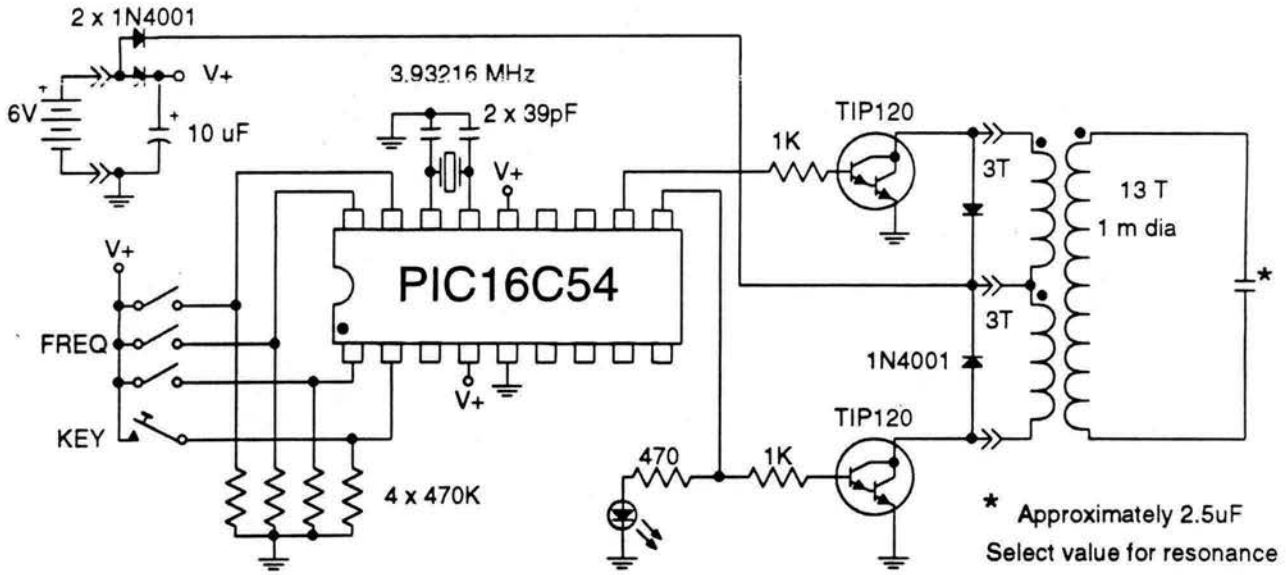
Cascade Caver

Newsletter of the Cascade Grotto of the National Speleological Society

July 1996, Volume 35 No. 7

Cave radio transmitter



Cascade Caver

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GROTTO MEMBERSHIP

Membership in the Cascade Grotto is $10.00 per year. Subscription to the *Cascade Caver* is free to regular members. Membership for each additional family member is $2.00 per year. Subscription to the *Cascade Caver* is $10.00 per year.

GROTTO ADDRESS

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MEETINGS

Regular grotto meetings are held monthly at 7:00pm on the third Friday of each month at the University of Washington, Room 6, in the basement of Johnson Hall. Please see the map on the back cover of this issue.

UPCOMING EVENTS

July 19	Grotto Meeting, 7:00 p.m.
July 27-28	Vancouver Island Caves. (Gordon River area caves.) Contact: Scott Davis (206) 862-1035
Aug 5-9	1996 NSS National Convention. Salida, Colorado.
Aug 23-25	Cave Ridge. A major depth push in Newton Cave. Contact: Bill Bennett (206) 255-1466
Aug 30-Sep 2	Labor Day weekend joint NCA and Western Region meet near Eli, NV. Contact: Mike Compton (206) 535-5144
Aug 30-Sep 2	Caving in the Marble Mountains. Contact: Tom Kline (503) 786-0592

NEVADA CAVES SLIDE SHOW

At the July 19 meeting, Mark Sherman will show slides of his recent trip to Nevada. Also, for those interested, there will be a discussion of the techniques used to locate new caves.

(Bill Bailey sent the following email from Panama to Larry McTigue):

Dear Larry,

Right around the fifth of May I was given a new computer to work with in the office. The modem on this new Gateway computer was broken. I should have answered you sooner, but every day I expected to get my new modem, and a month passed.

