave. It is developed for the public.

Gruta do Natal, in the interior of the island, extends below the local water table, forming a lake. The principal corridor is 210 m long, and the total explored is 510 m. It was developed and opened to the public in 1969. 9,000 visitors were counted in the first five days.

Gruta das Agulhas, alongside Salga Bay, is also developed. A route of 300 m is described as including a "tapete" of stalagmites 1-3 cm high, and other features.

The Algar do Carvão is a unique volcanic chimney with large silica dripstone and microgours in surprisingly large chambers in andesite underlying a cinder cone. Tourist access is simplified by a tunnel constructed by the speleological group. The cave is 90 m deep and includes a lake of unknown depth, 40 by 20 m in size.

Furna do Cabrito and Furna da Agua are mentioned briefly. The latter is an extensive gallery with a spacious room.

Gruta da Salga and Gruta Briza Azul are not mentioned.

##### VULCANOSPELEOLOGICAL ABSTRACT

Fouqué, F., 1873a. Voyages géologiques aux Açores. I. L'île de Terceira. Revue des Deux Mondes, 103 (1): 40-65. Abstr. by W.R. Halliday.

Pp. 59-61: Fouqué presents basic vulcanospeleogenesis as a crusting over of the distal ends of lava rivers in late stages of flow; he uses the analogy of icing-over of rivers. He found lava tube caves to be very common in the Azores. "Some are short and low; others are more than 1 km in length and often are several meters in height and width." One of the most beautiful is on the plateau which dominates the town of Angra, on the island of Terceira, to its east. Fouqué describes a wide variety of lava speleothems and speleogens.

An Unusual Volcanic Chimney with Abundant SiO<sub>2</sub> Dripstone  
Algar do Carvão, Island of Terceira, Azores

translated by William R. Halliday, M.D.

[From pages 37-38 of an unidentified typewritten report in French on the volcanics of Terceira, supplied by Os Montanheiros, perhaps Gerard Mottet's 1970 "Contribution a l'etude Geomorphique de l'isle Volcanique de Terceira (Archipel des Açores). Publ. ronéo du Labo. Géogr. de l'Université de Madagascar, 75 pp., cited in Mottet's 1974 paper abstracted below.]

"This volcano is a cone reaching a height of 629 meters, angled northwest. Its interest resides in the fact that in contrast to the usual situation, the chimney of the central tube is not completely blocked. It is open to a depth of about 80 m. At the bottom is a lake of about 400 m<sup>2</sup>. The descent of this chimney is easy, thanks to the work of Os Montanheiros, the speleological group of Terceira. After a vertical drop of about 30 meters (now avoided by an artificial tunnel from the side), the chimney is enlarged obliquely, then again narrows before dividing into two large pockets. The lower contains the lake at about 80 m below the surface. The upper, at 45 meters below the surface, divides into two successive rooms. The oblique slant of the chimney and the lateral enlargements which are not directed into the inner parts of the volcano, demonstrate that the magma, while it attempts to rise to the surface, even under strong pressure, hesitates in its route, utilizing the zones of weakness in the rocks through which it is passing, one after another, splitting off into numerous routes which do not break out on the surface, before finding the vent where it fountains, smokes, explodes, or flows. Its route is thus far from vertical.

"The walls of the deeper room - the one which gives access to the subterranean lake - are formed of a very hard andesite, of a pre-trachyte mountain range. The compact mass is heavily fissured by large fracture lines admitting waters which easily pass through the scoria of the cinder cone. Their slower course through the compact rocks permits them to dissolve certain elements which are redeposited along the joints in beautiful white stalactites which are as much as 50 cm long. The drips from each, in a familiar phenomenon, as in a karstic milieu, form stalagmites massively displayed and which do not become very high. But here they are not calcite. It is actually silica, and the chemical composition of these stalactites must be similar to that of geyserite, i.e., containing about 80% SiO<sub>2</sub>, although the origin is a little different. On the bank of the lake, the siliceous deposit has fossilized the skeleton of a bird. The appearance of the scene is grand. Daylight does not reach this far."

