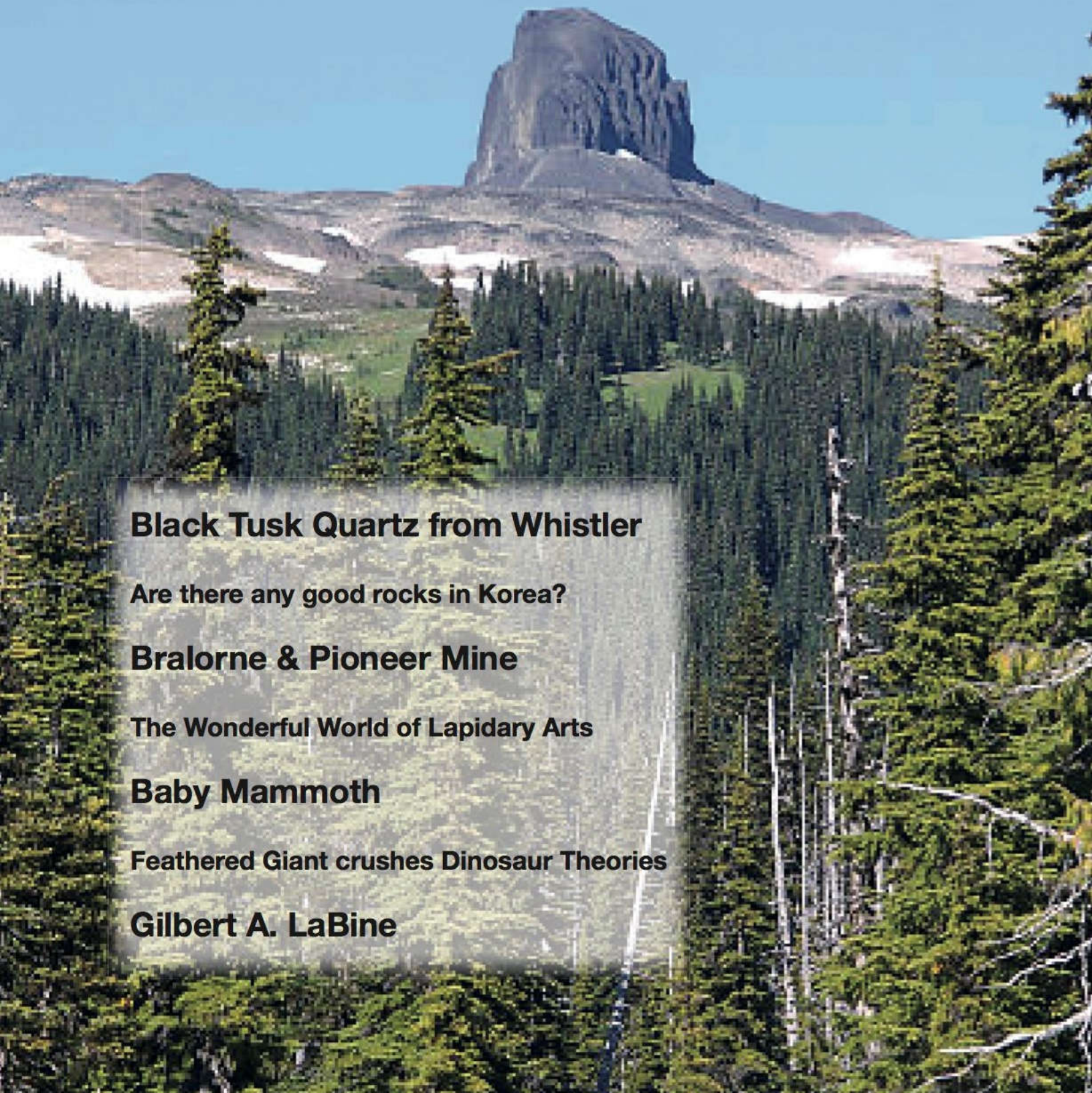
Vol. 11 Winter 2008

B.C. Rockhounder



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Published Quarterly by the
British Columbia Lapidary Society

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Printing:
Sure Kamloops Print & Copy Center
North Shore, Kamloops

Submission Guidelines:
Text: Word Document
Article Photos: 300 dpi (min) 4”x6”
Cover Photo: 300 dpi (min) 8.5”x11”
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Cover Photo
Black Tusk Mtn. Whistler, BC
Courtesy of John Harve

President's Message

Hello everyone,

Well as I sit here writing this, just before Christmas, I would be remiss in not wishing each and every rockhound a very Merry Christmas and a Happy New Year. I hope your stocking is filled with mineral and crystal specimens, your gifts include books and tools for your creative efforts, maps and mosquito repellant for those field trips.

A New Year is beginning and so will the club shows and of course the BC Gem and Mineral Show. Take the time to reflect on the efforts of those dedicated volunteers in your club who work so hard to hold meetings, present programs and organize field trips and shows. Consider offering your help, even if you are new and nervous there are many opportunities to help out. Call Cam Bacon to offer your help with the Gem Show, he will gratefully accept I'm certain. This is also the time of the year when those lucky rockhounds head south for the heat to Quartzite and Phoenix. Bring back some new treasures to keep the rest of us envious. I hope to see all of you soon at the general meeting for the Society in February or perhaps on a gravel bar or some other field trip.

Happy rockhounding.
Walt Pinder.

Dolomite

Dolomite was first described by the French mineralogist Déodat de Dolomieu in 1791 from its occurrence in a range of the southern Alps. The rock was given the name dolomite by de Saussure, and today the mountains themselves are called the Dolomites. What Dolomieu noticed was that dolomite looks like limestone, but unlike limestone it does not bubble when treated with weak acid. The mineral responsible is also called dolomite. Sometimes dolomite is called dolostone.

Dolomite is very significant in the petroleum business because it forms underground by the alteration of calcite limestone. This chemical change is marked by a reduction in volume and by recrystallization, which combine to produce open space (porosity) in the rock strata. Porosity creates avenues for oil to travel and reservoirs for oil to collect. Naturally, this alteration of limestone is called dolomitization, and the reverse alteration is called dedolomitization. Both are major outstanding problems in sedimentary geology.

"Don't be a Rock Hog"

Take only what you can use
and leave the rest for others.

Identifying Faceted Stones Without Costly Gear

By Peter Collins

Basic gemmology for facetors does not necessarily mean spending hundreds of dollars on equipment and does not require the facetor to acquire the language of a qualified jeweller. Indeed, one system, for faceted stones only, introduced by a canny Scotsman, requires equipment as simple as a pocket spotlight, a strip of black plastic drilled with a small hole, a bit of Blutak and if you want to really spend up big, a polariser, such as one from your camera or one eyepiece from a broken pair of polaroid sunglasses!

The beauty of this system is that you can use it on mounted stones provided the back is open and you can see your light source through the table. This basic equipment will permit you to make informed estimates at the refractive index of any faceted stone you examine, whether it is doubly refractive or not and a close approximation of its dispersion.

The system, “Visual Optics”, was created over 25 years ago by Alan Hodgkinson, of Scotland, who discovered its mechanics whilst working as a taxi driver in London when he was studying gemmology. Waiting for a fare one very wet night, Alan pulled some faceted stones from his pocket and began looking at them using street lights as a light source. Pointing the culet towards the light and placing the polished table as close as possible to his eye, he discovered each different gem material had its own spectra (that is, a break-up of the light as it was collected by facets on the culet.

Alan Hodgkinson realised it was possible to approximate the refractive index by the positioning of the spectra as you look towards the light source Low RI spectra appear close to the centre of the stone. High RI, say, of zircon, (1.96) which is beyond the scope of most refractometers, has a spectra very close to the outer perimeter of the stone. Diamond can be easily identified because its RI (2.41) is so high, its spectrum cannot be seen at all through the table. The difference between cubic zirconia and diamond is easy to pick because by using this system you can see the spectrum of CZ close to the girdle area of the stone, but only the secondary spectrum of diamond which closely resemble bright coloured narrow darts all over a near-black background.

To understand the theory of “Visual Optics” one needs to read the book on the subject, “Visual Optics - Diamond and Gem Identification Without Instruments” published by Gemworld International Inc., of Northbrook, Illinois 60062, USA.

Most facetors understand the way light bends as it passes through the faceted gemstone from the table, and if angles are correct, is reflected back to the eye. The light rays bend very little in the case of quartz (RI 1.54) but bend very considerably for corundum (1.76) and bend almost at right angles for the higher RI materials such as cubic zirconia and diamond.

Using this system, you are, in fact, reversing the light path inasmuch as it passes from your light source, through the culet of the stone to the table and to your eye. The light rays are still bent, but in the opposite direction.

