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THE CASCADE CAVER



Official Publication of the
CASCADE GROTTO N. S. S.

Vol. 15 Nos. 1-2

Editor: Rod Crawford

January & February, 1976



*Ask Him To Scream
Again When He Hits!*

COMING EVENTS

February 14-16. Educational Seminar, Vancouver, Washington. See within for further details.

February 15. Ole's Cave Trip. Contact Chuck Coughlin, 772-1170.

February 23. Regular meeting at the Hallidays', 1117 36th Ave. E, 8:00 PM (moved from the 16th due to conflict with seminar).

February 28-29. Official Grotto Trip to N. Puget Sound littoral caves and VICEG Cave. EVERYONE IS INVITED! Contact Rod Crawford evenings, 543-4486.

Easter Weekend, March. Papoose Cave. Contact Curt Black, 525-2260.

NEWS AND NOTES

Don't forget the grotto glass drive. Bring all your old recyclable or deposit bottles to the February 23rd meeting!

NEW PHONE NUMBER

Ken Byrd 634-1088

NEW MEMBERS

Charles Ross 1541 16th Ave. E, Seattle 98112 324-9349
Ann Ruggles c/o NW Trek, Eatonville, WA 98328

MEMBERS DROPPED LAST MONTH: Coleen Tada. MEMBERS DUE THIS ISSUE: Chas. Anderson, Bruce Unger, Bill Capron.

THE DECEMBER MEETING

No officers were present when the meeting began, so yr editor reluctantly presided. It was announced that the next grotto woodcutting project will be on January 24-25. Another moneymaking project will involve leaving bottles for recycling in the Hallidays' garage during the January and February meetings.

1976 Election results:

Chairman: Stan Pugh. Vice-Chairman: Bob Tower.

Secretary-Treasurer: Chuck and Mary Coughlin

The rest of the meeting was handled by Stan. Dr. Halliday showed some more slides of the Frog Town NSS Convention and last summer's glaciocpeleological work. The meeting concluded with Bill Capron showing some slides our past chairman took at Hell's Canyon on Thanksgiving.

THE JANUARY MEETING: There was little business to conduct. Voting was held on this year's Official Grotto Trips, with the results that appear on the back cover. Programs: slides on caves of Alabama, by Russ Turner.

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NOTE ON WATER DISINFECTION

The following method of wilderness water disinfection is reprinted from the Western Journal of Medicine, May 1975: "A 1-oz. glass bottle containing 4 to 8 grams of iodine crystals is filled with water, then shaken vigorously to produce a nearly saturated solution of iodine. At 25° C. (77° F.), 12.5 cc of this supernatant solution is added to 1 liter of water to be disinfected. In less than 15 minutes, pathogenic bacteria, amebic cysts, and viruses will be inactivated. The iodine crystals can be used almost 1,000 times."

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THIS ISSUE PRINTED ENTIRELY ON RECYCLED PAPER.

FEATURES

BACK-UP LIGHTS FOR CAVING

by Carl Craig

As a caver, you have probably been confused, if not totally bewildered, by the myriad of light making devices offered on today's market. The purpose of this article is to give you enough information about caving lights for you to be able to make a reasonably intelligent selection in your choice of secondary light sources. Statements made in this article do not necessarily apply to your primary light source (headlamp).

One of the rules of good caving states: Always carry 3 independent sources of light. The rule should also emphasize that the light sources should be adequate for caving. Maybe you are supposed to assume this, but my observations are that most cavers do not.

In fact, most cavers tend to disregard the rule entirely. The reason, of course, is that carrying three independent, adequate sources of light through a cave is a lot of trouble. The nuisance and inconvenience is magnified after you have done a considerable number of caves and never had any need for a back-up light source. You get tired of playing Santa Claus with a large bag of toys in the chimneys and crawls, so you start discarding some of the junk from your bag--things like kneepads, extra jumar, and a big flashlight--that you never had any need for. Then one dark day your sense of values is subjected to a shattering re-alignment. You find yourself alone in a cave without light.

Even if you rigidly observe the cardinal rule of caving: never cave alone, there is an infinite number of situations which can develop into your finding yourself terrifyingly alone in a cave full of people. Perhaps you are not terrified at the idea of being alone in a cave, but have you tried it for a few hours without any light? Maybe terrifying is too strong a word, but believe me when I tell you that you will find it at best highly unpleasant. Are you convinced? Okay, let's get back to the rule.

