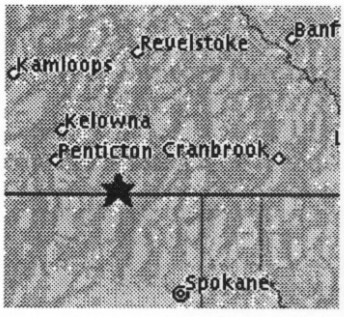
TOS → ROCK CANDY



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The Rock Candy Mine

Home of barite, fluorite and quartz crystals

By Chris Rylands

"A conspicuous feature of the deposit is the large number and great size of the open cavities or vugs. They are found in all parts of the vein and vary in size from a fraction of an inch up to 3 or 4 feet. They are lined with crystals of barite, quartz, calcite and fluorite. They cause considerable difficulty in mining ...

"The veins are composedof the following minerals, named in their order of abundance: fluorspar, barite, chert, quartz in the form of crystals, calcite, pyrite and kaolin. .. The absence of galena and zinc blende is a remarkable feature of the deposit, as these minerals are more or less abundant in most known commercial deposits of

Where is the mine?

The Rock Candy Mine is located in the mountains near the town of Grand Forks, BC. There is a mountain of black slag (arsenic-laden, used fluorite) near town, that is the remnants of Cominco, (Consolidated Mining & Smelting Company). They used the fluorite from the mine as a flux to leach gold from the ore they were smelting, in the mid part of the twentieth century. The gold is now gone -- along with the mining company. However, the toxic problem has not.

I knew I was on the way to the Rock Candy Mine when I passed this dumping zone. After I passed the waste, I drove about forty minutes on a slow-going logging road (all vehicles can drive it) to reach the mine. From the sheer volume of these slag piles I was surprised that when I got to the mine. It was hard to believe that all of this fluorite came from the tunnels and shafts, but I guess when there is gold to be had, anything is possible, at all costs.

The state of the site

The site is not a surface strip mine, but rather, a series of shafts, caverns, and tunnels, which are all supported by pillars of pure fluorite. The bowels of the mine are off limits to everyone, because the tunnels and caverns consistently cave in. There is nothing much to be had down in those tunnels except your own miserable death.

Many nice barite-fluorite plates have come out of the famous "Barite Tube" *Courtesy Chris Rylands*

As time goes on, the mine is systematically becoming reclaimed by gravity, and being helped along by the owner's drilling, blasting, and filling the tunnels for good. The mine owner, Bob Jackson of Geology Adventures routinely drills holes to pack with explosives. The shot rock (blast rubble) year after year is taming the great cavern's appetite for whatever it can gulp down.

Rockhounds collecting on the ledges

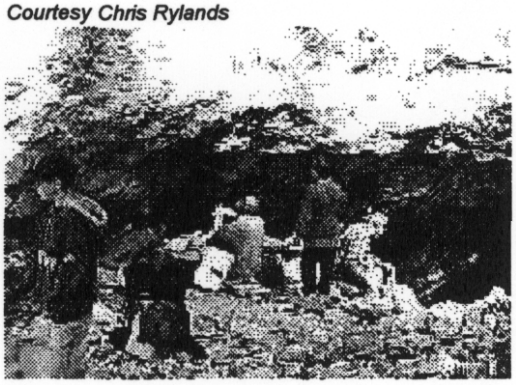
fluorspar.

"The fluorspar is mostly of a green colour, but purple and colourless varieties are present in small amounts. The barite forms large tabular crystals up to 4 inches in length. These are a pale yellow and are usually perfectly transparent. The chert is more abundant in some places than the barite. It is a cream colour and usually contains scattered crystals of fluorite and barite. Quartz is found most plentifully in the form of well-formed crystals lining the many cavities large and small. Calcite is one of the least abundant minerals but wherever it is found it is in the form of large white or clear crystals. Pyrite is the only sulphide present and usually occurs as small, well-formed octahedrons clustered on the crystal faces of the other minerals.

"Several small vugs were found containing a white plastic material which can easily be dug out with a pick. This was found under the microscope to consists chiefly of kaolin with some quartz in an extremely fine state of subdivision."

1926 mining report by Victor Dolmage, in a GSC Report by M.E.Wilson (1929)

Courtesy Chris Rylands



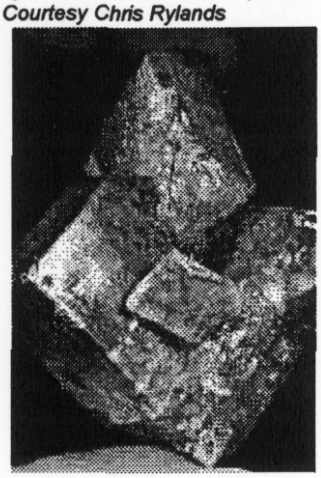
There are many crystal-filled pockets, fissures, and vugs that exist in the ledges which are peeled away about a foot per trip. Otherwise, too many vugs will be lost and disappear down into the mine, without us rockhounds extracting the real treasures of the RC Mine.