Let’s stop trying to visualise the process and do it! Find a strip of black plastic, say 8 cm long by about 3 cm wide. and as thin as possible. Close to one end drill a 4 mm hole and if you have some large faceted stones, drill a hole at the opposite end of 5 to 7 mm diameter. Clean a faceted topaz and place the table face down over one of the drillholes and hold it in place with two blobs of BluTak. If you have a very large stone you can hold it to your eyeball with your fingers. (Use of tweezers and forceps is not recommended for safety reasons).

Now with the room darkened, point the culet at your pocket spotlight at a distance of say, two to three metres. If you wear spectacles, remove them. Bring the table as close to your eyeball as possible. Look directly at the light source and after a few seconds you will see something quite remarkable. For every main facet on your stone, you will see a spectrum with the red end pointing towards the tip of the culet.

As you hold the stone still and move your line of sight around the hole in your plastic strip you will quickly locate the other spectra. Take particular note of the position of the spectrum between the girdle of the stone and its culet. That positioning will apply to all stones of similar cut in the same refractive index range of 1.62.

If you have a faceted peridot, affix it to your viewing strip and repeat the process. You will notice two things immediately. The spectra are much brighter and there are two of them tail-to-tail to each main facet on the culet. This tells us peridot is strongly double refractive and the span of colours in the spectrum confirms that it has high dispersion.

The full spectrum runs from red (closest to culet) to violet (closest to the girdle) and the span of colours from the red end is the measure of dispersion in the gemstone. Again notice the positioning of the double ring of spectra in relationship to the culet tip and the girdle. All similarly faceted stones in the same RI of 1.65 will show the same pattern. You will notice that low RI stones are almost clear as you look at the light source and as the RI increases the centre of the stone darkens until it is nearly black in the case of CZ and diamond. While the colour density of the gem material

will slightly alter this appearance, the positioning of spectra for all stones of the same RI will be constant.

In doubly refractive stones you will be able to tell without a spectroscope the degree of birefringence. There is that terrible word which simply means the spectrum is partly or totally repeated. The clue here is to look at the red sector. In peridot you will see the red sectors are quite separate as they point towards the culet. With medium double refraction (birefringence) the spectra overlap and you see red reappearing part-way down the length of the spectra. In stones of low double refraction (birefringence) the second red can be very close to the first, or even be a lighter shade of red or pink. This is a very important part of identifying gemstones of the same colour; ie garnet, ruby and red CZ for example.

With stones which are strongly double refractive and which have two directions of colour (dichroism) (tourmaline is a good example (it is wise to check as many spectra as you can find. To confirm the feature, place polariser between the stone and your light source. Rotate the polariser between 90 and 180 degrees as you watch the spectra and if it is a truly double refractive stone, each of the spectra will blink on and off as you turn the polariser. You will notice after some practice that various stones have similar or very dissimilar spectra patterns and this is due to the absorption of white light by component minerals in the gem. This is clearly shown with ruby (both natural and most synthetics) in that the spectra is simply red and blue with a hint of green and with no other colours to be seen. Red beryl, for example, while having similar birefringence and dichroism, would show red and violet. “Visual Optics” will permit the facetor, after some practice to readily pick diamond from CZ, topaz, white zircon white sapphire; peridot from green quartz and green tourmaline and blue corundum from blue topaz, iolite and so on.

This, with a good 10X loupe, a knowledge of inclusions, cleavage habits and other observations will give the facetor the ability to identify most gemstones. It is however, advisable to state your opinions as such and recommend consultation of a qualified gemmologist if identification is of paramount importance.

Selection of the light source is reasonably important.. Alan Hodgkinson and his American associate, William Hanneman, prefer a torch with a slitted black cover. For obvious reasons fluorescent tubes are not used with this system. Alan has the used the moon as a light source when testing zircons and he has used light reflected from a chrome pen clip to test a range of faceted gems!.

The Aussies now use a 12-volt 5 watt tungsten festoon globe, such as used by truckers in their side clearance lamps. This needs to be shield by a coffee tin lid painted black and provided with a slit about an inch long and about 0.125 deep to reduce the light to manageable proportions.

Australian facetor, Bob Davis, devised an even better stoneholder to avoid messing around with BluTak. Cut two strips of formica about three inches long by .75 of an inch wide and cement them together for about one third of their length. Drill the other end with a three-sixteenth inch hole and your stones will fit neatly in the holder. If you cut large stones, then drill a larger hole to accommodate them.Facetors can inexpensively build up a reference set of faceted stones, labelling them with their RI, degree of double refraction, dispersion factor and other information.

This system only works with faceted stones and variations will be discovered between the standard round brilliant and say, a long rectangular barion. The pattern of the spectra will vary according to the facets cut. The estimation of refractive index improves with practice and experience with stones of varying colour density. Hodgkinson and Hanneman’s publications will show how you can create a portable paper refractometer scale that easily shows the difference between quartz and topaz and of course, can calibrate, CZ, YAG, strontium titanite, sphene and other materials above the range of the normal refractometer. The ability to arrive at a rough RI, the amount (if any) of double refraction (birefringence) and the degree of dispersion (fire) will clearly identify most of the stones with which the average facetor comes into contact.

This is simply an inexpensive introduction to gemmology as it applies to faceting and very obviously has limitations. Very obviously the angles used in faceting play a part in the spectral display and the system works best with round brilliant cuts, but with practice the average cutter will be able to accurately identify most of the faceted stones he or she comes into contact with and with varying gem shapes.

If nothing else, Visual Optics will give facetors an greater interest in the gemmological features of the materials they handle, and possibly, lead them on to greater studies.

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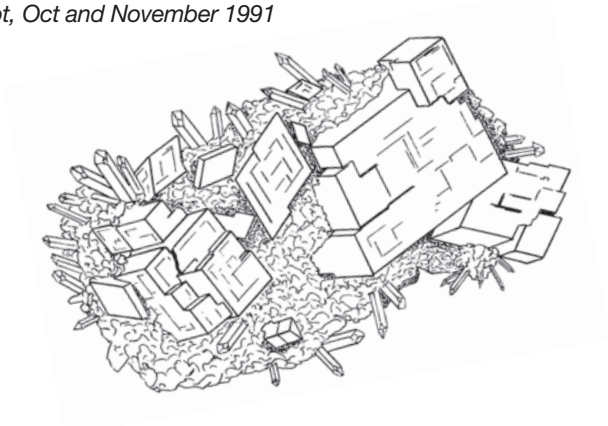


Black Tusk Quartz from Whistler

By Greg Peterson

This article is about a recent discovery of Quartz found just south of Whistler, British Columbia, Canada. It was made in the fall of 2005 during one of my work trips as a forestry engineer exploring old road systems in an effort to locate timber for development. In my job, I am fortunate to have a chance to drive many old and new mountainous logging roads through some very rugged terrain. Having been a rock hound from a very young age, I am always on the look out for interesting rock formations in the cut banks of the roads I drive. I stop every time at the first sign of white bands of quartz in the country host rock. Always it turns out to be either massive lenses of quartz with little to no cavities, much less crystallization; or very coarse and loosely held together material that crumbles at the touch. I had resigned myself to the knowledge that I would never find any interesting mineralization on any of my drives; the road building crew or some other road user would have found it long ago. Finding minerals wasn't supposed to be that easy.

I had read the works of John Sinkankas and had always been inspired to collect minerals in the field. I had been on forays to old mines and known localities with the local rock club, but of course, such areas were already heavily exploited and the quality of material was always of interest, but not sufficient for display in a top quality collection. I had been to the old defunct Keystone Mine in the Coquahala pass; a bit of small quartz druze and some massive galena/sphalerite. I had been to two local quartz localities and found a nice small point in the refuse of one and not bothered to bring anything home from the second. I had been fortunate enough to find an eroded garnet in a piece of some schist while working in Ruby Creek (the old timers at first thought the garnets they were panning in the mouth of the creek were rubies, and hence the named it as such). Nice but of only passing interest to the serious collector of fine specimens. Then one day in the fall of 2005, while driving a full truck with our crew through some sinuous