The key words are three, independent, and adequate. Everybody knows what three means and with patience even cavers can be taught to count this high, so let's think about independent. Look at it for a moment from the negative side and consider some things that are not independent sources of light. A spare bulb and battery or an extra container of carbide and a tip for your head lamp does not constitute an independent light source--not in the caving sense anyway. An independent source of light is a device capable of producing light without drawing on any help from the outside world. From a practical standpoint it should produce light immediately on your command with only minimum effort on your part. An ordinary flashlight is a good example of such a device.

The other key word is adequate. This means adequate for caving. The light you use for finding your way around the house during a power failure or for changing a flat tire will not necessarily do the job in a cave. Your cave light should produce enough light to allow you to move at a reasonable pace through a potentially dangerous environment. It should be capable of producing this light for an absolute minimum of two hours. Remember, this is your choice of back-up lights; if you are using the device, it is no longer a back-up--it is your primary source. Ideally, it should be as good as your primary headlamp, especially with regard to convenience, maintenance requirements, quantity and quality of light produced, ruggedness, and reliability. Actually it should be more reliable than your primary light, which presumably has failed. A device that meets all these requirements is not practical, of course, but this does help point out the shortcomings of the devices that some cavers carry.

One very popular device is the tiny flashlight equipped with "AA" size (penlight) cells. This type light is great to use while recharging your carbide lamp or while repairing the broken electrical connection on your headlamp. It might even be the best thing to have when your headlamp fails half-way up the Bottomless Pit (you can hold it in your mouth), but, in general, it is a poor substitute for a good caving light. Any planned use of such a light should be strictly short term and emergency.

The list of lighting devices that are impractical or downright unacceptable for caving (but that are used by cavers anyway) is endless. Observation of fellow cavers is likely to leave you in total bewilderment. So, what is the best back-up light?

Like most other things in real life, your choice will have to be based on a compromise. It's going to be a trade-off between what order of reliability and what quantity of light you want and how much hardware you are willing to drag through the cave. It's a decision you will have to make yourself.

The ordinary two cell flashlight was mentioned earlier as a device that met some of the requirements of a caving light. With minor modifications, it can be made to meet most of the others--to a degree anyway. You want the light to be safe, adequate, relatively maintenance-free and easy to repair. It should also be inexpensive, rugged, widely available, and should be convenient to carry and use and be extremely reliable. From a standpoint, the ordinary two cell flashlight meets all but the last two of these requirements fairly well. Some other light sources will be mentioned later, but for now consider what you can do to improve the characteristics of the common flashlight.

First, you can buy the smaller version flashlight which uses two "C" size cells. This will reduce considerably your total light-making capacity, but it will also reduce the bulk and weight as compared to the larger "D" cell model. With the proper choice of cells and lamp you can still have enough light. You might even find a way to carry two of these lights and thus meet, with your headlamp, the three light requirement of the rule. One item you can't cut any corners on is the battery. Only high capacity type batteries are suitable for your caving light. This means that you use mercury, alkaline, nickel-cadmium or something equivalent. Mercury and all other primary (non-rechargeable) cells are considerably more expensive than the rechargeable types, when compared as to total power delivered over their respective lifetimes. An even better reason for choosing a rechargeable system over a non-rechargeable system is that you can recharge immediately before each caving trip and be assured of always having "fresh" batteries in your flashlight. Sealed nickel-cadmium rechargeables are the first choice because of their ability to maintain their capacity through many charge-use cycles. Alkaline rechargeables tend to lose some of their capacity with each cycle of use. You can purchase [in 1973] two pairs of sealed rechargeable ni-cads and a charger for less than \$15. With reasonable care the whole rig will last for years, so your cost per cave is nil. You can even improve this cost/benefit ratio by using the batteries around the house. Sealed ni-cads are not seriously degenerated by a normal amount of use. You can buy a similar set-up using alkaline rechargeables.

Another improvement that can be made in the common flashlight, one that will increase immensely its reliability, is bulb replacement. Almost all manufacturers equip their lights with PR-2 type bulbs. This lamp is rated at 2.38 volts. Your batteries are producing about 3 volts. This gives you an impressively bright light and a short lamp life. Switch to a type PR-3 bulb rated at 3.57 volts; the light will be noticeably dimmer, but the lamp will last almost forever. (Your light will also burn for a longer period of time on any given set of batteries). You are, of course, carrying

a spare lamp, but it's a nuisance to replace a burned out one. It might also be terribly inconvenient--you don't get to choose the time and place of failure.

