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THE CASCADE CAVER

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OFFICIAL PUBLICATION OF THE  
CASCADE GROTTO N. S. S.  
SEATTLE WASHINGTON

COMING EVENTS

Monday March 9, 1964

Regular Meeting, 8 P.M.  
Dr. Halliday's, 1117-36th Ave East  
Seattle.

THE THERMAL CAVES by J. B. Flett (from The Mountaineer, Vol. 5, 1912 pp 58)

In common with nearly all our volcanic peaks, Mount Tahoma ( Mount Rainier ) has steam issuing from the crevices in the vicinity of the crater. This thermal region is not confined to the crevices bounded by the rim of the main crater, but extends outside of that circle and includes a small crater which lies west of the main one, together with additional territory to the north of both. Snow and ice have filled both craters nearly full. As the season advances this ice mass gradually settles down leaving a well defined rim ranging in height from twenty-five to one hundred feet. As the crater is filled with ice to an unknown depth, no steam can force its way to the surface. The diameter of the large crater is about sixteen hundred feet. The circumference or region of thermal caves would therefore, if confined to the rim alone, extend about a mile in length. The large crater dips down toward the east. It is far from being level. The small crater dips only a few degrees toward the west. The rims of the two craters meet at the dome of Columbia's Crest.

On the northwest slope of the small crater the steam has melted all the snow off so there can be no caves formed on the outside of the rim for the space of a quarter of a mile. There are, however, some excellent ones within the rim. All around the rim of the large crater are found large dome shaped caves, where the ice is melted by the slumbering heat beneath. As a party approaches the large crater from the south side, these caves are often a source of great danger unless the party is warned by some experienced leader or guide. Often there is only a thin shell of the roof left, through which the novice may fall to the depth below, either to get a very cold reception or a very warm one, or perhaps both, depending on the nature of the cavity. When the crater rim is reached, the danger from it is over so long as the party climbs over the rocks which form the rim. These caves do not extend far on the outside on the south. On the north side the heat is so intense that the snow is melted off for a long distance down toward North Peak. When viewed from the prairies south of Spanaway Lake this region appears black, in striking contrast to the spotless white of the surrounding part of the summit.

The hottest caves are found on the northeast slope of Crater Peak. In one of these, ice - water was boiled in exactly three minutes. At times there are passageways for several hundred feet from one large dome-shaped chamber to another. In short, one can pick out a suite of steam-heated rooms adapted to his needs. This is fortunate, for the ascent from the east side is long and strenuous. Here a party may stop for refreshments.

THE THERMAL CAVES (continued)

On our ascent of the mountain last summer, warm drinks, bouillon, etc., were prepared in short order. There is usually a stream of water flowing through some part of the floor. Water also flows from some of the ridges on the roof in such quantity that a cupfull can be obtained in a short time. It is folly to pack water up to the summit. It can always be procured in some of the caves if one understands the summit and where these caves are. There is one just east of Columbia's Crest down in the large crater where the writer has passed two nights. There is plenty of water flowing down the slope on the floor, which is rather steep at this point. One of our party had to go down into this cave for a distance of about eighty-five feet after an alpenstock that was accidentally knocked down and bounded into the darkness. We put a rope on the young man while he went after it. After he secured it, he rolled stones down for a long distance. We could hear these plunge into a lake or pond. If this were not the real River Styx, it at least reminded us of the classical description.

There are no deleterious gasses nor sulphurous odors connected with the steam issuing from this mountain. Both Mount Baker and Mount Adams belch forth poisonous gases of a sulphurous nature. None of the party felt any bad results from sleeping in these caves. The slope of the crater (cave) is always the floor. Sometimes this is so steep that one is liable to slide down, perhaps into the lake referred to, or at least take several jolts over jagged cliffs which might have an injurious effect on his anatomy. In order to prevent this, we drove an alpenstock through the thin shell of ice above the entrance and through into the slanting floor. Our rope was fastened to this. Then each man fastened himself to the rope. Strung out in this fashion, we tried to sleep on the steep angle of the crater. Fortunately, there were several large rocks above which we made our beds. We were careful not to push too much against these rocks for we were afraid that they might break loose. Bad as were these conditions, the night was passed more comfortably than a night is spent at Camp Muir or Camp Curtis in a cold wind.

Strangers would not think that the small openings under the crust of snow or ice could lead into such large chambers within which several hundred people could find warmth and shelter. At times the roofs of these caves must collapse to the floor, just as ice caves do where the water rushes out at the end of a glacier. This uncertainty makes a man feel rather uncomfortable when he realizes what may drop on him while he is within. The steam comes quite fast, at fixed intervals, like the breathing of a large animal. The steepness of the slope, the danger of collapse, the puffing of the steam, the pitch darkness, and the general hell-like surroundings, all taken together make indeed a novel situation which one will remember for a long time.