logging roads just south of Whistler things were about to change. We had been sent to do an inspection of an old deactivated road system that was planned for re-activation. It was raining very hard and we were not happy about having to be in the field that day. Very early on I had found a small boulder of quartz by the road. I had noticed it looked like it had some cavities and had broken it open with the head of my axe. I found a small plate of some 2cm high milky white quartzes. I had been fairly excited about it as it had been the best thing I had ever found up to that point – however it was still nothing special by most peoples standards and nothing I would have displayed in my cabinets. By the time two o'clock came around, I was fully back into work mode and not thinking rocks anymore. It had finally stopped raining and we were in better spirits and back in the truck driving to a new area. We were driving up steep roads and through many water bars. The driving was slow for these reasons, which always gives you a chance to look around you. I had noticed some quartz stringers in the cut slope, but they looked very red from hematite. This usually means that they are heavily fractured as the red stain works its way into the cracks in the quartz thereby giving it a rusty look. This type of quartz is never recoverable, even if you are lucky enough to find some crystals, so I didn't even bother to stop. We drove on for another 5-10 minutes when we drove by a big rock face on the edge of the road. We were moving faster so I didn't get a close look by I did spy a 30cm band of quartz running horizontal to the ground and I did look like there was some cavities in it. Interesting I thought. I knew I would be driving back this way as I was near the back end of the road system so I kept driving. Finally we hit the last road and turned around. Luke, one of my crew members whom I had subverted into the wicked ways of rock hounding had noticed the band as well and just before we came around the corner to the place where the seam was, he asked me to pull over up ahead as he had seen something of interest. I looked over my shoulder at him and assured him that I had already intended to stop before he even asked. We exchanged a few comments about how promising it had looked. As soon as we pulled up to the rock face, Luke and I were out of the truck so fast the other two were still un-buckling while we had begun to carefully inspect the face. There were definitely some vugs in this seam! We could see some crystals poking out from the roof. They looked like they would require some heavy work to remove but they were about an inch long and very clear. I could feel my heart pounding and could tell Luke was excited as well. We had talked about finding something like this one day, and now it had happened. By this time, the other two crewmen had come out of the truck and seeing what we were doing, began to look around. Luke and I heard a shout and when we turned around one of them was standing there holding a 3" point in his hand. It was milky but had a high luster to it. We couldn't believe it and rushed over there too look at it in his hand. It was chipped on the tip and had some very faint traces of some blackish looking inclusions on one side but it was by far the biggest and nicest thing I had every been part of finding. He had found it lying in the grass by the edge of the road. We quickly all scanned the area and within 5 minutes had found 4 more. It was at this point that I realized we had found something worthwhile, not just of local interest, but quality that was good enough to display in a cabinet. I was very excited and didn't know what to do next - keep looking in the ground or go back to inspecting the vugs! Luke began to inspect the pockets and I kept looking near where the big points had been found. It quickly became obvious that the road building crew had dug up part of some of the pockets and used it for road fill. Large chunks of quartz and crystals were all over the edge of the road. I couldn't quite believe it at first. How could they have missed it? I was picking up shards from the pocket. It became quickly obvious that the pocked had seen seismic activity during its genesis as much of the crystals were healed giving them that euhedral look, that is all faces are terminated and with complex multi-faceted faces. I had picked up about 10 of them when Luke called me over. He had his arm elbow deep into a pocket and was pulling out some strange blackish green mud. It sparkled a bit but was other wise not inspiring. He handed me the mud and said to squeeze it. I did and quickly found it to be covering something. It was thick and hard to clean off anything but one face, but there it was, a crystal! I shouted to keep going and he proceeded to empty the pocket of mud for 10 minutes.

Black Tusk "Herkimer Diamonds" twin euhedral crystals.

Quartz Crystals coated in chlorite.

I would take the handfuls and place them on the hood of our truck. By this time, the other two crewmen were scraping around and pulling some decent points out of the road fill. We continued to dig for another 15 minutes when I realized I had better put a stop to it as it was getting late and we had a long drive, and more importantly, I didn't want anything damaged as we had no proper tools and were using old axe heads to chip away at the rock. It took a bit of doing, but I finally pried them away from the face and we got back in the truck and headed for home. I sat in the back and was of course inspecting some of our mud encrusted crystals. Some of the mud had dried while laying on the hood and it became less mud like and more dust like. Once dry you could easily remove it with your fingers. The more I cleaned off the mud the more excited I got. The crystals in the mud were doubly-terminated and damage free! About 5 of them were perfectly shaped 'herkimer diamonds' after the famous quartzes from Herkimer Co. NY, USA. These 5 also had the faintest of purple color to them; just barely noticeable and two slight to call Amethyst, but definitely noticeable in the right light. Some of the mud didn't seem to come off no matter how hard I rubbed it. It appeared to be included in the outer layer of the quartz giving some a complete coating of this black green sparkly mineral we couldn't identify. We also managed to find some nice rhombohedrons of calcite that had been slightly etched. Not clear but still interesting to find. Lukes hands were sliced up from empting the pocket and all the cuts were engrained with clay. He was hurting but you couldn't have removed the smile from his face if you tried. Me too.

All I could think about during the 3 hour drive home was when I could get back there again. By the time we had gotten home, Luke and I already had a plan to re-visit the location the coming weekend. After a few sleepless nights waiting for Saturday to arrive and a 5am wake up call we met and proceeded to drive up there. Armed with tools, my Sinkankas books, and a plan to do things methodically we pulled up to the location. Before we had left the last time we had rolled an old log over the area and tried to make it look undisturbed to the casual observer. It didn't look any different so we both sighed in relief and proceeded to clear away the obstructing material. I don't remember the details of that second visit as well as that magical first day, but I do know we proceeded to find crystals all day and came home with some nice pieces. Sure there was B grade stuff as well but with the coating of clay over it, you could never really tell for sure how good it was until you got it home started to clean it up. We managed to get up there one more time before the snow came; we found some more, but the easy stuff was all gone and the pickings slimmer now. I waited for winter to pass which gave me some time to do some serious cleaning of the material. The more I cleaned it, the more I began to realize that we had found something very special. I sent some of the mud to UBC to be analyzed and found it to be chlorite. The way it coated some of the specimen, while at first thought of as a nuisance, was just spectacular and really set this location apart from the typical clear white quartz you find in Arkansas or Brazil. Upon doing some research about this association, it came to my attention that it closely resembled some of the great finds of quartz in the European Alps. No smokey quartz was present, but the growth patterns and the chlorite dusting were almost identical in many respects. We had also found a coating of some small clear tabular crystals on some of the specimens. It was also identified and was found to be Albite; interesting but too small for display.

After a particularly long and cold winter, with a very large snow pack to deal with, the site finally became accessible again. I had decided to bring my father Lloyd with me as it was his 70th birthday and I knew he would appreciate it. You can drive right to the site so access for his somewhat limited mobility wouldn't be a problem. We investigated the face for a while but came to the conclusion that there wasn't much left of the original find to continue there so we drove around the immediate area looking for more sites. We drove around for 20 minutes without finding anything. On the way back to the original site, just on the other side of the hill, I saw some white poking out of the moss. I got out of the truck while my father waited and proceeded to poke around. I did find some massive quartz, but no crystals were apparent. I was just about to leave when I decided to stop and enjoy the view before I left. As I was standing there, I noticed at my feet a 3" clear crystal poking out through the carpet of needles! I yelled to my dad in the truck who got out and yelled back at me what was wrong. I only had to pick up the point and waive it in the air to get him scrambling through the brush (as good as a 70 year old can scramble!) to the base of the hill where I was positioned. We then proceeded to start removing the layer of moss and needles covering the talus slope that we were perched on. Within minutes we had located a zone rich in the chlorite clay. After cleaning it up, we found a large pocked that was already opened up from the top through which we could reach down and pull out big clusters of chlorite clay encrusted crystals. The morphology of this vug was a bit different; there was more etching of the quartz and the chlorite was much darker and sparkly. The vug had also experienced more breakage and subsequent re-crystallization. It also produced a few of the only scepters from the whole find. Needless to say it was a birthday my father won't soon forget. We pulled out some of the top specimens from the pocket, including the two large undamaged plates and several

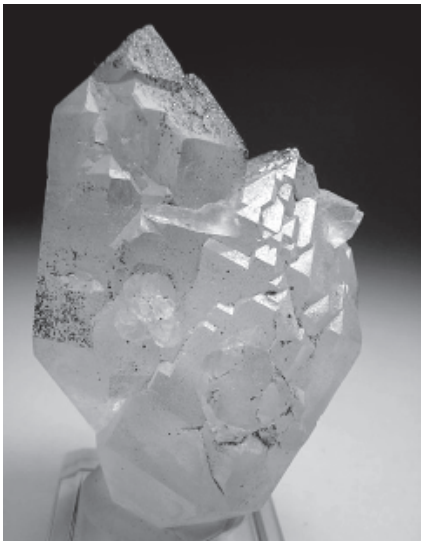
other unique pieces. My father had been collecting minerals since he was a young man but this was the first time he had ever had a chance to clean out a pocket of real top quality items. A nice birthday present for sure. Ever after this pocket was known as the 70th Birthday Pocket. This area also produced some very nice plates of clear quartz—that is with no chlorite present anywhere. That about sums up the history of how the find was discovered. I will now try to relate to the best of my ability—I am no geologist—the paragenesis of the find.