Reliability of the light system is enhanced, if corrosion is prevented. Take your new flashlight apart and apply a coating of silicon grease to all inside metal parts. Be especially attentive to all electrical contact points, including the switch mechanism. Between caving trips store your light disassembled. This practice will further reduce the risk of corrosion and it has an important side benefit--guarantees that you make a regular, if only cursory, inspection of the light.

Other things to do include drilling a hole through the back part of the light body and attaching a loop of parachute cord through the hole. This will come in handy when you need to hang the light around your neck to free both hands. Wrapped around your wrist, the cord will prevent you from dropping the light as you stumble hastily out of the cave. Looped through your belt or pack strap, it will insure that the light stays with you. The thought of this will be comforting to you as you plunge unrestrained down a hundred foot pit or a big breakdown mountain.

It's terribly discouraging to open your pack and discover that your back-up light, which you now need, has exhausted itself while brightly illuminating its little corner for several hours. To eliminate the accidental turn-on problem, load one, but not both, of the batteries in the light backwards. This takes care of one problem but may give you another. Namely, how to open the light, remove the battery, turn it around, replace it in the light, and put the cap back on without dropping anything--while hanging in a chimney over a 50 foot canyon in total darkness.

If you want to be super safe, carry an extra set of batteries--if you can find a way to do this without suffering the Santa Claus syndrome. But always carry an extra bulb in a cave proof container.

If you carry two of these back-up lights, or any two for that matter, put one in your pack and the other on your person--in a pocket, around your neck, or such. The idea is target dispersion. You are not as likely to lose or smash both of them.

That's about it for the common flashlight; now to mention a few specialty lights that you may want to consider. The field is too vast to cover properly, but the following are representative.

One manufacturer produces a chemical light sold under the trade name of "Coolite". This device is a plastic tube about six inches long filled with a liquid. Inside the plastic tube is a smaller sealed glass tube containing a second liquid. The light is "turned on" by bending the plastic tube until the inner glass tube breaks. This allows the mixing of the two liquids. A phosphorescent light (no heat) is produced by the chemical reaction of the two fluids. There is no practical way to turn the light off once it has been activated. It is, therefore, strictly a one-shot emergency light source. Once on, the light emits a beautiful greenish glow for several hours, but its output will not be adequate for caving beyond two hours. The light intensity, which is maximum at starting, is marginal. For caving the light must be packed in a rigid container to prevent bending (and thus activation) until you are ready to use it. A short piece of three quarter inch, hard drawn copper water pipe, capped at one end, makes an excellent container. Drill a hole through the uncapped end of the pipe for a nylon carrying cord. As with the flashlight, this line can be used to ensure that you don't lose the pipe (and the light). It will also keep the "Coolite" safe and snug in the pipe.

You might want to consider the "Coolite" for your third source of light; since, once it is properly packed in a cave proof container, it is maintenance free and virtually one hundred per cent reliable. The manufacturer

claims a one year shelf life for the "Coolite", but if kept in a freezer between caving trips, it should last almost indefinitely. Incidentally, the "Coolite", but not the copper pipe, will float.

Another specialty is the hand-operated generator flashlight. This gadget has a small electric generator built into a modified flashlight body. The generator is driven by squeezing a handle on a ratchet and thus makes light. In addition to considerable bulk and weight, this light source has a more serious fault--you must continuously squeeze the handle to produce light. After a couple of minutes of this unusual exertion, your hand is tired. After ten minutes, your whole arm is numb. This device is an excellent thing to carry in the trunk of your car for emergency use. Like the other specialty light sources, it has almost no maintenance requirements and is extremely reliable.

The last specialty item I'll discuss is the matches and candle combination. Let me emphasize one thing first--under no circumstances can a candle be considered a caving light. I don't care what you saw Tom Sawyer and Becky do in the movie. You cannot go through a cave with a candle as your light source. But, I strongly recommend that you equip yourself with a candle and waterproof matches anyway. Lunch by candlelight is cozy. You can use the heat to warm your can of beans. If hungry enough, you can eat the candle. The candle is a good hand warmer while you wait your turn on the rope. It can be used as a heat source for soldering broken electrical connections or a ruptured carbide lamp. In short, a candle produces a fair amount of heat and a little light. With imagination you can accomplish quite a few things with this combination. But don't try to cave with it. Consider the candle as your fourth source of light.