Minerals, minerals, minerals ...

When I visited, I quickly found out that there were three main minerals to be had. Yellowish-barite crystals often grow on top of purple or green fluorite crystals. The third mineral commonly found is quartz, which usually takes the form of druzy crystals.

Most of the barite crystals are found in clay-filled voids, that exist within the mountain of multi-colored fluorite. These voids take the form of vugs, fissures, and even sometimes small caves. When I uncovered many of these crystal packed pockets, I encountered greasy white, or mustard colored clay. The clay sometimes entirely fills the pocket or vug, thus encasing the crystals. In order to successfully extract the plates of fluorite and barite from these clay-filled vugs, I had to, with soft pokes and jabs, scoop out the clay with bamboo chopsticks. A tedious task with wood, but if metal scooping tools were used, I would have destroyed the soft barite and fluorite crystals for sure, because I was impatient.

Rock Candy at its best -- spectacular cubic barite crystals Courtesy Chris Rylands

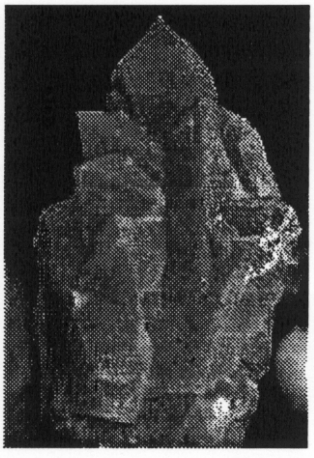


Another way that I safely extracted the plates from the pockets of clay, was to just get "down and dirty", and use my fingertips to feel and scoop out the stiff clay. Most of the time I would feel the corner of a barite crystal emerge through the clay and I would then work around it, until I could grab it and then pull it from the vug.

The first time I ever went to the Rock Candy Mine, I just pulled the barite crystals out of the vugs, like I have described above --- get a grip on the barite crystal, and pull. This method produced many single crystals, and some small barite clusters.

Be patient--don't just pull the first barite crystal you feel out of the vug, just because you can get a good grip on the crystal.

Fluorite crystals are sometimes coated in a quartz 'frosting' *Courtesy Chris Rylands*



Otherwise, you may have just ruined a plate of a lifetime! Many nice barite-fluorite plates have come out of the famous "Barite Tube", along with buckets of single barite crystals that were suspended within the clay-filled vugs. Unfortunately, the drilling and blasting is beginning to be less productive (1998-99), and the tube seems to be getting toward the end of its productive life. The blasting is now breaking through the walls into parts of the mine that have been filled with rubble. And yet, it is amazing that just as it seems as if the tube has nothing left to render the rockhound, someone pulls out a plate that amazes everyone, including the mine owner!

The other common mineral is quartz. For the most part, it is associated with the fluorite as either small quartz crystals, or as a druzy frosting. Bob Jackson calls these specimens "Quartz Smiles", because they often look like a smiling chunk of fluorite with white teeth.

Fluorite forms

The fluorite at the RC Mine was in several basic forms. The first, and most predominant was fluorite of massive habit (big green and purple chunks). One entire wall was 90% purple and green fluorite. When it rains and then the sun comes out, the whole ledge comes alive with translucent-emerald green and purple color. With that in mind, now extrapolate a wall of fluorite a few hundred feet in the X, Y, and Z directions, and you will begin to get a perception of the volume of fluorite that still exists at the RC Mine.

THE HISTORY of the mine dates back to 1916, when two prospectors thought they'd found copper-bearing minerals. They hadn't, but they sold out to Cominco within a year and production started in 1918,

The mine is situated about 25km north of Grand Forks. About 20km up the paved Granby River road, take the gravel Pass Creek side road west for 3km before turning north for 7km on Rock Candy Creek. The narrow valley brings you finally to Kennedy Creek (running west to east) and the mine is opposite. The veins are at an elevation of about 800m (2,600') on the north side of Kennedy Creek, hosted in extensive syenite.

The ore was transported by aerial tramway, and was initially sold in the USA, but a tax of $6/ton resulted in that route being dropped, and later all the fluorspar was used at Trail, BC.