Pocket Creation

Chlorite is an Iron Aluminum Magnesium Silicate Hydroxide. These Quartz crystals were originally formed in a pocket rich in Silicon Dioxide solution. Later intrusion by a Chloride bearing solution (a product of low-temperature retrograde metamorphism and possibly also of corrosive meteoric water) occurred in many pockets as a dark green, fine-grained clay. This Chlorite clay caused much of the quartz to become dulled and rounded by chemical dissolution. After the chlorite clay was deposited, continued (but limited) growth of the quartz in Silicate rich solutions continued to occur, resulting in an inclusion imparting a greenish-black color to Quartz. Chlorite-group minerals also occur as components of muddy pocket residues. Pockets with "Chloritic Quartz" typically contain Epidote that has been chemical dissolved, suggesting that the corrosion of the Epidote may have contributed to the formation of Chlorite. This is probably the case in these pockets as minute pockets containing fully formed Epidote were located only 150m away. This is further supported by the fact that crystals that were hanging on the top of the pockets were un-included with chlorite. Some time after the chlorite clay was deposited a final mineralization occurred where a very thin reddish film of hematite was found to be covering both the clear and chlorite clay in some zones of the pocket. This hematite effectively armored most of the soft chlorite clay on top of the quartz and did an excellent job of protecting the crystals and is one of the reason so many specimens survived the original road building efforts that unearthed the pocket.

Crystals Formations

Pretty much every form of quartz crystallization was evident in the pockts. The only form not found was the rare form of Japanese Law twins (called Japanese as this is the first location it was documented from). Tabular, double terminated, euhedral, scepters, and regular points and clusters. They were all there. The most impressive were the double terminated crystals. Also known as 'floater' crystals, these are crystals that have formed within the Chlorite clays found within the pocket. Most likely broken off the cavity wall during some stage of crystallization, these crystals continued to grow and the broken ends became terminated or, re-healed. As a result, they have no point of attachment. Also, present was one example of a 'faden' style pocket crystal which probably formed from continued fracturing and re-healing. These are terminated on all sides and are also known as 'euhedral'. The degree to which the chlorite was present in the quartz was what really set this site apart from most others. Numerous examples of this interesting association; ranging from fully included and coated crystals to minimally included tips and barren quartz added to the variety. Below is a list of all the minerals that were noted at this location, however, it would surprise me if more were found upon proper geological analysis.



A cluster of "Herkimer Diamond" doubly terminated crystals with chlorite.

Quartz -(Silicon Dioxide - SiO 2)
Chlorite -(Iron Aluminum Magnesium Silicate Hydroxide - (Fe, Mg, Al)6(Si,Al)4O10(OH)8)
Albite -(Sodium Aluminum Silicate – NaAlSi3O8)
Calcite -(Calcium Carbonate - CaCO3)
Epidote -(Calcium Aluminum Iron Silicate Hydroxide – Ca2(AlFe)3(SiO4)3OH)
Hematite -(Iron Oxide –Fe2O3)

Conclusion

A find like this is a very rare event; most people can go their whole life hoping to find such an occurrence with no luck. I know how lucky I was and hope to be again someday. I am very proud of the find and am always happy to display the crystals to anybody who is interested in such things. I recently had the pleasure of being able to display them at the 2007 Annual B.C. Gem and Mineral Show in Abbotsford (my home town) where many people with interest in such marvels of nature were able to enjoy them. I received a lot of comments and interest in the locality was definitely there. I hope to be able to display them again one day, and maybe with some new items if I can manage to make another find. I hope the story of how these specimens came to be was helpful and interesting to the reader.

If you wish to see some more of the specimens, or are interested in purchasing a sample, please visit my website for an online display at www.geminerals.com.

Some Stones really are Unlucky!

By Hans Durstling

Gemstones can bring you happiness, riches, health, and yes, even the faculty of second sight, or maybe its direct opposite. No matter how many people may believe all this stuff, none of it has any foundation in science. But then again maybe there is something to it after all. For as far as stones of evil luck are concerned, there's one thing I'm certain of: They really do exist.

For quite a few years I traveled the world buying cut stones. And yet when it comes diamonds, rubies, emerald or opal, I'm really not particularly interested. There are many varieties of gemstones, far more than most people realize: stones like apatite, kornerupine, tsavorite, diopside, amblygonite, cerussite and the like. And these again occur in common colours or in rare ones. Probably no one person anywhere has a complete collection of all such stones in all their various colours. Plus, each year, one or two new gemstones get discovered, whether during road building or in a laboratory. So, armed with about 10 kilos of testing instruments, I spend a lot of time prospecting gem producing areas and markets where rough stones are sold in the hope of finding something unusual.

In 1986, the year of Chernobyl, I acquired my first Ekanites on a street market in Ratnapurna, Sri Lanka. They were very clear, dark green, and well cut gems. My gemmological data book at that time had no reference to the fact that they were radioactive. By rights, the chemical formula alone K(CaNa) Th Si8 020 should have opened my eyes. But in fact I did not learn just how radioactive they were until I had a friend examine them with a Geiger counter for me.

It turned out that at a distance of 30 cm, no radiation registered, but that, close up, even a 5mm thick lead box does not block all the radiation.

That suggests that such a stone is quite harmless in the display case. But what happens if it gets set in a ring or pendant? Indeed, ekanite can be readily mistaken for green tourmaline commonly used in jewellery. No one has yet been able to tell me exactly what happens if a person were to wear a small but constant radiation source next to his skin. Opinions ranged from skin cancer to leukemia in 3 to 9 months.

At a conference of the German Gemmological Association in Idar-Oberstein I learned that dealing in and handling radioactive minerals is legal, because these are gemmological collection pieces. But if, say, an originally colourless topaz were to be made blue through electron or neutron bombardment, in Germany, at least, that stone would then have to be stored for about eighteen months before it could be offered for sale. Yet the half-life of an ekanite is in the order of 1.4 x (10) 10th power years and it emits about ten times as much radiation as a newly irradiated topaz.

The experience of one of my friends is what brought me to write this story. At the Hamburg Gem and Mineral Show I was just discussing with a customer the question whether two otherwise similar ekanites might emit different strengths of radiation. My friend Klaus K., who was listening to our conversation, was, as a mineral "layman," quite astonished to discover that here, at a mineral show, "radioactive materials" could be freely bought and sold.

A few days later he called me and came back to the topic. At another show booth he'd observed the sale of a larger crystal aggregate, which also, according to the dealer, was radioactive to some degree. Klaus K.'s 12 year old son meanwhile had noticed a few grains of the material which had crumbled off during packaging and had put these in his pocket. Back at home, Klaus K. got out his Geiger counter and registered 80 times background levels coming from the crumbs in his son's trousers pocket. Immediately he threw the crumbs into the garbage. Then he went outside and brushed out the pocket, and later washed the trousers. And yet even after being laundered, the pocket still emitted radiation.

Klaus K. Wanted information from me about the dealer, with the intent of notifying the police and having him charged. After this phone call, one thing was clear to me - no gemmological laboratory should be without an instrument for measuring radiation. Thus, I acquired a Geiger counter.

Having familiarized myself with its operation, I began testing all sorts of household objects: red tiles with a lead glaze, granites from Norway, cheese from Holland that was said to have been irradiated, and much more, including all my gemstones and in particular the ekanites that I was storing in lead boxes. What hit me like a ton of bricks though was when I set the probe down on my desktop and the counter began to sound off like crazy. The cause—a coffee bean sized black stone in my desk drawer.

Instantly my thoughts carried me back to the street market in Ratnapurna, Sri Lanka. Dealers tugging at my sleeves urge me to buy this, that, and the other thing. Most of it holds no interest for me. One of the dealers though holds a black bean-size crystal in his hand. "Cat's eye rutile," he says. I doubt this, somehow, but since I myself am not sure of what it might be, I enquire about the price and we agree that he will have three stones cut for me from the unknown rough.

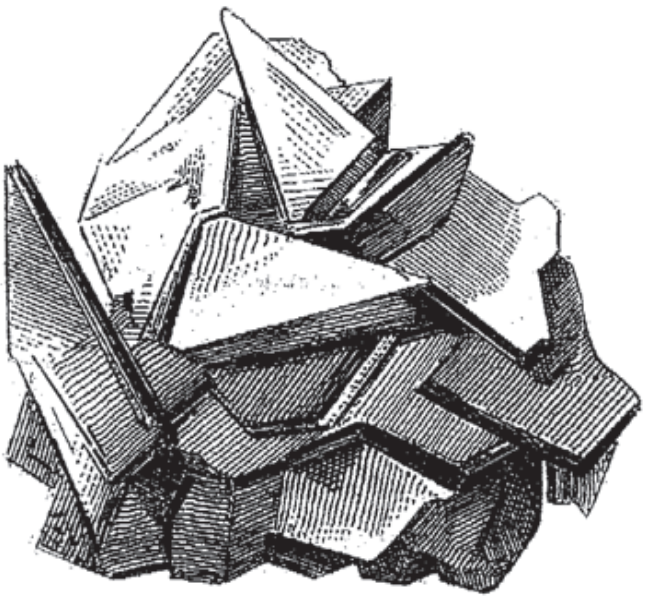
I then carry these three gems and a small piece of remaining rough in my backpack through India, Thailand, Singapore and Hong Kong, all the way back to Germany. There, I give a colleague a sample and

ask him for his assistance in determining the identity of this unusually heavy stone. It's one of these which has been lying in my desk drawer for the past six months, and suddenly, its identity dawns on me: Uraninite.