I realize this article has already far exceeded the attention span of the typical caver, but if you're still hanging in there--here are the specific recommendations:

First Back-up Light Source. An ordinary two cell flashlight of good quality using "C" size cells and modified as previously described. You will also need a pair (preferably two pairs) of sealed, high capacity, re-chargable nickel-cadmium batteries and a charger designed specifically for these batteries.

Second Back-up Light Source (any one of the following):

1) A light identical to your first back-up, but you won't need another charger since all of those little units have at least 4-battery capacity. This choice for your second back-up is probably the best, since with part swapping it gives you something better than simple redundancy.

2) Any one of the small flashlights using two "AA" batteries with two pairs of the same type batteries as described above. Before you buy, make sure your charger is designed to handle these smaller batteries. If you use this light, carry an extra pair of batteries with you in the cave, if you can find room (in your pack not the cave).

3) The "Coolite" in a cave proof container. This barely adequate light is your worst choice with respect to lighting qualities, but it does possess important redeeming features. The light requires nearly no maintenance, is fairly compact, extremely rugged, and has just about perfect reliability. There might be a time when the latter quality would override all others in importance. As with any other back-up light, attach a carrying loop of nylon cord (the "Coolite" has a handy hole provided for this).

That's it. Don't forget your candle and matches.

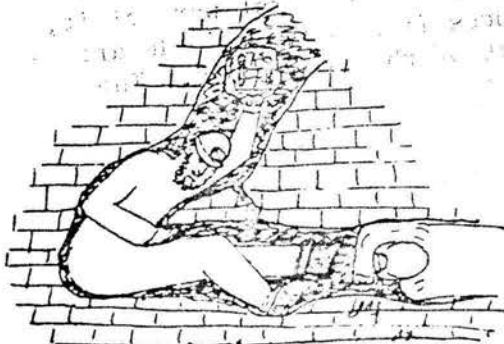
From the Huntsville Grotto Newsletter, 14 (10) 104-107, Nov. 1973

CRAWL CANYON

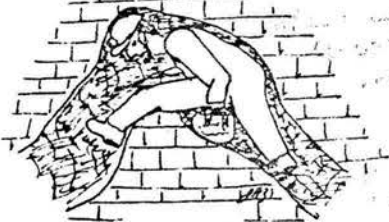
by John Zuryk



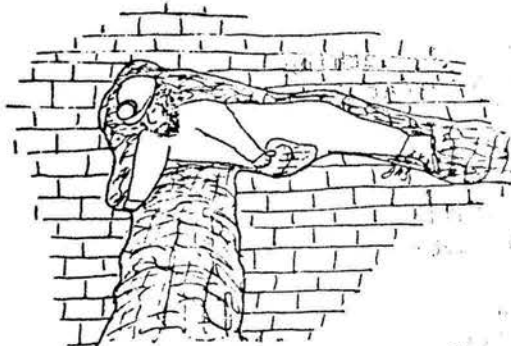
IF I COULD JUST GET MY FEET ON THE OTHER SIDE



YOU'VE GOT TO BE KIDDING!



ONE FOOT OVER



NOW WHAT?

The Inner Mountain News Vol. VII, No. 12

FURTHER INFORMATION ON THE EDUCATIONAL SEMINAR

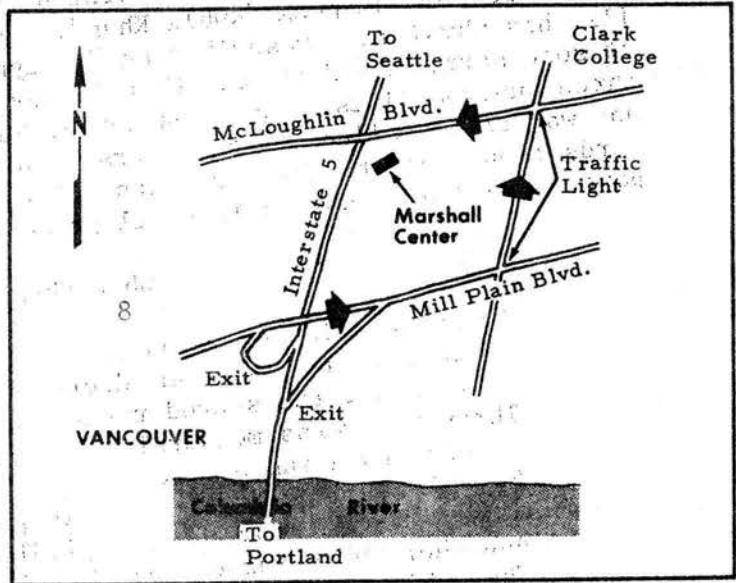
The seminar this year will be held in Vancouver, Washington, in the Marshall Recreation Center, on February 14-16.

