

THE CASCADE CAVER

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COMING EVENTS

Monday August 12, 1963

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

DON RIMBACH.....LAVA TUBES AND HOSPITALS

Don Rimbach has written that he has cut two tendons in his right hand , and that he will be in Tripler Army Hospital, Honolulu, for most of June and July. He also writes:

I got over to the Big Island (Hawaii)...this time I found the Postal Rift tube of the floor of Kilauea Crater. It was originally formed in the 1919 lava flow, and re-entered 2 years later by another flow...its length is around 2 miles but I spent all my time in the first 200 yards which alone had many interesting features....in one large room I found many examples of a most unusual lava formation. The cave contained more glaze formations than any I have ever seen anywhere, and this type appeared to have been formed by projections of very light, porous lava having been heated to melting temperatures by "gas fuming" melting away considerable amounts of their mass leaving rounded, fist-shaped projections with no rough lines in their shape or any corners whatsoever. Their surface was as unusual as their shape. The molten lava which had been melted flowed along the surface and froze in brittle fibrous-looking clusters. I'll send photos, sketches and a description of the tube later.

Note - This was before he cut his hand, though I'm not sure even that would stop Don's lava tubing: I once went caving with George Moore in Colorado when he was wearing a body cast because of a broken shoulderblade. It did slow up his crawling a bit...(WRH)

CAVE MOUNTAIN, CANADA

....."on the Alberta side (of Assiniboine Pass) the approach is very impressive; a great barrier of rock, up which the trail zigzags, closes the head of the valley about half a mile from the summit of the pass. On either side the barrier extends in mighty precipices, those on the north disclosing near skyline a colossal cave entrance, so placed as to be practically impregnable: it has given the name Cave Mountain to the eminence on which it is set."

- page 148, Report of the
Commission appointed to delimit the boundary between the provinces of Alberta
and British Columbia. Office of the Surveyor-General, Part I, from 1913 to 1916,
Ottawa, 1917

DEVIL'S WELL, WASHINGTON

from " A Guide to the Pacific Northwest "

Located between Bonnie Lake and Rock Lake, thirty miles south of Spokane on state highway 195 to Steptoe Butte and Kamiak Butte. Turn west off of main highway below Rosalia, cross the railroad tracks, and take the road through Malden and Pine City to the hole. Black top road through the hills for five miles, then the road drops down to Pine Creek and goes alongside it for three miles and turns to a gravel road. At Pine City, turn right and go one mile south, then right again one mile further. In two miles you will come to Hole in the Ground Canyon. Go along Basalt ledges 2-300 feet to the canyon floor which is $\frac{1}{4}$ mile from wall to wall. Dark opening in the lava cliffs is Devil's Well. It is to the left of the bridge. The trail to the well begins on the west side of the bridge.

Also visit the natural bridge. Get permission at the isolated farm at the west edge of the canyon, then walk to it $\frac{1}{4}$ mile along the bridge.

CORRESPONDENCE

Here is a brief list of the Canadian caves that I have at hand. I'll relay any other as they came in.

1. A rather inaccessible system on Lookout Hill in Aiken Lake map area, B.C. (Lat: $56^{\circ} 43'$ N., Long: $125^{\circ} 10'$ W.) (Geol. Surv. Canada Memoir 274)
2. Another river cave in Glacier National Park, B.C. This cave is on the eastern slope of Mount Tupper just a few hundred yards above the eastern portal of Connaught Tunnel beneath Rogers Pass. This cave is also an objective of the proposed 1964 Expedition to Nakimu Caves to complete the work began last summer.
3. Many old timers told me about many limestone caves near Field, B.C., but we didn't find any in the limited time that we were there last July. They showed me stalactites which they had thoughtlessly removed! This definitely needs further examination.
4. Dr. Wheeler of the Canadian Geological Survey has cited examples of underground drainage in limestone in the Rocky Mountains north of the Bush River.
5. The large limestone cavern at Cadomin, Alberta (see June Caver). This is a little town owned by the Cadomin Coal Mining Co, southwest of Edmonton. All operations have ceased and the lawyer managing the property was completely unaware that a cave existed on the land.
6. Of course, you probably have heard about and visited the Sulphur Caves near Banff, Alberta. The wardens told us of several sulphur caves in the area.

I hope that this will help and that I can add a lot more next summer when we return to Nakimu Caves.