How is caving in Panama? I'm having a heck of a time, good and bad. There is a new caving area I found on a low mountain in the jungle about 50 miles from here. There are some tricks I learned in Trinidad to find new caves. I was using one of them and located this foreboding chasm that a stream disappears into. I was running low on sunlight late in the afternoon, so I mapped where it was and headed to my car before the sun got too low. You have to watch the time in the jungle, because the canopy blocks so much light that the forest floor is effectively dark about an hour before sundown. You can't move in the jungle after that - well, you can, but believe me you don't want to.

Two weekends ago I went back with my vertical gear. On the way, I even went to the Sherman Special Forces Base not too far from here to look for somebody versed in vertical work who wanted some adventure. I asked everyone I could find in the barracks and along the street, but everyone said they already get enough excitement and adventure during the week. So, sometimes if you wait for someone else before you do something, you wind up never doing it. I've had to do 2/3's of my best adventures alone, and with that in mind I went solo. I left a note and map in my car. That was sort of futile; rescuers could never have found the cave through the trail-less jungle, and any rescuers would fall in this particular cave before they'd see it.

I rigged the drop and repelled down about 50 ft to the muddy waterless streambed below. The cave was a 30 ft tall crack, pointed on the roof and widening to about 15 ft on the floor. To my left the cave appeared to end in a wall, but up close at the base of the stone was a hole I couldn't see the bottom of. To my right the cave entered the mountain horizontally and took a bend. Following the path of least resistance, I took a right and followed the cave for 100 ft till a maze of stalactites that had grown from roof to floor blocked the way and actually sealed the passage. A good inspection of the imperfections in the side walls showed that some tree branches and floating debris had been lodged in a 4 foot ovular hole about 6 feet above my head. With about 15 minutes of hard work I freed enough debris to crawl through, and wound up sitting in a ball shaped room about 6 feet diameter. From the path of debris it seemed that of the various holes that led away, one two foot ovular hole seemed to transport the majority of water when the cave was wet. I began the crawl, and in about 30 yards when it narrowed off even more, I was wishing someone was behind me pushing. In another equal distance the passage enlarged enough to sit in.

Taking a break and checking things over, I looked a sorry sight. I was covered in mud from head to toe and my backpack was abraded from being pushed in front of me during the crawl. Vapor from my body fogged my glasses so much I could see better without them. And I couldn't get rid of this strange feeling that something was wrong. I thought I was just spooked from being in a tight crawl alone. Then I heard thunder. This is a flood cave, and that makes for a dangerous situation. I thought I'd crawl for just a little longer and then head back. The tunnel took a turn and around the bend a ways the feeder tunnel emerged into the main cave again. As I was crawling the last twenty yards I heard the thunder again. The walls seemed to echo with a low roll of noise. Then a bat flew by, and another, and I realized that beyond the air was filled with hundreds or thousands. The noise of their flight entered the small feeder tube and resonated and magnified till that low rolling thunder effect became constant.

But now, even though I knew that the noise wasn't rain, I still had this foreboding feeling that was deeply disturbing that I couldn't logically account for. It got so bad that I turned around in the tube without even entering the main cave, and I got the hell out of there. I thought I was just a big pussy, and was feeling pretty disappointed in myself as I clipped on my ascenders for the trip up the rope. I was looking out the entrance hole at a bright blue day showing through tiny spaces in the canopy. No rain in sight. The ascent was over in a few minutes and I was coiling the rope when I started to itch. In the space of a few minutes it became unbearable and I shed my clothes. I had to. And you would've too. In fact if there were a hundred people just come out of that cave they'd all be running buck naked for the nearest water just like I did.

Bathing helped, but it was hours before the itching stopped. I tried not to touch my clothes. I wrapped them in leaves for the hike back, and when I got to the car I had a change of clothes waiting.