One group dinner has been planned at a local "all-you-can-eat" restaurant. Estimated cost: about \$2.85.

Registration will cost 50 cents for one day or \$1.00 for the whole weekend.

Sleeping space will be available free of charge at Charlie Larson's house.

Theoretically, the Center can be located using the map that appears below.



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AN OLD NEWS ITEM THAT MAY BE OF SOME HISTORICAL INTEREST:

Live Fish Are Found By Diggers?⁴⁻²²⁻⁶⁶ *Longview Daily News* c2

If gold is where you find it, so are fish.

This morning three mudcats were found in an excavation at a construction site on Commerce Ave., alive and wriggling. Honest.

Construction workers laying a foundation for the new Valley Rental store just south of the PUD building found the six-inch fish shortly after reporting to work, but weren't too surprised.

The same thing happened when the huge grain elevator was under construction at Kalama. They apparently lose their way in one of the numerous underground streams that flow beneath the surface, workman J. D. Berry said.

The excavation is deep enough to be either river - level or slightly below, and William McGinnie, another employe of Gill-nett Construction Co., pointed to a pool of fresh water.

Could some practical joker have planted them?

"Absolutely not," was the impatient reply.

LITERATURE DEPARTMENT

For reasons which may seem at once obvious and obscure, many Northwest cavers have at one time or another been curious about the origin of the name "Xanadu". The name was invented in 1797 by the poet Samuel Taylor Coleridge for the poem "Kubla Khan". The story goes that the poet being ill, his physician prescribed an "anodyne" or narcotic, probably an opiate of some sort. In the dream that followed, he composed a poem of two or three hundred lines. Upon awakening, he wrote down the first part of it, and was then "called out by a person on business from Porlock." He afterwards found that he had forgotten all the rest of the dream-poem. The portion that he recorded is still preserved as

Kubla Khan

In Xanadu did Kubla Khan
A stately pleasure-dome decree:
Where Alph, the sacred river, ran
Through caverns measureless to man
Down to a sunless sea.
So twice five miles of fertile ground
With walls and towers were girdled round:
And there were gardens bright with sinuous rills,
Where blossomed many an incense-bearing tree;
And here were forests ancient as the hills,
Enfolding sunny spots of greenery.

But oh! that deep romantic chasm which slanted
Down the green hill athwart a cedarn cover!
A savage place! as holy and enchanted
As e'er beneath a waning moon was haunted
By woman wailing for her demon-lover!
And from this chasm, with ceaseless turmoil seething,
As if this earth in fast thick pants were breathing,
A mighty fountain momently was forced:
Amid whose swift half-intermittent burst
Huge fragments vaulted like rebounding hail,
Or chaffy grain beneath the thresher's flail:
And 'mid these dancing rocks at once and ever
It flung up momently the sacred river.
Five miles meandering with a mazy motion
Through wood and dale the sacred river ran,
Then reached the caverns measureless to man,
And sank in tumult to a lifeless ocean:
And 'mid this tumult Kubla heard from far
Ancestral voices prophesying war!
The shadow of the dome of pleasure
Floated midway on the waves;
Where was heard the mingled measure
From the fountain and the caves.
It was a miracle of rare device,
A sunny pleasure-dome with caves of ice!

A damsel with a dulcimer
In a vision once I saw:
It was an Abyssinian maid,

And on her dulcimer she played,
Singing of Mount Abora.
Could I revive within me
Her symphony and song,
To such a deep delight 'twould win me,
That with music loud and long,
I would build that dome in air,
That sunny dome! those caves of ice!
And all who heard should see them there,
And all should cry, Beware! Beware!
His flashing eyes, his floating hair!
Weave a circle round him thrice,
And close your eyes with holy dread,
For he on honey-dew hath fed,
And drunk the milk of Paradise.