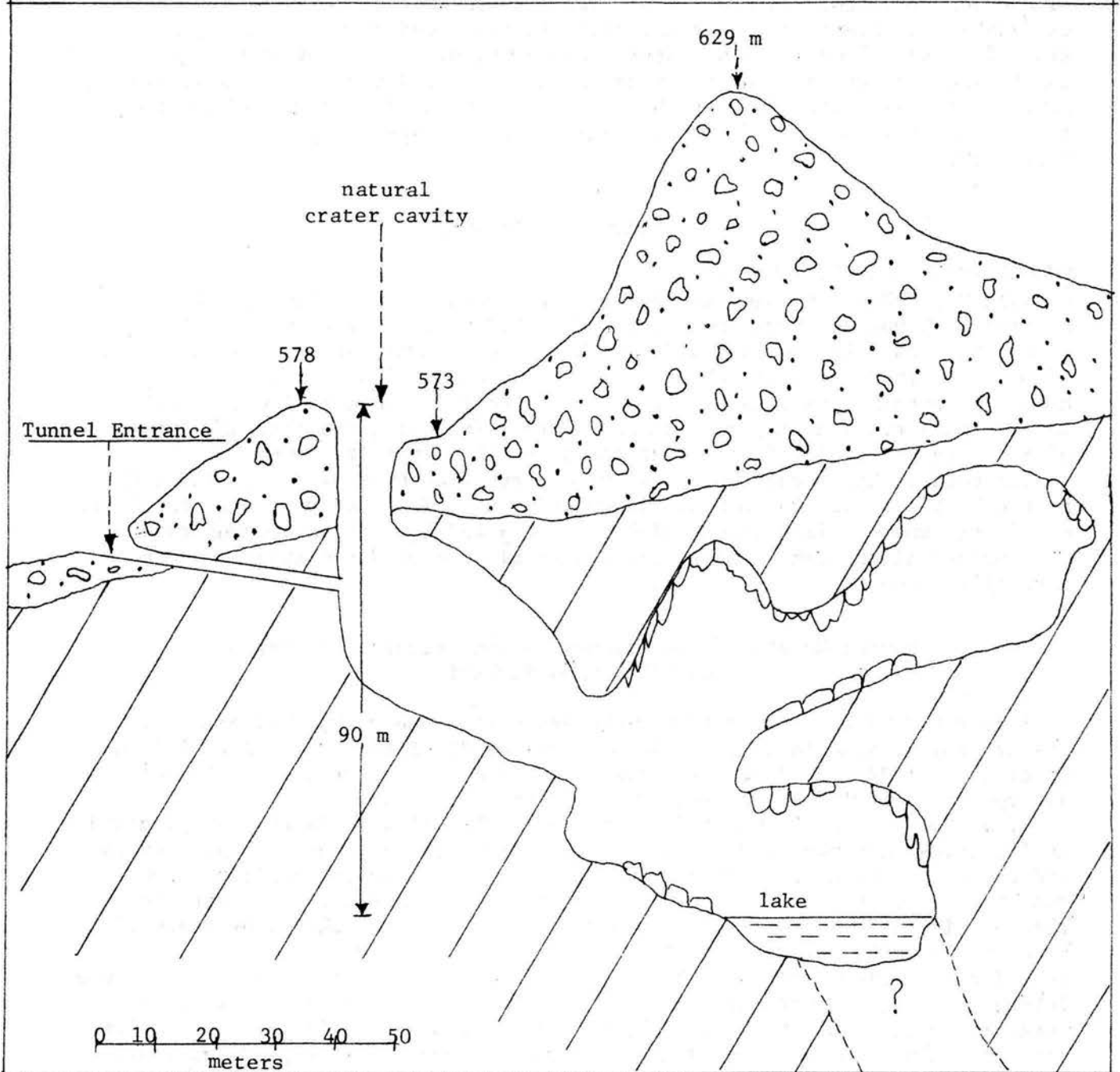
The account then goes on to describe the "Furnas do Enxofre", which some guidebooks include with caves. It turns out that this is a crater about 100 m in diameter with approximately 15 intermittent fumaroles with rock temperatures at 80 to 100° C.; clearly not spelean.