I thought I got into some kind of toxic plant during the ascent, so I washed the clothes and the rope twice, and forgot about it. Then, a week later, lines of red bumps started to show up anywhere my body came in contact with the feeder tubes and the itching began again. My hands were the worst, as they were ungloved. But whatever it was, it had even worked its way through thick army jungle fatigues. Since I belly crawled, I was in trouble. Every part of my body except my face and back eventually had connected rows of red welts, each of which grew longer each day. When they first started to appear I thought I had just gotten into a nest of chiggers, and had dabbed fingernail polish on the bumps to kill the buggies. I never wished that I had chiggers before, but I wish this had been.

I went to two dermatologists here in Panama, neither of which had ever seen anything like it. In fact the second one called in all the nurses and doctors on the floor, and none of them had ever seen it either. What they all finally wound up doing was giving me two internal parasite medicines and a delousing cream to take at the same time. They said they were curious to see if any of them worked. Well, they didn't, and last week they gave me a new spectrum of medications to try to kill the little buggies. The welts have at least stopped growing longer with this new series of medicines, but I won't know till next week if they killed the beast.

The doc's say never to go back to the cave. In fact they say that all caves in the same watershed are likely effected. I went 3 times to that area and found 5 caves, all of which streams enter or come out of. I've only been in one because all the caves require vertical technique to enter, and my equipment just arrived. The area is a group a high jungle-covered limestone hills, a bit inaccessible and certainly never before explored for caves, so everything you find is virgin and usually vertical. Judging from the finds of my three day-walks in just a small area of the watershed, the area has a high concentration of caves that handle large water flows, and thus are likely large, long and open. But you can't go in them. There's something waiting for you. Something you can't see, but you can feel it eat you. I just now seem to be on the road to recovery, but I grew up here, I have all the local immunities. Would someone else do as well? I'm going to send some pictures up of what this thing does to you.

Want to come caving in Panama?

Take care, Larry.

June 8th, 1996 - CAVE RIDGE

by Larry McTigue

Ron Bourret, Greg Hollenbeck, his son, Josh & daughter, Lindy, as well as Lane Holdcroft and I went up to Cave Ridge for a one day trip. We wanted to see if we could get into any of the caves and check on the snow depth in order to estimate how soon Newton Cave might open.

Greg and his kids came over from their current home near the town of Oroville close to the Canadian border in Eastern Washington. It's about a 5hr. drive so, they had to get up quite early that morning to meet us at the Alpental parking lot by 9am. As it turned out they were a bit late arriving so, Ron, Lane and I started up the trail without them. We took our time going up with several stops along the way to rest. When we were halfway up the snow field in the hanging valley on our way to Newton Cave, the Hollenbecks caught up with us.

Melt water from the snow could be heard running several feet beneath us as we hiked up the valley. We hiked up the valley along the side to avoid plunging into any holes in the snowfield where the stream ran underneath. Despite our caution, we still managed to sink down in a few spots about a foot deep from time to time.

Snow in the hanging valley and on top of the ridge was still several feet deep. My guess was that it wouldn't melt out until late July at the earliest. But, Ron Bourret was more optimistic predicting late June or early July. That could be right. Often-times all it takes is one long week of 80 degree weather and the snow just disappears. Once the night time temperatures at 5,000ft stay up in the 50's or 60's the snow melts 24hrs. a day and the run-off will quickly disappear down into the sinkholes and solution crevices on the karst.

We found the following caves were open: Danger, Hellhole, Cascade, Lookout and Prospector's. The following caves were still snowed shut: Newton, Red and Norton.

Cascade was the only one that was fairly dry since the snow above the cave had mostly melted away. All the others still had several feet of snow around the entrances with meltwater trickling into them. So, they were dripping pretty good and were wet. Those that had crawlways were muddy. The caves are all high

alpine so, hypothermia is a problem.

Obviously, since most of these caves were open even with several feet of snow above them indicates that they breathe quite a bit in order to melt that much snow away from them. I've heard that some of these caves are open in winter as well. Perhaps during warm spells in the winter, the outside air temperature on Cave Ridge not only rises above the freezing point but, also above the constant year-round temperature deep inside the caves. Meltwater from snow and rain could then trickle down thru the caves to lower entrances opening up snow plugs. This would allow the warmer outside air to rise up thru the caves melting the snow around the upper entrances. So, there may be a lot of lower entrances to these caves that we don't know about.