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HISTORICAL CORRECTION
(from a letter to Dr. Halliday)

On page 32 of Caves of Washington, dealing with the Cheese Cave at Trout Lake, you referred to Peter Smith. Joseph Arnie, my great-great-grandfather, lowered Peter Schmid, my great-grandfather, and not Peter Smith.
----- Keith L. Silen

[Yr editor has read in two separate sources that Joseph "Arnie"'s name was, in fact, Aerni. Make of this what you will.]

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THE BIOLOGIST'S CHAMBER; FUNGI ATTACKING CAVE MOTHS, A PROGRESS REPORT
by Charles Ross and Rod Crawford

In the North Chuckanut Caves near Bellingham and Jackman Creek Cave above Concrete in Washington, as well as in Chipmunk Cave #1, B.C., moths have been found killed by growth of a fungus. The cream-colored mycelium (non-reproductive part of the fungus) covers the body and attaches it to the wall. In some cases there are long, stalk-like synnemata protruding from the body. The synnemata are bundles of filaments bearing tiny organs that produce asexual spores. The wings remain free of fungus. This fungus has also been reported on moths in Ontario, New England, Central America, and Europe. There is one previous Washington record (above ground). The moths were thought to enter the caves in late fall to spend the winter, emerge in the spring, and then lay their eggs (see the "Biologist's Chamber" Jan. '75).

After one of us (C.R.) visited Jackman Creek and North Chuckanut Caves in 1973, research was begun to determine if possible the species of moth, the species of fungus, and whether the moths were attacked by the fungus before or after death. Since that time new objectives have been added: to grow a pure culture of the fungus and then determine just how the moth and fungus came to be associated.

The research was done in the winter at the North Chuckanut Caves. The winter humidity in these caves was 80-98%, air temperature next to the rock about 7° C., with some resulting condensation on walls and ceiling. Both the Brown Tissue Moth (Triphosa haesitata) and Herald Moth (Scoliopteryx libatrix) overwinter in the caves and both have been found with fungus growth. The fungus is primarily found in two of the nine or more caves regularly searched for host moths. Few or no additional moths are

attacked by fungus after the first winter observations.

A thorough inspection of several host moths yielded one mite. This was allowed to run across a sterile potato dextrose agar medium, and a pure culture amazingly resulted. This culture was kept at room temperature rather than the cave temperature (5° C.) because most fungi grow best between 20 and 30° C. The culture was tentatively identified as the "entomogenous (insect-inhabiting) fungus Akanthomyces aculeata". After finding that mites are sometimes associated with the hearing canals of moths, two more of these mites were placed on uninfected moths from caves where no fungus was found. The moths, kept at 5° C and high humidity, never showed any fungal growth.

Other experiments with fungus in culture medium showed rapid growth at room temperature, none at 5° C. Growth occurred in moths at room temperature in two weeks after the abdomen was innoculated from the pure culture with a sterile needle, but the moths died from the puncture.

Early in 1975 all dead host moths were removed from the cave walls and 8 new ones were found on October 4. Possibly they enter the caves earlier than was thought, so that the temperature would be high enough for fungal growth.

This winter, the behavior of overwintering Triphosa is being studied in the laboratory in a 4.5° C controlled temperature room. We have learned that they slowly move about even at this temperature. When allowed to rest on a slanting block about 70% of the moths prefer the under surface. Little mortality occurs even in the absence of water.

Next summer, the environment and moth populations of the caves will be observed to help determine at what point in the moth's life cycle the infection occurs.

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NEW WASHINGTON CAVE RUMOR

The following rumor is one of the vaguest, as to location, that your editor has ever encountered. It is taken from an article called "America the Beautiful--The Northwest" in the Arkansas Gazette [!] July 11, 1965, Section E p. 1. As the author uses the word "here", it may mean just about anywhere in the Cascades. I quote the relevant passage:

"In his striped, railroad-type overalls, Henry K. Todd stands with his back to one of the thousands of waterfalls in this cascading country. And he tells how, south of here, he found a cave full of petrified wood, and how he reaps agate and stunning colored stones from the mountains and the streams.

"An Iowan, he belongs here now. His home is in Wenatchee, but he summers in the Cascades. People around--and there aren't many of them--call him "Alpine Shorty"."