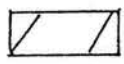
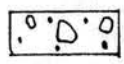
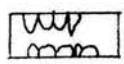
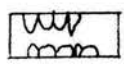
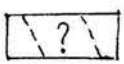
#### VULCANOSPELEOLOGICAL ABSTRACT

Mottet, Gerard, 1974. Les tunnels dans les coulees de lave de Terceira (Açores): note de morphologie volcanique. "Finisterra" (Lisboa), 9 (17): 111-117. Abstr. by W. R. Halliday.

In the summer of 1972, Mottet spent a week studying lava tube caves discovered by Os Montanheiros. The caves are in the center and SE center of the island of Terceira. Galleries tend to be 1-2 m high, with circular or

Vertical Section of the Accessible Part of the Volcanic Chimney  
of the Cinder Cone of ALGAR do CARVÃO (TERCEIRA)



-  Compact andesites of the pre-trachytic massif
-  Scoria of the cinder cone of Algar do Carvão
-  Stalactites
-  Stalagmites of silica
-  Supposed, and probably filled, course of the volcanic chimney

oval cross-sections and convex floor. Some are several km long. A short literature review includes Ollier's 1964 paper, a different Geze reference than the one recently abstracted here (on La Grotte Gaskin on Mt. Cameroun and including also its Grotte-tunnel de Molallei), three reports on Madagascar lava tubes previously unknown to me, and also on one on the island of Réunion: La Chapelle de Rosemont. Lava dripstone is discussed at some length, and also limonite columns. Flow features are particularly beautiful in Gruta das Agulhas, which opens at the seashore near Porto Judeu. Successive flow levels are clear-cut. Much of the paper consists of speleogenetic considerations. This is an important paper which American speleologists need to follow up.

## II. Caves of Graciosa

### VULCANOSPELEOLOGICAL ABSTRACT

Fouqué, F., 1873b. Voyages géologiques aux Açores. II. Graciosa, Pico, et Fayal. Revue des Deux Mondes, 103 (3): 617-644. Abstr. by W.R.Halliday.

Pp. 619-620: In the lava beds which form the northwest crest of the caldera of Graciosa in the Azores, there is a lava tube cave 4-5 m wide and 5-6 m high; it contains numerous stalactites. A short distance inside the roof lowers, then rises again, and the cave curves following the internal face of the caldera, ending in a cul-de-sac about 60 m from its mouth.

The caldera has a cavernous vent with a roped descent of 22 m. The cavern at the bottom is 120-130 m wide and contains a small subterranean crater lake. A puffing fumarole is present which emits CO<sub>2</sub> and H<sub>2</sub>S; these accumulate at the surface of the lake. Large numbers of pigeons or doves live in the upper part of the cave.

### Another Report of the Chimney in the Caldeira of Graciosa by William H. Pickering

[Excerpted by the editor from Pickering's 1908 paper, The Volcanoes of the Azores, *Appalachia* 11 (4): 344-350, plates XL-XLIII. Pickering visited Graciosa in 1907. He does not mention the fumarole referred to by Fouqué; perhaps the activity had decreased since Fouqué's visit.]