Near these caves are several kinds of moss, and the common liverwort (*Morchantia polymorpha*). These have never been observed in the fruiting condition.

These thermal caves formed between the ice and the crater rim or on the slope of the crater peak must not be confused with the lava caves which are so common to the south of Mount Adams. The cause for their formation is quite different. There are no lava caves in the vicinity of this mountain. They are caused by the cooling of the outer surface into a crust while the inner portion remains liquid and can flow on, leaving an empty shell often half a mile or more in length. They are more permanent than the thermal caves which have only ice for a roof. These thermal caves vary as the snow varies from year to year. They can only be formed where the steam issues forth and the snow accumulates in such quantities as to form ice.

## OREGON CAVE REFERENCES

From the early files of the Cascade Grotto, we have resurrected these references on Oregon Caves. (from N.S.S. Bull #2, listed by Ed Danehy, Research Chairman of the old Stanford Grotto:)

Henthorne, Mary (1913), The Oregon Caves, Mazama, 4(2):57.60 (Dec.)

Howard, Randle R. (1911), Volcanic Cave Wonders of the Northwest,  
Pacific Monthly, p 632, Jn 1911

Miller, Joaquin (1909), Oregon's Marble Halls, Sunset Mag., p227 Sept. 1909

Nickerson, F.M. (1914) The Oregon Caves, Oregon Teacher's Monthly, v19,p2 Spet 1914

Standard, E.E. (1920) Marble Caves of Oregon, Oregon Journal (Sun), Sep 19, 1920

Weister, G.M. (1902) The Great Oregon Caves, Pacific Monthly, p47 June 1902

Williams, I.A. (1920) Oregon Caves, Natural History, 20(4)p396-405

also

Treasher R. C. (1936) Bibliog Oregon geol to 1936, Oregon State Planning Board

Allen, J.E. (1947) Bibliog Suppl to 1945, Dept of Geol and Min. Industries Bull # 33

- - - Oregon Caves, The Marble Halls of Oregon, Standard Oil Bull 11(2):2-9, 11 fig.,  
June 1923

## CORRESPONDENCE

From Steve Kuntson, somewhere in Oregon

We have found the first example of a limestone cave development in the Willamette Valley. Went with Scott McCastar and checked the Dallas Limestone Quarries. No caves but extensive karst features - cutters - which are typical of non cavernous limestone areas. But, at the Buell Limestone Quarry, (bedded carbonaceous limestone 20 feet thick) there are 3 openings, 2-3 feet in diameter, round with smooth walls. 2 are filled with clay and dirt mixture from the start, the third goes for 10-12 feet - then it is blocked completely by a clay wall. They are about 10 feet below the top of the south quarry face and about 10 feet apart. Not much, but its a start.

\* \* \* \* \*

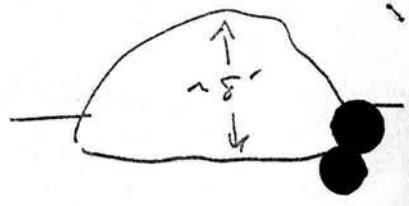
From Bob Ashworth, somewhere in California

We made a trip to the Lava Beds National Monument, California, last October. Several of the caves were temporarily closed due to reports of rabid bats. We spent all of one day exploring the lower and middle levels in Catacombs Cave. This is quite a complex lava tube.

Coming next month:

Map of a new, un named cave south of Grants Pass, over 100 feet in limestone.