It sounds like a harmless diminuitive, but if those unsuspecting cutters in Sri Lanka who cut the three stones inhaled even a grain of it into their lungs, their wives may well be widows now and their children orphans. Uraninite is far more radioactive than ekanite.

I don't even dare think of what might happen to someone who were to wear such a shiny black metallic stone as a ring or a pendant. It really would be a stone of evil luck!

And by the way... to the postal employee who in December 1995 stole a small green gemstone from a registered mail shipment to South Germany, I wish him lots of luck!



Intergem, Idar-Oberstein

By Andrew Danneffel and Tanya Hazzard

On Saturday October 6th, 2007, we attended the Intergem 2007 show in Idar-Oberstein, Germany. The show featured approximately 150 dealers—mostly from Germany and other parts of Europe. The focus of this show was professionally faceted gemstones and jewellery. In addition to gemstones, beads and beading supplies were also heavily featured.

The most popular lapidary stones being sold in jewellery included labradorite, crystal druzies (cobalt calcite, uvarovite garnet) Australian opals, pink opal from Peru and lapis lazuli from Afghanistan. There were also a fair number of amber pieces on display.

The show was most certainly structured as "high class"—the rather complex registration tables and entry fee (16 Euros per person) suggested this upon entry. Dealers were very well dressed. The prices were significant and also indicative of this philosophy. If you are a jeweller or faceter this show is a must see—you will be dazzled by the rarity, cuts, and colors of the gems and enjoy talking to the artisans or possibly purchasing some high quality rough material for working on your own. If however you are a lapidary artist looking for slabs and other rough stones for cutting cabochons, you'll have better luck at the British Columbia Lapidary Society's Abbotsford show in April.

The streets of Idar-Oberstein are also a must see. You will be amazed to find street after street of jewellery and rock shops. The town also features an ancient castle and a church built into the mountainside. While the agate mine in Idar-Oberstein that once gave the town its name is now abandoned, one can still find a variety of agates in the region.

Are there Any Good Rocks in Korea?

By De Morgan

We searched the market place and found bright green “Jade”, obviously colour enhanced.

A thorough reading of our guidebook produced a boxed off section called “Visit a Korean Jade Mine” We navigated our way through the complex 8-line subway system in Seoul, and found an outlet store and spa where the whitish green, sodium rich Korean jadite was carved, made into jewelry, and other enticing items to purchase. In the store, someone was lying on a bed of jade, as it is purported to have healing qualities. In the spa, hot water tumbled over jade stones to produce a similar healing effect. We came away many won lighter, and with a few jade treasures. Bob and I reached for the most colourful pieces with the deepest green, while the Koreans wisely smiled, knowing that the most valuable pieces are the more white specimens. The owner of the spa spoke English, and lives in White Rock with his family. It’s a small world!

(Our trip to Chuncheon, to see the actual mine was a bust, as Bob “lost” his wallet, and we had to deal with police reports and cancellation of credit cards)

Our next rock encounter was in the market place. My sharp-eyed husband spotted a carved alligator—a lovely large specimen. As well, the same shop had a rusty coloured, oval 10 inch jade boulder, tumbled by a stream in Burma. The translucent jadite had been intricately carved with a finely detailed dragon on one side, and is beautiful.

We flew to the Korean’s holiday island of Jeju-do (je’-joo-doe), where the prolific mandarin groves are ready to be picked for shipping over to the markets in Canada, just in time for Christmas.

Our first sight seeing stop was one of the large lava tubes called Manjan-gul. We missed the bus stop, and were miles from anywhere when the bus driver let us off. Bewildered, we asked directions from a local farmer who was in the midst of repairing his John Deere. He was amazed that we planned to walk back, and drove us back up the highway, a LONG walk back, and dropped us off at the entrance to the lava tube. It was literally a tube of about 15 to 20 feet in diameter, and 700 metres long. Small lights inside the tube allowed us to see the ropy lava river that had once poured along the bottom of the tube. The walls were smoothed lumps and dripping patterns in this particular cave. (However, the cave with the limestone stalactites was closed.)

After walking the first 400 metres of the lava tube, we were turned back to the entrance. We visited the tourist shop, where Bob purchased a stone man carved from the vesicular lava. He said it looked like a friend of his!

We walked back to the highway to catch a bus, and enjoyed the balmy fall weather of about 18 to 20 degrees. We noticed that the fields are sectioned off for each family by fences made of stacked pieces of the vesicular lava that was so prolific on the island.

The bus to the Sangsan Ilchaban came along very quickly, and we hopped on. Sangsan Ilchaban (crater) is like a pilgrimage, as hundreds of Koreans climbed to the top. In fact, everywhere you go, there are lots of people. The population is 10 million in Seoul alone, so the population density does not allow for the personal space to which we are accustomed.

We had lunch. (bibimpbab—rice with veggies and hot sauce, topped with a sizzling egg, served with side dishes of pickled radish and kimchi). Thus invigorated, we went for a climb up the side of the crater. Many

steps later, and inspired by the magnificent views of the ocean and volcanic cones around us, we arrived at the top. The view clearly gave us the origin of the island. The largest cone in the centre of the island is Hallasam. Surrounding it, are other, smaller, satellite hydrovolcanic cones, that dotted the landscape and some of which formed right at the edge of the island.

The inside of the crater was a bowl of green trees and bushes. The wind whipped up the whitecaps on the blue ocean, and the views from the top made it well worth the climb.

The next day was a tough one. We climbed the 700 metres to the top of the trail on Hallasam, the largest volcanic cone on the island. Hundreds of school children were on a picnic, and climbed along with us, chatting and puffing as they went. At the top of the 4.7 km trail were sparkling frost-covered bushes, and an undulating boardwalk along the alpine meadow ridge. The trail was marked with signs showing the flora and fauna found there in the different seasons. Where it may have been boggy, there were boardwalks with stops for the clear, fresh mountain water, flowing from mountain springs. A dipper was supplied for the thirsty climbers to share at each spring.

Once at the top, the typical oriental noodles were sold. We had our lunch, and returned on the 3.2 km trail downward. We could see spectacular views of the farmlands and trees below as we made our decent. There were “hoo doos” along the ridge in artistic formations, and many of the bright red maples, commonly found on the island.

Our final day we visited a Jungman beach with its golden sand and clear faces of black columnar basalt guarding each end of the cove. A waterfall splashed down the side of one of the columns, and palm trees dotted the shoreline. Warm. Cerelean blue water. Idealic.

We reluctantly shook ourselves upward, and loaded up our packs, to the next stop—the remarkable Yongmari Coast, one of the “Must sees” on the island.

Here the volcanic cliffs, eroded by wind and sea spray, have formed fascinating, artistic shapes. We were able to walk around the edge of the cliffs for several hundred metres, hopping over sections that had been encroached upon by the sea. Someone had a net placed, hoping to catch shellfish, and older Korean ladies sat with their bowls filled with shellfish and sea snails for sale.

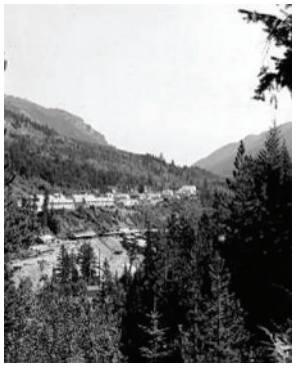
Are there any good rocks in Korea? Yes, and mainly volcanic, but it’s a very interesting place to visit. We had a good holiday and enjoyed the change of scenery.