...By far the most interesting feature of the Caldeira is the cave located at its lowest and most remote end. The entrance to this cave is quite steep, and the method of descent at present employed is extremely primitive. On reaching the entrance, a fissure is discovered, divided into two parts by a rock partition. A rope is knotted about the traveller's chest, by means of which he is to be lowered into the larger of these openings. He takes a second rope, which reaches to the bottom, in his hands. The lower end of this latter is free, and with it he is to guide himself during the descent. A stake is driven into the ground above, and a turn of the first or supporting rope is taken about it, and by means of this arrangement the guide gradually lowers the visitor into the hole. The latter in the mean time faces the guide, and stands with his back to the cave, with one foot on either side of the guide rope. The slope into the cave is at the top inclined at an angle of about 50°. The visitor now proceeds to walk backwards down this slope, leaning far back, so as to bring most of his weight on the supporting rope....After descending about thirty feet the steepness suddenly increases to 80°, and after another thirty feet it becomes vertical. He is now quite invisible to the guide, and an imperfect system of signals is maintained between them by calls. If the visitor is a foreigner, this system is further complicated by

the necessity of an interpreter. The pressure of the rope about his chest and the fatigue in his arms, by which he almost involuntarily supports part of his weight, add to his discomfort if he is not something of a gymnast. To this is presently added the unpleasant observation that the cliff has now passed the vertical stage, has begun to overhang, and is slowly receding from him. He cannot look below him, but he hears voices coming up from beneath, and by the time that the rock has receded so far that he thinks he cannot keep his foothold much longer, his foot is suddenly seized from below by a second guide, and planted on the top of a high pointed boulder. Here he is told to rest for a moment, which he will probably be only too glad to do. The supporting rope is now slackened, and he soon recovers his breath. In a few moments he continues his descent, but it is now merely an ordinary piece of rock climbing, with the rope to assist him, and in a moment he is safe on level ground, ninety feet below his starting point.

The ascent is more difficult than the descent, for although the visitor has the advantage of seeing where to put his feet, yet the start up the overhanging rock is much more difficult than it was from above on the comparatively gentle slope...It was in this part of the trip that M. Fouqué, the well-known French geologist, broke one of his ribs....

The cave lies below a low ridge extending out into the floor of the crater from the inner wall. It measures about 600 feet in length by 250 in breadth. The roof is a low arch fifty feet in height at the middle. From the farther end all of the roof and floor are well seen by means of the daylight coming through the vertical hole at the entrance. One side of the cave is occupied by a lake 500 feet in length by fifty in breadth, and the maximum depth is said to be forty-five feet. There was formerly a boat here. The altitude of the cave bottom at the foot of the rope is 250 feet, and at the surface of the lake, 150 feet above the sea.

The roof is smooth, without lava stalactites, and in places large blocks have fallen from the ceiling. The method of formation of such a cavity is not easy to understand...

### III. Caves of Pico

#### VULCANOSPELEOLOGICAL ABSTRACT

Fouqué, F., 1873b. [as above under Graciosa.] Abstr. by W.R. Halliday.

Pp. 633-634: There are many lava tube caves on the island of Pico; one of the longest is in the 1720 flow. It is about 500 m long from the main entrance to its end on a sea cliff. Another at Prainha do Galião bifurcates and reunites below the entrance. At Bandeiras are two short but impressively spacious tubes. One is about 100 m long, the other about 250 m. The latter has lateral conduits and tubular stalactites; the former then served as a natural reservoir for the townspeople.

### IV. Caves of São Miguel

#### VULCANOSPELEOLOGICAL EXTRACT

Walker, Walter Frederick, 1886. The Azores: or Western Islands. London, Trubner and Co., pp. i-viii, 1-325. Extracted by the editor.

Pp. 131-133: "Caves are now recognized as a common feature in volcanic countries, and are present in a marked degree in these islands. The theory, as Sir Charles Lyell tell us [sic], is that they have been produced by the hardening of the lava during the escape of great volumes of elastic fluids,