Newton may snow shut because it's breathing out thru the sinkhole N.E. of the entrance. I didn't think to check to see if that particular sinkhole was free of snow. The air flow pattern from Newton's resurgence would naturally tend to reach that exit point in the upper end of the cave before reaching the main entrance because it is closer to the 40ft. pit where the warmer air would be rising from the resurgence.

It certainly indicates that the caves go deeper than we know at present and the distinct possibility of finding lower penetrable entrances in some of the caves. Of course, they could turn out to be impenetrable to humans but, still large enough to allow air to circulate up thru the caves.

When I got home late that Sat. night, there was a message on my answering machine from Scott Davis saying he got back early from a trip he made to Colorado. He said he would be leaving early Sunday morning for Cave Ridge. We had originally planned an overnight trip to the ridge that weekend. I returned his call and left a message saying we were already back home and so would not see him if he went looking for us on the ridge on Sunday. I told him that most of the caves were open but, several feet of snow still remained and it was all melting and running into the cave entrances.

At the grotto meeting on June 21st, Bruce Nagata told me that he and Steve Fogdall hiked up to Cave Ridge June 14th, a week after this first trip that we made. They took several ropes and vertical gear intending to go into Newton but, the snow was still too deep. They tried digging down into the snow but, finally had to give up.

THE CAVES OF THE CHILLIWACK VALLEY

by Mike Fraley

Recently, what could be the biggest tourist trip yet undertaken, took place in the Chilliwack Valley north of the border in Canada. I had been to the Chilliwack a few times, and was very lucky to have seen the two most highly decorated caves the valley had to offer. On this day, however, Dick Garnick would drive me up some of the most awful, bumpy roads (really stream beds) the world has ever seen in order to give me a better understanding of what the Chilliwack has to offer, and the even greater potential the area holds for yet undiscovered caves and cave systems.

After some crafty planning, I found myself in Bellingham early in the morning, poised for the strike across the border. My accomplice, Dick, picked me up and after a stop for breakfast, we were off. On our last trip, the radiator in the truck we were using decided it wanted to ruin our day, so it developed a hole, and then had the nerve to shoot radiator fluid 3 feet out in front of the truck when we stopped at the border crossing. This time, we made it across without a hitch, if you ignore the lengthy discussion Dick had with the border agent about the geology of the Chilliwack valley! That was certainly, in my mind, the last thing I ever expected to hear discussed at a border crossing.

Our first destination, was the Marsh Creek and Bog Creek Cave area. Dick was dying to check on the water flow into each cave, and I was dying just to see their entrances, having never been to that part of the valley before. Marsh Creek Cave is quite the site. You drive along a seemingly well kept section of logging road, and suddenly after rounding a corner, the road disappears! Most of the road ended up in the bottom of the cave when it opened up and swallowed what man had built over its great depths. When we were there, what seemed to me to be a small stream was flowing fast down what was left of the road and cascading down into the entrance shaft. The water didn't seem like much of an obstacle to me at first, but once we climbed down into the entrance, I saw how that small stream, once it had fallen 10 feet, turned into an impenetrable barrier of thundering water. After tossing some rocks down into the darkness and being very pleased with the sound of it hitting the bottom several seconds after you lost sight of it, we climbed back out.

We next made our way to Bog Creek Cave. Its entrance is very similar to Marsh Creek, but not as vertical and slightly bigger. This one, however, really gave me a sense of adventure and exploration upon seeing it. You walk down a stream bed, one that could be anywhere on the planet and not look out of the ordinary, and then it, just like the road, drops into the earth down a hole you could easily drive a full size truck into. Again, due to the water, we didn't enter the cave. After the nice little hike, Dick drove me over what seemed like every road in the immediate area, pointing out all the limestone outcrops and sink holes. After seeing the sites and eating lunch, we went on another little hike where Dick pointed out even more sink holes, outcroppings and fissures. Just this small part of the Chilliwack has more to keep a person busy than most areas I know of combined. It makes me wonder why I ridge walk so often elsewhere. When we got back to the car, a deer came walking up the road in front of us, but stopped when it saw the truck. It obviously knew that the truck wasn't something that should have been there.