Bralorne & Pioneer Mine

The Early Years

BC Archives # C-08635—Main stope of the Bralorne Mine

Bralorne was once the richest gold mine in Canada's history and is one of the world's deepest delvings—the main "stope" (horizontal entry) in the front centre of the picture on the left is at elevation 3400 ft. above sea level; inside the mountain the deepest parts of the mine go to over a mile below sea level. When Bralorne and Pioneer Mines were merged, their tunnel systems were integrated although it was not until recently that it was discovered that the discrepancies in the tunnel surveys had concealed the fact that a cubic mile of mountain in between the two mines had not been explored! Throughout the vicinity of Bralorne, the presence of hidden air shafts and other old openings into the mine make casual hiking extremely dangerous, so if you pay a visit be very careful while walking in the bush. The valley's busiest times were from the 1930s to the early '60s, and at its peak the population of the Bridge River goldfields towns was well over 10,000—larger than today's Lillooet, and comparable to Squamish of only a few years ago. Most of the Pioneer townsite was torn down immediately following the mine's closing in 1971 (to keep the hippies from taking it over), but Bralorne has hung on in the form of a retirement and recreation town—with huge skiing potential—and throughout the area, abandoned side roads lead to older dwellings and industrial buildings. Both pictures below are of the No. 1 Townsite, which contained most of the major commercial buildings as well as the Royal Canadian Legion, Community Hall, and fire hall; the workyard of the main stope is in the foreground in the picture on the right, and immediately below and to the right of the camera in the picture on the left, which was taken at the junction of the main Bralorne road with the one leading down to the Cadwallader Creek bridge and the mine's main yard (and, before recent improvements, to the wild track of the Hurley Main road to the Pemberton Valley). Note that the name "Bridge River" on the road sign refers to the BC Hydro townsite at Shalalth



BC Archives # I-29096—Bralorne Mine buildings & #1 townsite

Strange as it may seem for such a remote if once-thriving town, but Bralorne is a crossroads, even if two of the roads eventually lead to nowhere; well, not quite nowhere, but they do fade off into "goat tracks", one towards McGillivray Pass, the other towards the Hurley Main Road; you can still get through on the latter, at the risk of your muffler and an engine mount or two. From the signpost at left, which stands where the main road from Gold Bridge and Brexton leaves Bralorne's "suburb" of Ogden, is at the head of a steep descent to the Cadwallader Creek bridge and the mine gates and workyards, the main road into town continuing to become the main street hidden between the buildings at centre left. Town continues up the side of the valley as visible at right, with a further more residential area—"Second Townsite", which also held the hospital and school and church—around the next bend in the valley; a switchback beyond that

BC Archives # C-08636—Junction sign & view of Bralorne #1 townsite

BC Archives # A-09595—Original Noel cabin above Bralorne

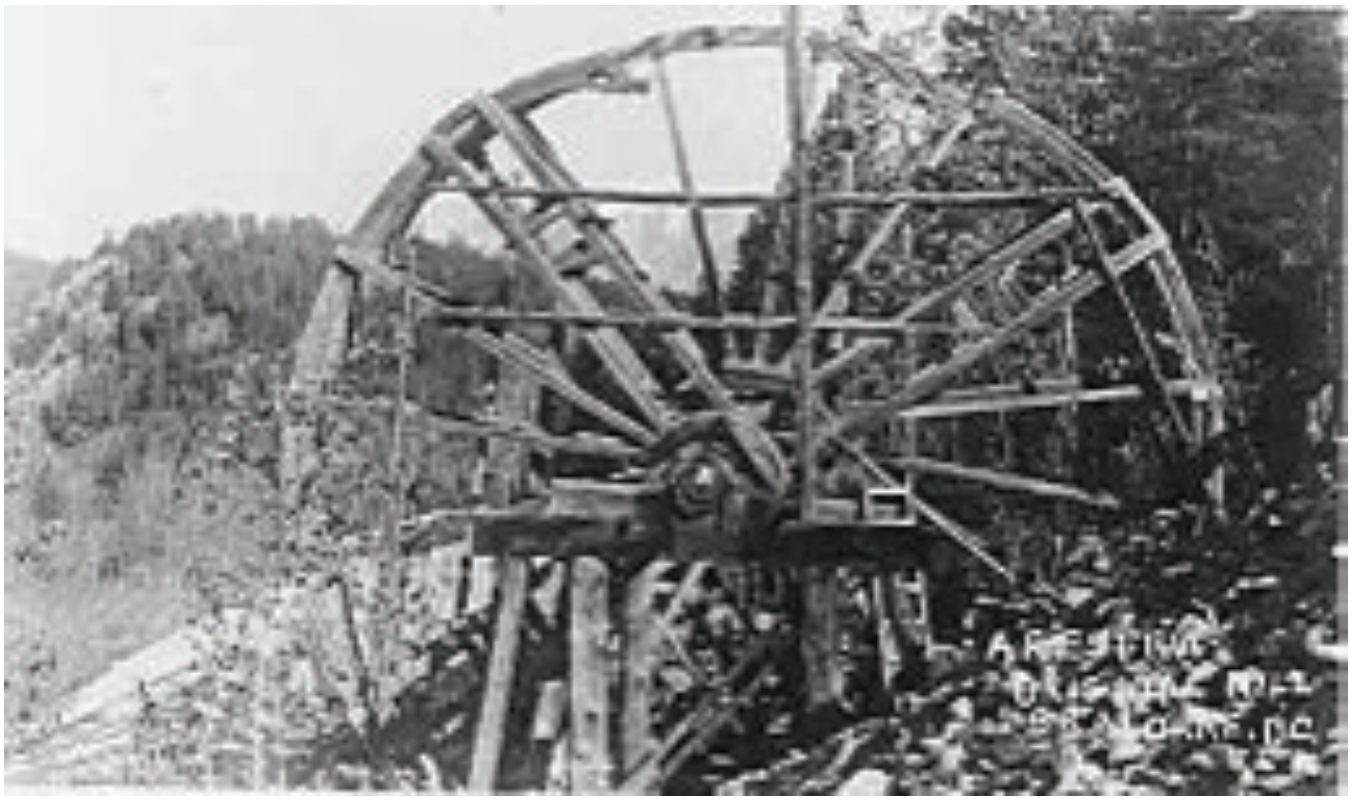
BC Archives # I-29085—Train entering Bralorne Mine main portal

leads to "Third Townsite", usually known as Bradian, and eventually to the then-busy town of Pioneer Mine, which was the first of the big deep hardrock mines in the Bendor Range. All these views are much-changed today due to the disappearance of many buildings, and the logging of the main mountainsides visible at left. The view at right was taken from up the mountainside in an area known as Honeymoon Hollow, which was outside the minetown boundaries and still has a number of private residences; the four-by-four track that continues on from here leads to Hurley Falls and was the original route into the Hurley Main before the new road was built over Gwyneth Lake from Gold Bridge.

The Bridge River Country remained virtually unexplored by non-natives until near the end of the 19th Century, its mountainous ramparts and canyoned gates keeping out idle adventurers as well as the many, many prospectors who would otherwise have explored the valley for the motherlode of Fraser placer gold that was believed to lie in the Bridge River headwaters. Even today the difficulty of physical approach to the valley helps preserve tits isolation to a certain degree, despite the building of new roads into the district via the Bridge River Canyon and Railway Pass in addition to the old goldfields road via Mission Pass from Shalalth. But also keeping out prospectors and settlers rather more directly than mere physical obstacles was Chief Hunter Jack of Shalalth, who claimed the valley as his own and is said to have been promised it as his personal domain during a visit by British Admiral Seymour in the 1870s, who was one of his many high-class outfitting clients. Hunter Jack's legendary placer mine was said to be in the Bridge River Country, which was the reason he so jealously protected his territory from prospectors and what would follow, although certain individuals such as Arthur Noel and Lazack Lajoie took up these activities in the time of Hunter Jack's dominion over the valley, which ended by his death at Seton Lake under mysterious circumstances c.1919. The cabin at top left is said to have been the earliest built in the upper Bridge River basin and was located in the Gun Creek area, near Minto City. As it is rough-built in the Indian style, it was likely of Hunter Jack's own construction—unless it was one of the cabins of first non-native settler, Lazack Lajoie, although his residence was supposed to be over by Little Gun Lake. Hunters and prospectors in the valley had to pay their respects to Hunter Jack, if they were tolerated at all—and many were not. During the gold fever in the region surrounding the development of the Golden Cache Mine at Lillooet in 1898, a new wave of prospecting talent began to roam into the area, which was barely on the map for the first time—literally; older maps show rough-drawn lakes and little more, based on hearsay but no actual surveys. Placer rewards were rich in the region, but ultimately investigations of hard rock potentials had spectacular results. The picture at upper left is of the first drift of the Lorne-Pioneer Mine in 1898 on the banks of Cadwallader Creek, which was the foundation of the huge Bralorne-Pioneer Mine complex for which the valley became famous. Pictures further below are of the main stope and entrance portal of the Bralorne Mine, which was developed in the 1930s a

BC Archives # I-29094—Ore train underground Bralorne Mine

BC Archives # F-08584—Officials with gold brick from the Bralorne Mine



few miles downstream from the original Pioneer Mine, major development of which had taken place just prior to the onset of World War I. Bralorne's wealth was vast—three hundred and seventy million 1930s dollars in half a dozen years, and it kept on producing until 1971 when it was shut down due to engineering difficulties concerning the mine's increasing depth—over a mile below sea level, from an entry at 3400' above. It has recently been re-opened because of engineering advances in the region, as well as changes in gold markets and resurveying of the subsurface geology in the region.

C Archives # I-29087—View of Pioneer Mine main buildings.