which are often discharged for many days in succession after the crisis of the eruption is over. There are some very extensive galleries which would rejoice the heart of any "marchand de champignons," [mushroom seller--ed.] in a field in the Rua Formosa [a street near the town of Ponta Delgada on São Miguel], the entrance to which is close to the road and easy of access. Opening out from the sides of a wide circular space are three large vaulted orifices leading into as many separate galleries, one extending in a northerly, the other two running almost parallel in a southerly direction for a considerable distance, presumably to the coast. They are difficult of exploration for more than a few hundred yards, the ground being covered with variously-sized masses of broken lava, most of which, disintegrated by the constant damp, have fallen from above. Hanging from the roof are seen pointed lava knobs of all dimensions, looking as if a sudden icy blast had cooled the molten and falling drops; on every side the torches, absolutely indispensable, light up the silvery particles of selenite, making them sparkle like brilliants. Close to the entrance, the northern cave is quite twenty feet high and thirty feet broad, with a perfectly level floor, and if properly explored, would in all probability be found to join another gallery, the entrance to which is in a garden, recently belonging to Mrs. Brander, in the Forral do Carvão, and if so, would extend for several miles inland. The two southern caves apparently communicate with two corresponding ones, the openings of which are to be found in a field on the opposite side of the road, but are almost blocked up with fallen earth; from what can be seen of them, they apparently run down to the shore at Santa Clara [in the western part of Ponta Delgada]. It is said that some of these caves, easily accessible from the coast, were formerly the resort of bands of smugglers, and that many an island fortune owes its origin to the nefarious trade they carried on.

"..Along the south-western shore of St. Michael, there are several of these underground openings through which the lava from the volcano of Sete Cidades flowed into the sea."

#### VULCANOSPELEOLOGICAL ABSTRACT

Webster, John White, 1821. A description of the island of St. Michael. Boston, R. P. & C. Williams. Pp. 123-135 (Chapter 11: Excursion to the Caverns - Cavernous Lava - Caverns - Stalactitic Lava - Imitative Lava). Abstr. by W.R.H.

About three and a half miles northwest from Ponta Delgada on the island of São Miguel in the Azores is the entrance of a large lava tube cave: "a fissure in the rocks, which here rise a few feet only from the surface, and is about wide enough to admit two persons abreast!" A breakdown slope leads to a thirty-foot drop into a very large chamber which is the upper level of a large two-level tube. The length is not given, and the lower level was not entered, but one room was estimated to be forty yards wide, and one part of the cave was about 100 yards long. The writer found some concentric vesicular stalactites up to about one foot long and six inches in diameter. Most of the longer ones were one to three inches thick. Some calcareous flowstone was noted. The cave ended with a lava seal, or a stalactitic barricade; the text is not clear. Fine flow marks are present.

[Evidently, from the descriptions, the caves described respectively by Webster and Walker are different, though in the same general vicinity. Ed.]

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## TRIP REPORTS

### Gruta de Juxtlahuaca

by William R. Halliday

On our November, 1977 Eastern Airlines \$299 caving special to Florida, Trinidad, Puerto Rico, Jamaica, Bermuda, and Acapulco, to our surprise we found Acapulco the pleasantest and cheapest of all the famous resort areas and also the cave was the best: Juxtlahuaca.

This was our first time in the state of Guerrero, and we were pleasantly surprised, with a few exceptions. One exception was the A.A.A. guidebook for Mexico; among other misconceptions it mentions a tourist office on the Mexico 95 bypass at Chilpancingo where information can be obtained and arrangements made for the cave. As nearly as I could determine on the bypass at Chilpancingo, there has been no such tourist office, at least in recent memory. For a time, I thought that the reference to a Motel San Antonio on the bypass also was imaginary. It is there, however, and the problem is merely that the sign is inconspicuous. Somewhat spartan twin bedded room for about \$7.00. We didn't try the food (which looked and smelled good), nor the pool, which didn't. Reservations are recommended. Large framed black and white photos of the cave as decorations. Good cavers' base; checkout time is 3 PM.

The Gruta de Juxtlahuaca is located about 7 km beyond the village of Colotlipa, which in turn is about 25 miles east of Chilpancingo. A dirt road leaves Mexico 95 about 4 miles south of Chilpancingo, at the village of Petaquillas. A highway sign points the way to the Grutas; it is bright and shining and the road starts out well. Both signs and road deteriorate. A nice drive, however, through beautiful country, first in a narrow limestone gorge (maybe a big cave north of the gorge, at its east end), then in a wide valley flanked by mountains. Several gates manned by muchachos; take plenty of pesos for the small fry. Several small villages, one ford, several dried-up mud holes. No problems with the Volare, which was the closest thing to a caving car I could rent in Acapulco, although the last stretch down the hill into Colotlipa was a bit rough. But it would have been different in the wet season.