After driving back down the stream bed, or I mean road, and surviving spots that originated the term "truck eating potholes" we drove to one of the well know small caves in the area, Stalo Cave. Named for the Stalo Indians that lived in the valley, today it sits just off a well used dirt road with motorcycle tracks crisscrossing the hill it resides in. The cave is small, but has three entrances and consists of multiple levels, passages of all sizes and fissures which must be climbed, pretty much in any fashion that works for you. This was a new cave for me, very small, but I enjoyed it. The cave would serve as a good place to acquaint new cavers with climbing in caves, and from the looks of things, that is what has been going on. It is obvious that the cave is experiencing a high amount of traffic from the dirty hand marks all over the formations, walls, ceilings...everywhere.

We exited the cave through a different entrance than the one we entered and of course, drove on. Next on the list, was a little known cave near Spoon Creek. Therefore, it isn't very surprising that the caves name is Spoon Creek Cave. We didn't enter the cave, because it is only about 30 feet long as I'm told. The cave ends in a dirt fill, a good dig project for the slightly ambitious caver. According to Dick, the limestone outcrop the cave is located in is the only limestone they have found in that entire area, and smack in the middle is the cave. Also located within the same general area is another large cave system, named Trillium Rising after the 35 foot deep well where the water running through the system emerges back onto the surface. I don't know the distance from the resurgence to the insurgence, but I would guess it to be at least half to three quarters of a mile. Hopefully, the entire cave system is not completely sumped and a way into it will be found some day.

Our last stop on this long day of driving and caving, was an interesting pseudo-cave known as the Bone Pit. When discovered, it was an 8 foot deep, tight pit in a limestone outcropping. Larry McTigue began to dig in the bottom, and eventually broke through the dirt plug revealing a 40 foot deep pit beneath! Had Larry not been roped in while digging, he would have ended up at the bottom with all the dirt after the floor of the pit gave way and collapsed. What was significant about this pit, was there were animal bones found at the bottom. I talked Dick into some rappelling practice, but he offered a trip to the bottom of the pit instead, so I agreed and was the first one down the rope. The pit is so tight, I could not lean back or push off of the wall with my feet. I pretty much had to just slide down the wall, the whole time being worried that I might accidentally cause my figure 8 to lock off: wondering the whole time why I didn't use my rack. The pit looks to be a fault in the limestone that was enlarged by solution activity. The first 30 feet is a round tube straight into the ground, the last part of the descent being into a small room pinching off on both ends where the fault becomes too small to enter. Once at the bottom, I found two rib bones from some poor animal, but not much else. There is a good amount of dirt at the bottom which has come in from above, and likely has buried most of the animal bones reported there when the pit was first opened. The part that struck me as the most interesting about the whole thing, is the almost perfect straightness of the entrance shaft. When I got to the bottom, I looked back up toward the surface, and it was just like looking up a man made pipe. The fact that such a perfect structure could form in nature was striking.

As a nice little cap to the day, we took the short way down out of the mountains, and stopped at a spot 4500 feet above the Frasier Valley where parasailers launch and watched two of them take off and soar high out over the valley. As it turned out, they were from Bellevue. We talked to the one lone person left after they were all airborne, and asked him how much money it would take to get into the sport, thinking the whole time about the possibilities of flying into cave ridge or some other hard to get to destination. The man informed us we would need about seven to eight thousand dollars to get in. That ended that part of the

conversation. After losing 4300 feet in elevation driving down another stream bed, we hit the highway and headed for home, ending what was certainly one of the most active, and best days of caving in memory.

CAVE RADIO TRANSMITTER CIRCUIT

by Paul Ostby

This month's cover is a schematic of my most recent cave radio transmitter. This device was used to determine the surface track and passage depth of parts of Dynamited Cave, Stookey Ranch Cave, Ape Cave, and others. I'll describe a cave radio receiver in a future article.

The transmitter circuit itself is fairly simple because most of the work is done by the PIC16C54. This is a cheap ($4) microcontroller. It divides the 3.9 MHz crystal down to the appropriate frequency and generates a pulse train which is sent to the drive transistors, which in turn drive the antenna coil.