Richard Dixon, Los Angeles

Mt. St. Helens

I. Name and Location

Name of Volcano: Mt. St. Helens

Synonyms:

Type of Volcano:

Location: On the western slope of the Cascade Range in Washington, 40 miles north of the Columbia River

Geographical position: Latitude 46°12" North Longitude 122°11" West

Height above sea level: 9671 feet (2975M)

II. Form and Structure

The shape of the mountain as seen from a distance is surprisingly symmetrical. There are no deep glacial scars nor deep gullies. The profile is that of a symmetrical truncated cone with a base four miles in diameter and an elevation 5000 feet above the basement platform. Five glaciers and extensive snow fields cover the summit concealing the upper structure.

The upper slopes of the cone are made entirely of loose fragments, mostly talus, with a few accessory blocks belonging to earlier stages of activity and apparently blown out by vulcanian or ultra-vulcanian eruptions. There seems to be no end to the avalanching of talus; it is clearly made of fragments of the summit rock, a platy pyroxene andesite, that, locally, has been subjected to solfataric alteration.

The crater is now completely filled with snow. The east wall appears to have been blown away leaving a gap similar to Diller Canyon on Mt. Shasta.

The volcano lies on a platform of sediments and volcanics of early to middle Tertiary age. An intrusion of quartz diorite occurs to the north of Mt. St. Helens and has locally metamorphosed the Oligocene Keechelus andesitic series.

Later acidic material was erupted from a vent located near the present Mt. St. Helens. A large volcano may have formed which was later worn down by glacial erosion. During late Pleistocene time the cone of Mt. St. Helens was formed. The main portion of the cone consists of flows of basalts and andesites. Pyroclastics are restricted to the very early and very late stages of activity. Evidence of the plug-like nature of the summit rock is gained from the platy, but otherwise structureless, appearance of the andesites which crop out at the summit. It is hard to believe how flows could give rise to the extensive talus which covers the slopes of the mountain and which may be described as "brêches d'écroulement".

Several andesitic domes occur in a haphazard arrangement on Mt. St. Helens. Goat Rock on the northern side is a typical plug. Another occurs on the south side at an elevation of 6000 feet. A structureless dome stands out conspicuously at the eastern base of the cone.

The most recent pahoehoe flows on the southern side of the mountain issued from the base of the volcano and streamed down a slope of 600 feet to the mile.

Another late flow occurs on the northwest side of the volcano issuing from a point about 6000 feet in elevation and continuing down to the Toutle River.

III Volcanic Activity

Verhoogen states that the age of the flows on the southern side of Mt. St. Helens is uncertain. From the growth of the vegetation some flows seem to be no more than 200 - 300 years old; some even less. Jillson correlates charred logs of Douglas spruce found by Diller in the gravels of the Kalama River with the tree molds which he observed in a flow and believes that this flow cannot be more than 100 years old. Verhoogen agrees that 100 years seems to be a fairly good estimate for the age of the younger flows.

Actual eruptions were reported in 1842 and 1854. In 1842 pumice was blown over the Dalles, Oregon, 30 miles to the southeast. Verhoegan had been told that until a few years ago (written in 1937) summit climbers could witness solfateric action and hot springs.

Lawrence reports that a cool lava flow pushed large fir trees at its edges out of the way but left them uncharred. Nevertheless some were killed by the heat. A few injured but surviving trees indicate that the flow occurred within a few years after 1802 from evidence based on growth layers in cores from these trees. On the flow is ash probably emitted during the observed 1842 eruption.

In Fremont's diary he states that Mt. St. Helens was in eruption on November 23, 1842 and scattered ashes over the Dalles of the Columbia River. This date was corroborated by J. L. Parrish and others who published brief accounts of the eruption.

Another eruption was described by Kane on March 26-30, 1847, as "a long column of dark smoke into the clear blue sky". He also stated the mountain was in eruption about three years previously and shot burning stones to an immense height.

In 1941 Philips reported steam jets 800 feet below the summit on the west slope of "The Boot", at approximately 8900 feet elevation. These jets are surrounded by warm rocks with crevices up to 3 inches in diameter through which the steam issues with no noise nor any odor of hydrogen sulphides. Temperatures of five vents are as follows:

178°F, 180°F, 190°F, 188°F, 142°F.

Mr. Samuel B. Crockett wrote a letter to his brother in Missouri dated February 16, 1845 and stated,

"St. Helens, which is the highest peak that stands nearest the Columbia on the north side, sends forth columns of smoke from its frozen top".

IV Petrography

Pyroxene andesites and olivine basalts are the most common types. All gradations exist from true basalts to true andesites. In this region the basalts are found to be poor in glass.

The northern flows, that dammed the Toutle River and formed Spirit Lake, are from a foot to six feet in thickness. They consist of layers of scoria alternating with platy, light gray or massive, dark gray basalt.