At Colotlipa, I contacted Andres Ortega, guide par excellence and keyholder, and we soon were off for the cave. Beyond the tiny village of Juxtlahuaca and the ruins of a pre-Revolution hacienda, there were a few more road problems; the Volare hit bottom only once, however, and we drove almost to the cave entrance. Road signs all the way, but increasingly rusted and dilapidated. Few visitors come this way; Andres merely shakes his head and mutters about the bad roads. It seems he has a treasure room in the cave, full of stashed beer, and nobody to sell it to.

The Gruta (Cave) de Juxtlahuaca is truly a connoisseur's cave. Magnificent dripstone and flowstone, the most beautiful spelean crystals I have ever seen, helictites and anthodites, cool clear water to be traversed neck-deep (on the semi-commercial tour, yet) in the dry season, a notable biota with insectivorous, fructivorous and vampire bats and lesser critters, and especially the only famous cave paintings in the Western hemisphere--there is no other cave like it. The paintings are said to be Olmec--perhaps 3,000 years old, although I would guess 500-1500 years. Two are similar in technique, showing a stylized jaguar and a clearly Olmec representation of the feathered serpent; the other is radically different and shows a large, ceremonially

dressed figure standing and a smaller one sitting, plus an odd object looking like a quetzal plume emerging from a pot, immediately in front of the head of the larger figure. The sight of these paintings alone is worth the trip, but the speleoarchaeological buff also will delight in the wealth of skeletal material embedded in flowstone or partially coated with dripstone. And Andres is a great addition to the cave; I only wish my Spanish were more extensive. Even the cave gate is extraordinary.

As for the vampire bats, I saw only one small colony in one bell-hole chimney, marked by the telltale tarry deposit beneath. I didn't even smell any others, even in the room called (on the map but not by Andres) El Infierno de los Vampiros, which is full of other types of bats. Although not far overhead, the few vampires present were quite active and I still don't have any good vampire photos. Andres called the bat chamber simply El Infierno (The Inferno), and if I understood him correctly, this one small colony is the only one in the entire cave.

#### Lena Lake Talus

by Mike Dyas

On 18 November, 1978, I attempted to locate the talus cave(s) at Lower Lena Lake (Olympic National Forest, Jefferson County), as mentioned in Caves of Washington. It is assumed that I was the first person to visit the area for this specific purpose. The 1952 report (as quoted in the book) says only that the cave(s) are at the "end" of the lake. There appears to be no talus at the upper end, although I didn't go far in that direction. However, in the valley below the lake, there is a talus concentration approximately one half mile long, with plenty of blocks more than large enough to form caves.

Unfortunately, these appear to be too dispersed to make something substantial. I examined quite a few "entrances" but found nothing which would measure over 50 feet long. I take it that the talus was deposited by glacial action, as the slopes of Lena Creek Valley aren't sheer enough to form cliffs. Nevertheless, I didn't do a thorough search, as conditions were hardly ideal; I barely escaped from what turned out to be a major snowstorm. The area may be worth another look, although it will probably be snowed in for some time to come. Whatever rock the Lena talus is in must be conducive to large fragments; if it can be identified, perhaps more favorable cave sites can be deduced.

The most interesting thing about the Lower Lena Lake vicinity is its disappearing stream. Water entering the lake evidently sinks in the lakebed and flows underground one half mile through the talus zone, resurging at a series of springs just below where the trail crosses the dry streambed (one opening is even penetrable for a few feet). This is definitely non-solutional rock and I've personally never seen an example of pseudokarst like this. Is it common in glaciated areas of the Pacific Northwest?