This is how the entry to Pioneer Mine looked in its heyday; I'll post a parallel view of it as it stands today (in ruins) shortly. The residential and commercial parts of the town lay beyond the buildings visible, as well as above on the left; Pioneer lies in a narrowing of the valley of Cadwallader Creek and its upper neighbourhoods verge on the alpine meadows and flanking ridge of the Bendor Range's Mount Ferguson. Pioneer was the first of the great Bridge River mines to boom and build a company town—in the 1920s—and eventually was merged with the nearby Bralorne diggings and townsites, to which community it was effectively the uppermost neighbourhood. Although some of the mine structures still (just barely) stand, nearly all of the townsite's residential and commercial buildings were demolished at the town's abandonment in the early'70s—to prevent a takeover by hippie promoters in Vancouver who wanted to settle Bralorne-Pioneer's emptied houses with pioneers of the counterculture variety. Since then, Bralorne has been eyed repeatedly for its high skiing potentials and expanses of develpable land but its isolation from major highways kept it a semi-inhabited ghost town with a small core of permanent residents and vacation owners—and a very proud identity rooted in the history of the mines and their towns. As logging activity expanded in the region even as tourism plans were repeatedly stymied, houses in Bralorne were bought up by visiting loggers and the town's population has grown a bit, although it's still pretty quiet. Recent re-opening of the main Bralorne mine in the midst of a general increase in mining activity in the Bridge River Country are expected to herald a rebirth of the town of Bralorne. Skiing and other forms of tourism are bound to spur further growth—market pressures and the area's proximity to the Whistler-

Pemberton tourism region and the recent promise that the once-forbidding gates of Railway Pass would soon be kept open year-round to give the Bridge River Country the greater access to the nearby Coast and Highway 99 Corridor that it has always wanted.

The famous “Arrastra”, or water-driven rock-crusher, today lies on its side in the undergrowth but was a noted symbol of the Bridge River goldfields for many years, dating from the earliest years of the mine’s workings (which is why I chose its picture and setting for the top of this page. During the first eight years of the mine’s opening in the early1930’s, the value of the gold ore extracted was over $370,000,000, and the extraordinary quality of the ore—rock quartz studded with huge nuggets—was without equal. Engineering difficulties to do with the mine’s increasing depth led to its closing in 1971, although advances in technology and changes in world gold markets have led to the mine’s recent re-opening. During its heyday, Bralorne-Pioneer was the largest town in the Squamish-Lillooet Regional District with around 10,000 residents (more than today’s Lillooet). Both these photos are postcards by pioneer photographer Artie Phair; the picture on the left is of the main mine buildings and the “first townsite” of Bralorne’s chain of three that extend up the Cadwallader Valley to Pioneer. The view of the arrastra featured at the top of this page, with Mt. Sloan and the Frost Fiend behind (Bralorne is immediately below), and is perhaps the most evocative image of the old rock-mill:

BC Archives # D-07821—The old Arrastra with the Sloan Range in the background.

Interesting Websites

http://geology.about.com/library/bl/images/blrockindex.htm

http://geology.about.com/library/bl/images/blmineralindex.htm

http://www.gac-cs.ca/media/pdfs/geostories/GentleGiant.pdf

http://gsc.nrcan.gc.ca/volcanoes/index_e.php

Top 10 Gemstone Special Effects

From Andrew Alden,

Gemstones are more than just shiny, colored stones—some of them also have certain optical "special effects." These special effects, which are inherent in the mineral, are called "phenomena" by gemologists. Skillful gemcutting and techniques of the jewelry designer can bring out these special effects to their fullest, when desirable, or hide them when undesirable.

1) Fire

The special effect called fire by diamond cutters is due to dispersion, the ability of the stone to draw light apart into its constituent colors. This works just like the glass prism that unfolds sunlight into the rainbow by refraction. The fire of a diamond refers to the coloration of its bright highlights. Of the major gemstone minerals, only diamond and zircon have strong enough refractive properties to produce distinct fire, but other stones such as benitoite and sphalerite show it too.

2) Schiller

Schiller is also known as play of color, in which the interior of a stone displays flickers of color as it is moved in the light. Opal is especially valued for this trait. There is no actual object inside the stone. This special effect arises from light interference within the microstructure of the mineral.

3) Fluorescence

Fluorescence is the ability of a mineral to turn incoming light of ultraviolet color into light of a visible color. The special effect is familiar if you've ever played in the dark with a blacklight. Many diamonds have a blue fluorescence that can make a pale yellow stone look whiter, which is desirable. Some Southeast Asian rubies (corundum) fluoresce red, giving their color an extra glowing redness and accounting for the high price of the best Burmese stones.

4) Labradorescence

Labradorite has become a popular stone because of this special effect, a dramatic flash of blue and golden color as the stone is moved in the light. It arises from light interference within microscopically thin layers of twinned crystals. The sizes and orientations of these twin lamellae are consistent in this feldspar mineral, thus the colors are limited and strongly directional.

5) Change of color

Certain tourmalines and the gemstone alexandrite absorb certain wavelengths of light so strongly that in sunlight and indoor light they appear different colors. Change of color is not the same as the changes in color with crystal orientation that affects tourmaline and iolite, which are due to the optical property called pleochroism.

6) Iridescence

Iridescence refers to all sorts of rainbow effects, and in fact schiller and labradorescence can be considered varieties of iridescence. It is most familiar in mother-of-pearl, but it is also found in fire agate and some obsidian as well as many artificial gems and jewelry. Iridescence arises from the self-interference of light in microscopically thin layers of material.

7) Opalescence

Opalescence is also called adularescence and milkiness in other minerals. The cause is the same in all: subtle iridescence caused by scattering of light within the stone by thin microcrystalline layers. It can be a white haziness or soft colorations. Opal, moonstone (adularia), agate and milky quartz are the gemstones best known for this special effect.

8) Aventurescence

Inclusions in a gemstone are usually considered flaws. But in the right kind and size, inclusions create internal sparkles, particularly in quartz (aventurine) where the special effect is called aventurescence. Thousands of tiny flakes of mica or hematite can turn plain quartz into a glittering rarity or feldspar into sunstone.

9) Chatoyancy

When impurity minerals occur in fibers, they give gemstones a silky appearance. When the fibers line up along one of the crystalline axes, a stone can be cut to display a bright reflective line—a special effect called cat's-eye. "Chatoyance" is French for cat's-eye. The most common cat'seye gemstone is quartz, with traces of the fibrous mineral crocidolite (as seen in tiger iron). The version in chrysoberyl is the most precious, and is called simply cat'seye.

10) Asterism

When fibrous inclusions align on all of the crystal axes, the cat'seye effect can appear in two or three directions at once. Such a stone, cut properly in a high dome, displays the special effect called asterism. Star sapphire (corundum) is the best-known gemstone with asterism, but other minerals occasionally show it too.

Geologist discovers Martian mineral

Tuesday October 02, 2007

A Queen's University researcher's surprising discovery—made first in his garage and later verified through field work—has resulted in the naming of a new mineral species that may exist on Mars, and has caught the attention of the NASA space program.

Geologist Ron Peterson's findings will be reported in the October issue of the journal, American Mineralogist. Dr. Peterson, who was invited to Houston last fall to present his original findings at the Johnson Space Center, continues to work with NASA scientists on Mars research.

The new mineral, meridianiite, is unusual because it is a planetary mineral and also thought to exist on the moons of Jupiter.

Also on the research team are Bruce Madu from the B.C. Ministry of Energy, Mines, and Petroleum Resources, Queen's Chemistry Professor Herb Shurvell, and high school student Will Nelson, from Ascroft, B.C.

The Queen's discovery was inspired by information sent back from Mars by the Mars Exploration Rover (MER), Opportunity, indicating that magnesium sulfate is present on that planet's surface. The rover also sent back photographs of voids in rocks that are thought to have originally contained crystals.

This supports the team's theory that regions of Mars were once covered with water, which later froze and then evaporated, leaving a residue of crystal molds in the sediment.

Based on these observations, in the winter of 2005, Dr. Peterson left a solution of drugstore epsom salts (hydrated magnesium sulfate) to crystallize in his unheated garage for several days. He then rushed the frozen crystals to a Queen's chemistry lab, where experiments showed them to be an unusual form of magnesium sulfate that displayed some of the same properties reported earlier by Mars rovers.

Dr. Peterson wondered whether the same mineral might be found on Earth. In the fall of 2006 he located some ponds near Ashcroft in B.C., from which magnesium sulfate had once been mined. He then enlisted the help of a local high-school chemistry student to send him mineral samples from the ponds, by mail, throughout the fall.

In February 2007 Dr. Peterson visited the frozen ponds himself, and brought back crystals in a cooler packed with dry ice. These natural crystals were put through a series of tests, and in June meridianiite was approved as a new valid mineral species by the Commission on New Mineral names and Mineral

Nomenclature of the International Mineralogical Association.