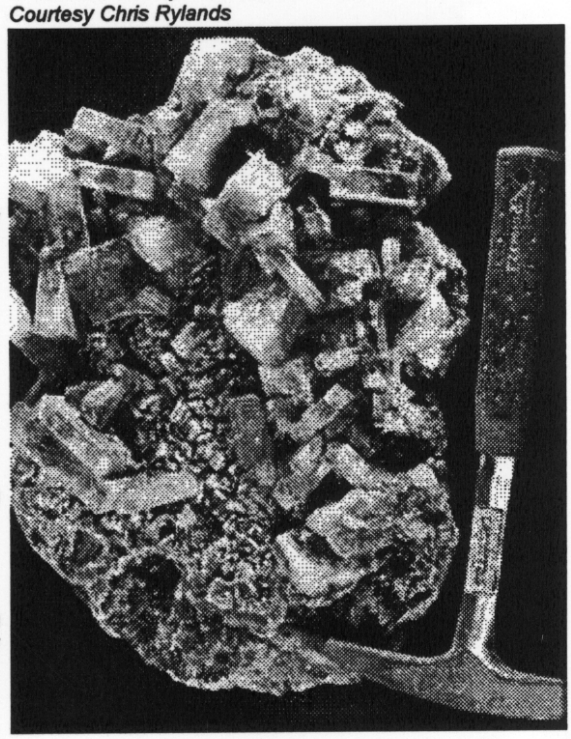
Below a hanging wall I extracted pyramidal fluorite crystal plates. That is the location where most of the barite and fluorite collecting occurs. It is also a very nice place to be, because when the summer heat is frying everything in sight, there is a "very cool" breeze constantly coming out of a black shaft. You will see what I mean if you are there on a hot day, aaaahhhh!

On one plate covered with pyramidal fluorite, there were microscopic frosted druzy-quartz crystals. The frosting is very striking because when you see it, the whole translucent-green fluorite plate glistens in the sun like frost on green glass right out of the ice box on a hot summer afternoon. This specimens of pyramidal fluorite I found were not very large, but were by far one of the most eye-catching specimens in my collection.

Cleaning and preserving

The only substantial cleaning process that you will have to do is the use of soap and warm water. Many of the barite and fluorite plates have white, or rusty clay that is caked to them. The white clay is especially useful for protecting the plates for your travel back down the short mountain trail. Sometimes the rusty clay is next to impossible to get off, but your best chance will be to do as follows:

What Rock Candy is famous for --- barite on fluorite
Courtesy Chris Rylands



Soak the plates with warm water and dish soap for a few days. Then, with some wooden or bamboo toothpicks, carefully poke away all dirt, clay, and loose crystals. Be careful when you are doing this type of cleaning on the barite plates --- they are incredibly fragile, and the majority of them will be loose. Many of the barite crystals are secured to one another "as they formed" by just a thin layer of clay that acts as glue.

I have also found that I should keep my fluorite out of direct sunlight, because the fluorite from the Rock Candy Mine (like most other fluorite) after a few years in the sun will experience permanent color fade. So keep your nice plates protected from the sun. In only three years my garden rockery has lost considerable color. An interesting note however: unlike most fluorite from other locations around the world, some of the fluorite at the Rock Candy Mine, if exposed to the sun for about 10 years, will fluoresce violet under a "long wave" black light. The owner of the mine takes the collectors to the lower part of the mine at night with portable ultra-violet lights (black lights) to collect these unique small chunks of fluorite. The kids go wild...adults too.

What to bring

The following is a list of tools that I find too important to forget when I collect at the Rock Candy Mine. The large hammers and chisels are supplied by Geology Adventures. Don't bring picks or shovels either because they are useless there.

- Bring some wooden, or bamboo chop sticks for cleaning the clay and dirt from the vugs. Metal will chip and scratch the crystals inside.
- Bring a small flashlight for looking into the vugs because it allows you to isolate that specific plate or crystal for extraction, especially if you plan on going down in the "Barite Tube."
- Don' forget your leather gloves, because you will be prying, rolling, and picking up very heavy chunks of massive fluorite which has sharp edges.
- Bring the "cloth" type Band-Aids, because as you dig through the wet and muddy vugs they will stay stuck on your skin all day. The "Sheer" type Band-Aids suck, because they offer no lasting protection, and slide off when wet with moisture. Good for kids, but bad for vigorous rockhounds.
- Bring a squirt gun, and a stiff non-metal paint brush for cleaning the sometimes dusty vug areas, plates, and to look for cracks in the host fluorite.
- Pack a couple of small but long chisels, for working the finer specimens out of the backs of vugs. You may want to bring a long pry bar, because the ones at the mine are in constant use.
- Don't forget your eye protection. Goggles are provided at the mine, but these community-use goggles usually have scratched lenses. So bring your own if you should require your own goggles with optimum clarity.
- Bring a hard hat for working down in the "Barite Tube," and working under some of the overhangs.
- Pack a Sunday paper and some bread bags for wrapping your plates, to protect your specimens for the trip down the mountain.
- Bring a garbage bag for the rain, or bring a sun hat and rag for the back of your neck, because there is no shelter from the elements while you are collecting.
- Pack light on the way up, because you will be overloaded on the way down!
- Don't skimp on the water! I always go through about a gallon up there on a hot day. But if you run out, that is OK, because there is a creek at the bottom of the short trail. If you have one of those water purification systems, you will have all the water you need.

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Contact Geology Adventures for further details about booking a trip to the Rock Candy Mine. Their rockhounding trips are unsurpassed in the Pacific Northwest, with respect to the amount of material found on their trips, and the quality of fun that you will experience.

The editor also thanks Tony Smith for supplying additional geological reports for this article.

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