[Editor's note: The USGS geologic map of this area shows only "landslide deposits" on the valley floor, with talus up on the hillside to the east. There are several other talus deposits of this same rock (Crescent Formation basalt) elsewhere in the area, mostly inaccessible except by brushwhacking in near rain forest. The original report by Neil Morgan in Cascade Cave Report #4 (1952) stated that the caves were "on the lower end" of the lake, that "there are passage ways all through these rocks" which "go down under visibility of

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On 18 November, 1978, I attempted to locate the talus cave(s) at Lower Lena Lake (Olympic National Forest, Jefferson County), as mentioned in Caves of Washington. It is assumed that I was the first person to visit the area for this specific purpose. The 1952 report (as quoted in the book) says only that the cave(s) are at the "end" of the lake. There appears to be no talus at the upper end, although I didn't go far in that direction. However, in the valley below the lake, there is a talus concentration approximately one half mile long, with plenty of blocks more than large enough to form caves.

Unfortunately, these appear to be too dispersed to make something substantial. I examined quite a few "entrances" but found nothing which would measure over 50 feet long. I take it that the talus was deposited by glacial action, as the slopes of Lena Creek Valley aren't sheer enough to form cliffs. Nevertheless, I didn't do a thorough search, as conditions were hardly ideal; I barely escaped from what turned out to be a major snowstorm. The area may be worth another look, although it will probably be snowed in for some time to come. Whatever rock the Lena talus is in must be conducive to large fragments; if it can be identified, perhaps more favorable cave sites can be deduced.

The most interesting thing about the Lower Lena Lake vicinity is its disappearing stream. Water entering the lake evidently sinks in the lakebed and flows underground one half mile through the talus zone, resurging at a series of springs just below where the trail crosses the dry streambed (one opening is even penetrable for a few feet). This is definitely non-solutional rock and I've personally never seen an example of pseudokarst like this. Is it common in glaciated areas of the Pacific Northwest?

[Editor's note: The USGS geologic map of this area shows only "landslide deposits" on the valley floor, with talus up on the hillside to the east. There are several other talus deposits of this same rock (Crescent Formation basalt) elsewhere in the area, mostly inaccessible except by brushwhacking in near rain forest. The original report by Neil Morgan in Cascade Cave Report #4 (1952) stated that the caves were "on the lower end" of the lake, that "there are passage ways all through these rocks" which "go down under visibility of sunlight", and that many of the openings are inaccessible except at low water in early summer.]

BOOK REVIEW

by William R. Halliday, M.D.

Caves of Montana, by Newell P. Campbell, N.S.S. #8430. Montana Bureau of Mines and Geology (Room 206, Main Hall, Montana College of Mineral Science and Technology, Butte, Montana 59701). 169 plus vi pages, 2 plates, 84 figures including many cave maps. 8 1/2 X 11", paper. \$2.00 plus 75¢ postage and handling.

For the speleohistorian, Caves of Montana provides an excellent basis for future work. While delayed so long in publication that exciting new alpine discoveries are covered only by last-minute editorial additions, much historical data are given for the nearly 300 caves included, including many old newspaper references. Perhaps the main speleohistorical omission is the lack of reference to the pioneer work of Basil Hritsch. It even includes "Lost Cave of the Yellowstone"--from The Cave on the Yellowstone, or, Early Life in the Rockies, by Helen G. Sharman, Chicago, Scroll Publishing Company, 1902, 371 pp., which I have in my cave fiction collection.

Clearly the biggest speleobibliophile's bargain of the year, too!