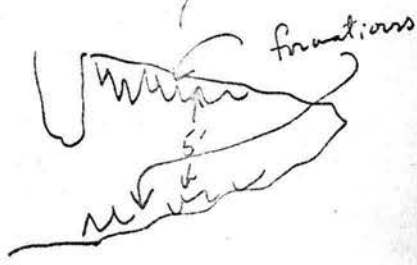
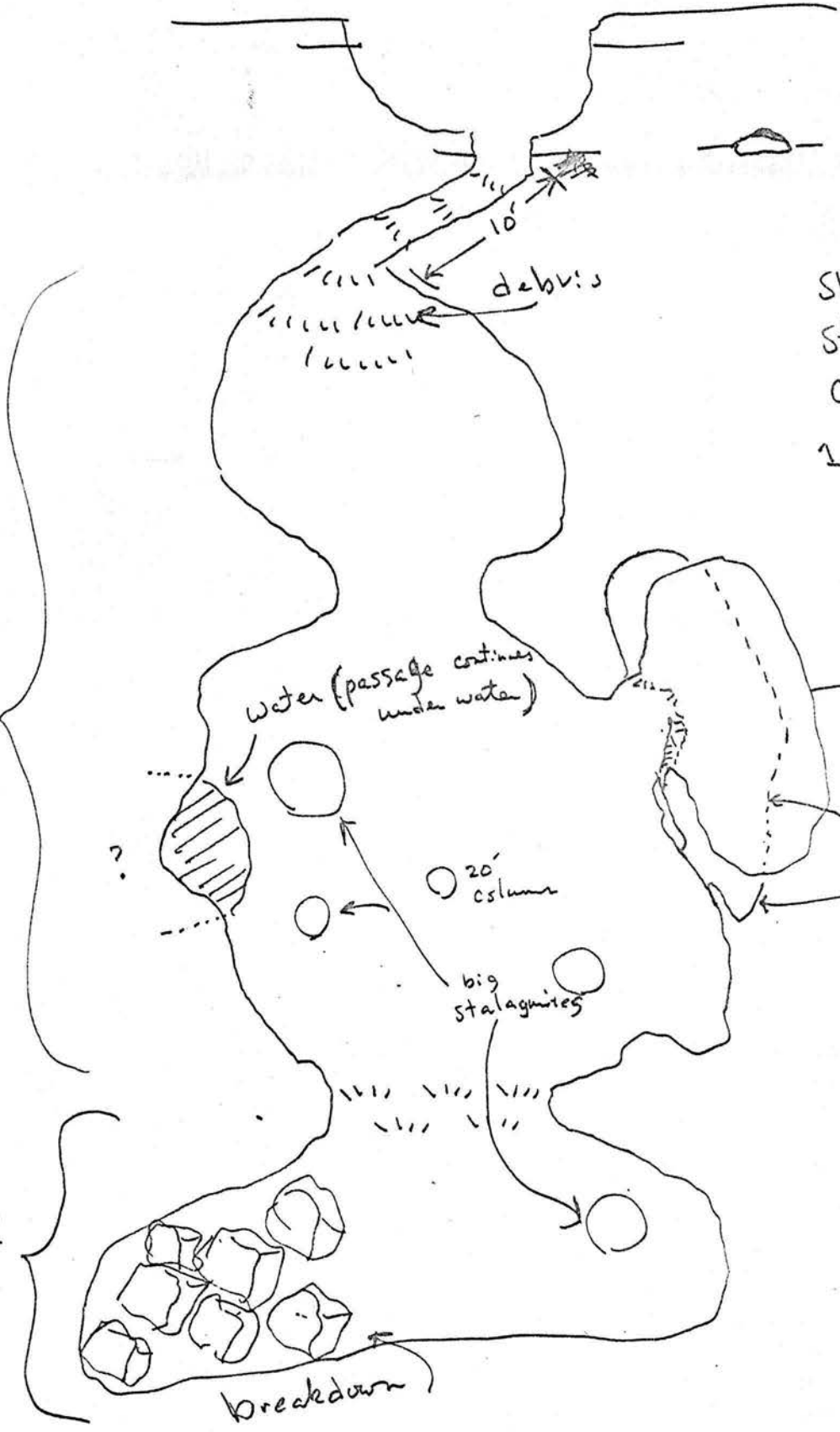
Partial listing of the program of the NSS convention for 1964.



unnamed cave  
 south of  
 Grant's Pass, Oregon  
 Sketch Map by  
 Stuart Eyde  
 Oct. 18, 1963  
 1 in = ~ 10'  
 copy by RSK

live  
 section  
 of cave

dry  
 section  
 of cave



1964 Officers for the Cascade Grotto of the National Speleological Society were elected at the February 10, 1964 Regular Meeting. Elected were:

Chairman	W. Van York 4834 - 90th South East Mercer Island, Washington	ADams 2-1891
Secretary & Treasurer	Ed Tupper 6241 - 34th Avenue North East Seattle 15, Washington	
Field Trip Chairman	Luurt Nieuwenhuis 2015 - 42nd Avenue East Seattle 2, Washington	EAsT 2-3251
General Correspondent	Dr. William R. Halliday 1117 - 36th Avenue East Seattle 2, Washington	EAsT 4-7474
News Bulletin	Jerry Frahm 12732 - 27th Avenue North East Seattle 55, Wash.	EMerson 2-9314

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#### PROGRAM SET FOR MARCH MEETING

The next section of Caves of California will be discussed by Bill Halliday, and a slide series entitled "Caving In New Jersey", with tape recorded commentary, will be shown at the March 9th meeting. It is recommended that members read the appropriate section of Caves of California before the meeting, and be prepared to ask questions.

A 7 $\frac{1}{2}$  IPS tape unit and a slide projector that will handle glass mount slides will be needed at the meeting.

Plans for field trips for the coming months will also be reviewed.

THE CASCADE CAVER  
1117 - 36th East  
Seattle 2  
Washington

THIRD CLASS

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