Three switches determine the actual output frequency. The available output frequencies are: 630.2, 873.8, 900.2, 1800.4, 1998.0, 2275.6, 3276.8, and 3510.9 Hz. Note that this set includes the commonly-used cave radio frequencies of 630, 874, 2275, and 3276.8 Hz. The output frequency is modulated with a 1 Hz square wave (one half second on, one half second off).

A fourth switch allows a telegraph key to be connected for sending morse code. Holding the key down for several seconds switches the controller to keyed (morse) mode. To switch back to beacon mode (half second on, half second off) simply hold down the key for several seconds.

Diodes at the battery connection prevent damage if the battery is connected backward. One of these diodes also ensures that the voltage is kept below the 6.25V maximum voltage to the controller.

The transmitter coil is made from a length of 25-conductor computer cable, cut to make a 1 meter diameter coil. Twelve of the wires are use to make the drive coil. The drive coil is six turns, center tapped. But to reduce coil resistance, two drive coils are connected in parallel. Care must be taken to connect the wires of each coil such that the current always flows in the correct direction.

The pulse train duty cycle is 30 to 33% for most output frequencies. This keeps the third harmonic low, but the other odd harmonics are substantial. Another coil and capacitor are needed to filter out the harmonics. So the thirteen remaining wires are connected in series to form one more coil. A capacitor across this coil "tunes" the antenna, and greatly reduces the harmonics from the square-wave drive circuitry. The capacitor must be non-polarized. A value of about 2.5 uF will tune the coil for an output frequency of 3276.8 Hz.

Anyone interested in building this circuit can contact the author for source code to program the microcontroller.

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CORRECTION:

In last month's article on the Long & Deep Cave List, the French URL was incorrect. It should be:

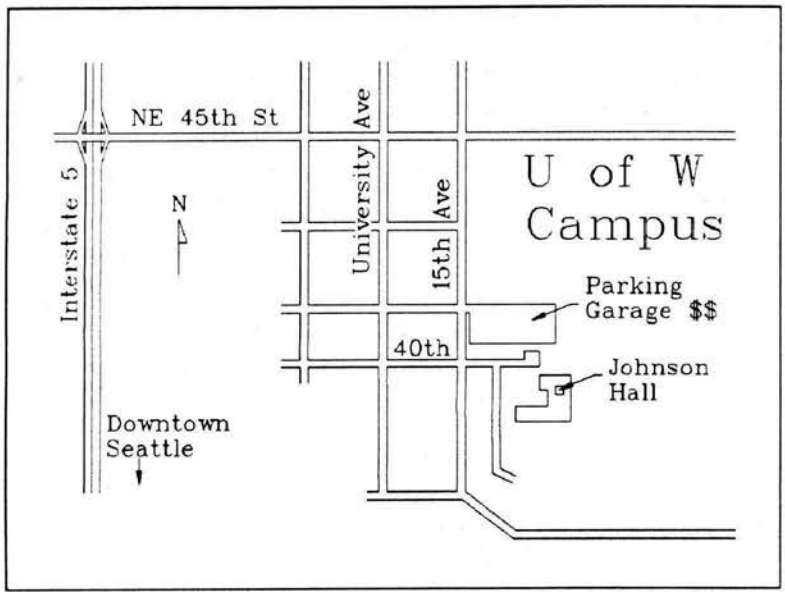
http://www.inria.fr/agos-sophia/sis

Also, some people have had trouble reaching Bob Gulden's web page. Be sure to match upper and lower case on this address. Bob's web site is at:

http://pages.prodigy.com/GMGC18A/

Also check out Sherry Mayo's list of cave-related web sites at:

http://rschp2.anu.edu.au:8080/cave/cavelink.html



The Cascade Grotto meets at 7:00 pm on the third Friday of each month in room 006 in the basement of Johnson Hall on the University of Washington campus.

We look forward to seeing you at one of our meetings

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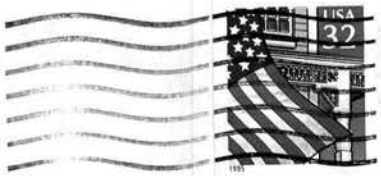

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