The plagioclase is strongly zoned and varies from Ab_{30} to Ab_{60} . The olivine is iron poor as indicated by its $2B=85^\circ$ to 90° positive. Magnetite occurs as early grains on later dust and smaller grains in the groundmass. Augite occurs in the groundmass as normal diopsidic augite. Cristobalite is a characteristic mineral in both the basalts and the andesites. It occurs in the groundmass of the lavas in the form of rounded aggregates exhibiting a peculiar fracture pattern resembling mud cracks.

The summit plug of Mt. St. Helens is a platy, greenish andesite. Plagioclase occurs as short stubby grains which are scarcely zoned and only moderately twinned and ranging in composition from Ab_{60} to Ab_{70} . The pyroxenes include diopsidic augite, pigeonite and hypersthene. Basaltic hornblende with dark resorption rims is present. The groundmass is cryptocrystalline and contains much cristobalite.

The other features of the Mt. St. Helens lavas are so similar to the lavas of other cascade volcanoes that they need not be repeated here.

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Volume 1 Number 3

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Better Late Than Never

This issue is a trifle late, but still has a few items of Northwest caving to record. Such as:

Mount Adams Area Trip -by Bill Halliday

A formal grotto trip was made to the Mt. Adams area on August 18-19, camping at the Ice Cave Campground, as usual. Again, as usual, time ran out before everything was done. More ice was present in the Ice Cave than was usual for August.

The main project for the 18th was the location and mapping of the Peterson Prairie tube system, to which we were guided by Maurice Magee and his brothers. In the group were Arlo Smith, Luurt Niewenhuis and myself from Seattle, and Steve Knutson and his brother from Portland. This turned out to be a lengthy but largely collapsed system, which was mapped in some detail. It is located east of the prairie.

The Knutsons and Magees had to leave that evening. On the 19th, we located and mapped a smaller tube cave farther northwest, in which Luurt found a beautiful spearpoint. This is now listed as Spearpoint Cave, and seems to be independent of other tube systems of the area.

After an unsuccessful search for a rumored cave farther north, near the junction of the new South Prairie road with the old Randle - Trout Lake road, we scouted the sinks south of the Peterson Guard Station, finding no caves, and found a new system - or maybe a link connecting New Cave and the Peterson Prairie System, just west of the Peterson Ridge Road. A strong blast of cold air emerges from an impenetrable hole at the upper end of this short series of sinks and 100 foot cave. More work will have to be done here.

Wild and Woolly Convention Caving

Bill also reports a wild and woolly time at the N. S. S. Convention in the Black Hills, in June, enlivened by a tornado, floods, hail, an excellent program and even better caving. Besides do-it-yourself tours of the commercial sections of Wind Cave, parties were taken into some of its wild areas where there are fine aragonite crystals and some fascinating hardened mudflows and breccias (in the Fairy Palace and Annex area). While there, Bill and Dick Anderson (keeper of the NSS Cave Files) scouted a rockshelter north of Newcastle, Wyoming, known as Lissolo's Indian Cave, and with members of the Colorado and Southern California Grotto, checked out two small ridgetop caves near Jewel Cave called

Convention Caving (continued)

Stender's Cave and Two Name Cave - the latter apparently having been entered only once before. Bill spotted the sink. Neither, however, was comparable to S & G Canyon Crystal Cave, a complex cavern with innumerable pure white calcite crystals, still of great beauty despite mining near the entrance. This trip was made up of cavers from all over the United States: 3 from Pennsylvania, 1 from Nebraska, 1 from Colorado.

Returning, Bill drove west with Vic Schmidt and fellow Pennsylvanians (a different crew) as far as the Idaho Falls airport. En route, they found many solution holes in beautiful Tensleep Canyon, Wyoming, and obtained the location of a cave farther south. They explored and mapped the caves at the mouth of the Wind River Canyon south of Thermopolis (the longest is almost 400 feet), before proceeding to Fossil Mountain Ice Cave in Arlo Smith's backyard: the west side of the Teton Mountains on the Idaho-Wyoming boundary. Some peculiar conditions were present in that cave - glare ice in the entrance zone besides the permanent ice farther back. Also an active waterfall entered the cave through the roof in the zone of permanent ice, and the fissure passage beneath the stratified permanent ice (and leading to the Crystal Room) contained a slush pond of the 19th which, however, was completely frozen on the 21st (after Bill had to leave). A. Y. Owens took photos of this cave for the Saturday Evening Post.

With the 1963 Convention in Virginia, it doesn't seem likely that many Northwesterners will be able to attend, but if the 1964 Convention is to be in Texas, let's start planning now. Let's see, -on the way are Carlsbad, Timpanogos, Lehman, Cottonwood.....!!!

Remember, meetings on the second Monday of the month,
Caver on the first of the month.

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