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BROTHER JUNIPER By Fr. Justin McCarthy & Len Reno

## His-'n-Her Caves the Ultimate Gift

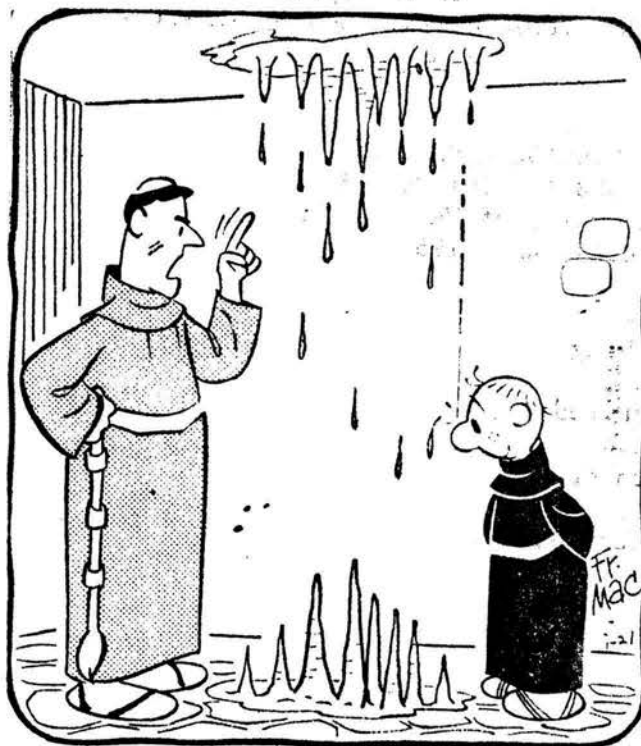
DALLAS (AP) - Neiman-Marcus, the Dallas-based specialty store, is now offering the ultimate gift for the person who has everything - a granite mountain cavern to store it in.

Neiman-Marcus's just-released Christmas catalogue contains three "his and hers" 700-cubic-foot, temperature- and humidity-controlled vaults deep within a 9,000-foot mountain in Utah's Wasatch Range. The price - \$90,000 for a 50-year lease.

"One may store here, with impunity and far from all uninvited eyes, the originals of oils you'd hate to lose, the real jewelry, a very rare vintage Bordeaux, a golden ingot or two ..." the catalogue says.

Protecting the vault, in addition to its natural setting, is a surveillance system with closed-circuit and hair-trigger alarms powered by waterfall-generated electricity.

Spokane Daily Chronicle. Thursday, Sept. 28. 1978



"Never mind which are stalactites and which are stalagmites. Did YOU leave the water running?"

#### THE NOVEMBER MEETING

Attendance at our nominating meeting was ridiculously small, perhaps due to the ice on the roads. Some plans were made for the New Years' Party. Bob Brown was authorized to do our part for the regional slide show, and to send a list of our current certified trip leaders for Papoose Cave to Jerry Thornton. Announcements: Phil Whitfield is re-elected as regional chairman, and we will know six months prior to the next regional meet where and when it will be. The Fourth of July is a strong possibility. Nominations: Bob Brown for chairman, Bill Halliday for vice-chairman, Chuck Coughlin for secretary-treasurer. Bill Halliday showed slides of some of his recent trips.

#### DECEMBER MEETING

Seven attendees elected our new officers as nominated in November. We resolved that half of the proceeds from the auction at the New Years' Party will go to VICEG to improve their Gordon River cabin. Bob Brown showed

THE CASCADE CAVER  
207 HUB (FK-10) Box 98  
University of Washington  
Seattle, WA 98195

Take  
Nothing  
But  
Pictures  
Leave  
Nothing  
But  
Footprints

slides of his recent Vancouver Island trips and the NWRA Meet at Hell's Canyon.

#### PARTY

Thanks to the Hallidays' hospitality, "a good time was had by all" of the nearly 40 party-goers. The auction netted \$120.35, of which \$60.35 was presented to VICEG in the person of Terry Boorman.

#### TRIP REPORT CONTEST

Don't forget, a cash prize of \$20.00 will be awarded to the writer of the best trip report to be published in these pages from this issue through November, 1979. For contest rules, see the back page of the last issue.

#### FOR THE JANUARY MEETING,

Everyone please bring your caving slides from the past year which the Grotto hasn't seen yet. If you have a program for any future meeting, contact our new Program Chairman, Chuck Fair, at (206) 832-3651, in advance.

THE JANUARY MEETING IS ON TUESDAY, JANUARY 16TH. DON'T FORGET IT!