I suppose the only thing to do is to find out if a Henry K. Todd still lives in Wenatchee, and, if he does, ask him about it....

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STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND EARTH RESOURCES

October 15, 1975

NEW PUBLICATION RELEASED

Publication: A geologic road log over Chinook, White Pass, and Ellensburg to Yakima highways, by Newell P. Campbell: Information Circular 54, 82 p.

May be purchased from: Department of Natural Resources, Division of Geology and Earth Resources, Olympia, WA 98504. Price, \$1.50.

Four geologic trips, which begin at Ellensburg, go through the Yakima area, over Chinook and White Passes, and then back to Yakima and Ellensburg, are discussed in Information Circular 54. The author, Newell P. Campbell of Yakima Valley College, has illustrated many of the geologic phenomena by photographs and sketches. There is a location map showing the highways traveled, and names of the topographic quadrangle maps covering the area may be found at the beginning of each leg. An informal stratigraphic column of sedimentary and extrusive rock formations that crop out along the highways, a chart listing the intrusive rocks and their characteristics, and a geologic map are also included. A mileage column enables travelers to determine the distance between points, with an accumulated total at the end of each log. To allow for a difference in car odometers, many check points are included.

Please send:

() Information Circular 54, A geologic road log over Chinook, White Pass, and Ellensburg to Yakima highways, by Newell P. Campbell

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

CASCADE GROTTO STORE
 Bill Capron, Keeper,
 Phone 525-2260
 PRICE LIST: February 1976

Cave Packs	\$1.50
Carbide	*
Helmets	*
Lamp Brackets	*
Chin Straps	.85
Gibbs ascenders (spring type)	*
Bonaiti D Carabiners	3.00
Bonaiti Locking D	3.75
NSS and Cascade Grotto patches and decals	

*Contact storekeeper for information.
 If you want any caving-related equipment not listed here, please ask me for it. The store is here to serve you, so take advantage of it.---B. C.
 * * * * *

SUBSCRIBE TO NORTHWEST CAVING!

Quarterly publication of the N.W. Regional Association. Subscription rate \$2.50 per year; regular Cascade members receive it automatically. Caver subscribers may pay \$2.00 and use our bulk subscription (mailed with your Caver). Material (desperately!) and new subscriptions are both being actively solicited! Send either to the editor, Bob Brown, P. O. Box 2, Elbe, Washington 98330.

CASCADE GROTTO OFFICIAL AND TRADITIONAL TRIPS--1976

All cavers are invited to join these trips--especially those who don't go caving very often!

February 28-29. Official trip to Skagit County Littoral Caves & VICEG Cave, a N. Cascades limestone cave. Contact Rod Crawford, 543-4486 evenings. (Phones in Seattle unless otherwise noted).

April 17-19, Easter Weekend. Papoose Cave, Idaho. Contact Curt Black, 525-2260.

April 24-25. Official trip to McLoughlin Canyon Caves, Eastern Washington. Contact Chuck Coughlin, 772-1170.

May 29-31, Memorial Day Weekend. Deadhorse Cave, Trout Lake, Washington. Contact Rod Crawford or Bob Brown (see below).

June 19-20. Official trip to Vancouver Island limestone caves, B. C. Contact Bob Brown in Elbe, (206) 569-2724.

July 3-5, Independence Day Weekend. Windy Creek Cave, North Cascades. Contact Chuck Coughlin, 772-1170.

August 28-29. Official trip to Cave Ridge (Snoqualmie Pass) limestone caves. Contact Coughlin.

September 4-6, Labor Day Weekend. NWRA Convention at Nakimu Caves, B. C., Canada. Contact Bob Brown.

October 23-25, Veterans Day Weekend. Official cave-hunting trip to Colville area, Eastern Washington. Contact Dave Walker, 232-1698. Speleobiological trip to Trout Lake lava tubes. Contact Clyde Senger in Bellingham, (206) 734-1360.

November 25 or 26-28, Thanksgiving Weekend. Speleobiological trip to Mt. St. Helens lava tubes. Contact Clyde Senger.

Hells Canyon limestone caves, Eastern Oregon. Contact Dave Walker, 232-1698, or Bill Capron, 525-2260.
 * * * * *

THE CASCADE CAVER
 300 Hub (FK-10) Box 98
 University of Washington
 Seattle, Washington 98195