"The name was chosen to reflect the locality on Mars where a rover had observed crystal molds in sedimentary rock that are thought to be caused by minerals that have since dehydrated or dissolved," says Dr. Peterson. "Observations obtained by using the rover wheels to dig trenches into the Martian soil show that magnesium sulfate minerals have been deposited below the surface."

Between 20 and 30 new minerals are identified each year, the researcher notes, but "these often involve rare elements." Meridianiite, on the other hand, is formed from the common materials magnesium, sulfate and water.

A geologist who normally studies mine waste, Dr. Peterson admits he has been a "space geek" since childhood, and says that working on this project has been exciting. "It began with a moment of insight—based on my previous geological experience—and now I have the chance to collaborate with experts from around the world who are studying the geology of the Martian surface."

Cullinan Mine Visit

Lisa Elser & Tom Schlegel

On our recent trip to South Africa, we found ourselves with a free morning of idle time. What better way to fill it than a visit to the Cullinan Diamond Mine owned by De Beers located in the town of Cullinan, 40 kilometers east of Pretoria and 90 kilometers northeast of Johannesburg in South Africa.

The lure of the place is that three of the world's largest diamonds were found in Cullinan Village. Renowned for its famous De Beers Cullinan Diamond Mine, still in continuous operation, this village is a living museum with a range of historic Herbert Baker architectural structures.

The Premier Diamond Mine was established in 1902, and was renamed the Cullinan Diamond Mine in November 2003 in celebration of its centenary.

It is one of the few diamond mines in the world that allow tours of an actual operating mine. Most tours consist of a two hour visit to the village and the surface operations of the mine with a short video on the underground mining operations. You get to see piles of rough (uncut) diamonds and replicas of famous stones, walk past the winding engine house and headgear, and have a close up look into the "Big Hole".

The "Big Hole" is now nearly 1000 m long and 400 m wide at the surface, and narrowing down to 21 ha at the -500 m level. It was mined to a depth of 190 m from surface and is now being mined by underground block caving. The longer tour (advance booking is required) allows you to don a tin hat and burrow 763 metres underground into the darkened interiors of the mine. All tours finish up at the "factory" they demonstrate the process of cutting, polishing and setting of diamonds – which of course are for sale!

The village of Cullinan was established in 1903 to provide mine housing and services for the Premier Mine. It still serves this purpose but retains the old mine village character and is well conserved as a living museum. There are many historic stone and corrugated iron buildings dating from the 1900s including churches, miners houses and mine offices. Nearby is the Zonderwater prison that was used to accommodate large numbers of Italian prisoners-of-war during World War II.

The Cullinan Diamond Mine is located on a rich diamond-bearing kimberlite pipe at Cullinan. The pipe is carrot-shaped volcanic neck originating from great depths within the Earth and is the largest in South Africa. The name "kimberlite' comes from the city of Kimberley in the Northern Cape from where this very unusual rock type was first mined in 1871 as "yellow ground" at what is now Kimberley's "Big Hole".

Thomas Cullinan an amateur geologist, discovered the Premier kimberlite in 1898. His attention was drawn to the area by the alluvial diamonds that were being found in nearby stream. Mining started in 1903 and in the first year of operation over 100 000 carats were recovered. It is still one of South Africa's largest and most productive diamond mines. All production is now from underground.

Some of the large diamonds found here are:

- The Golden Jubilee, 545.65 carats, cut from a 755.50 carat rough diamond.
- The Niarches, 128 carat, cut from a 426 carat rough diamond.
- The Centenary, 273.83 carat, cut from a 599.10 carat rough diamond.
- The Taylor-Burton, 62.40 carat, cut from a 240.80 carat rough diamond.

Amongst all the large diamonds found on this mine, the Cullinan reigns supreme.

The Cullinan Diamond was discovered in 1905, just two years after mining operations commenced. It weighed 3106 carats, was 10 cm long, 6 cm high and 5 cm thick and by far the largest diamond ever found. The original stone was cut into nine large stones and 96 smaller brilliants. The four largest stones are known as “The Stars of Africa”. Cullinan I or the “Great Star of Africa” is the largest at 530.2 carats. All nine large stones are either in the Crown Jewels or are owned by the British Royal Family.

The mine is the third largest diamond producer in South Africa with an annual production of around 1.6 million carats, of which 20% are gems stones. The mine is renowned for the large diamonds that it produces and has produced over 300 stones greater than 100 carats and more than a quarter of the entire world’s stones larger than 400 carats.

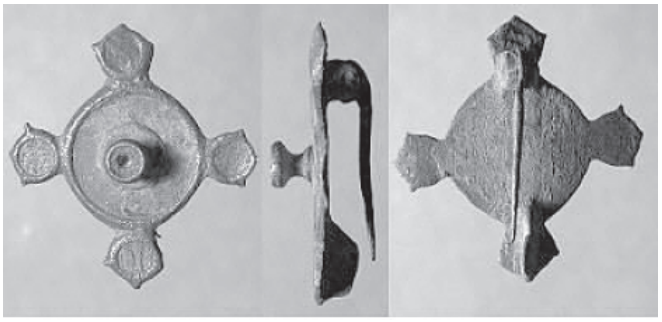
Oh by the way, if you happen to have about $1-billion USD laying around—you can own the Cullinan Diamond Mine! In February 2007, De Beers announced plans to sell it’s most famous diamond mine. Because the Cullinan mine is an established operation with well-researched reserves, it is attractive to many smaller, low-overhead diamond producers. De Beers has been conducting a series of screening of potential bidders so hurry up and submit your offer.

The move by De Beers to sell the Cullinan mine is a sign of the times with mature diamond mines. The Cullinan Diamond Mine is marginally economic/subeconomic at a value of ore per tonne of only 17.5 USD, particularly when compared to the recent mine developments in NW Canada with 200-800 USD/tonne ore.

As operations must shift from open-pit/open-cast to more capital-intensive underground operations, the cost of mining will only go up further. Open pit mining stopped in 1945 and underground open-cast mining began to it’s current to a depth of 186 metres. De Beers was luckly since the consistently strong side walls of country rock permitted the open pit mine to be converted into an underground operation fairly simply. The Premier pipe is elliptical at the mouth, about 853 x 427 metres and in the centre of the upper regions is a huge block of quartzite which divides it into two down to over 305 metres. In the 1970s work began to remove this floating reef by blasting, and now, mining will continue into the main oval-shaped kimberlite pipe at a depth of 800 metres from the surface. Projections show that current reserves in this pipe will be depleted in 2012.

The mine is attracting serious buyers due to a block cave mining plan De Beers calls the Centenary Cut, which takes underground mining to a depth exceeding 1,000 metres, and extends the life of the mine by a quarter century. On completion, the new facility will more than double the current production. Once sinking operations commence, undercutting will begin about four years later. Full production is expected within seven years.

History of Brooches



A good sized plate brooch with tall central boss and for circular lugs around the outside. Some traces of the blue and red enamel remain. 1st-2nd century AD. 38 mm diameter and complete with pin. An attractive piece.

Brooches or fibulae are perhaps the oldest type of jewelry. When man first took to wearing something more than a loin cloth, there emanated the necessity of holding the cloth together. The thorn was probably the first of these pins, with pins of other material, like flint, found in the caves of the Paleolithic age. Pins of bronze were in common use during the bronze age.

There are several distinct types of brooches, not only in design, but in the fastening mechanism. The earliest known of these was the “safety-pin” form. This brooch had a pin, hinge, spring and bow all in one place. If a brooch is not a bow shaped, but round it is called “annular”. A “discoidal” brooch has a solid plaque or ornamental face with a simple pin and hook in the back. The “pen annular” pin was developed by the Celts and had a gap in the ring.

The original roman brooch was the spina, which was a thorn or anything like a thorn. Then, along with the Greeks and Etruscans, the Romans used a safety-pin type almost exclusively. Before the Romans advanced to Britain, the populace of the British Isles wore fibulae of one piece. The typical harp shape of the later Britons only came into being during the Romano British period.

The earliest and most important influence on the development of the brooch came from the Byzantines. Their oriental taste for color produced many brightly enameled brooches. The nomadic barbarian tribes quickly carried this new art along trade and emigration routes. It soon became apparent as far away as Britain. The Byzantine brooches were of a discoidal nature, with each plaque made of hundreds of small coils. The period of pure Byzantine influence extended from the sixth to the tenth century.

The early Christian period made a great advance in its effect on brooches throughout the fifth and sixth centuries. Its influence brought the addition of symbols and inscriptions to the necessary brooch, helping along with the Byzantines, to push the brooch towards its ornamental character.

During the seventeenth century, the brooch made great strides in its size. With the increase in size came more area in which to freely use enamels and amber.

In Ireland from the ninth to the thirteenth century, the pen annular reached its point of perfection. This is evidenced in the Tara brooch, beautifully decorated gold with enamels and cabochon stones. The pin of the pen annular always pointed upwards when worn. Then the ring was twisted to hold the pin in place with the pressure of the material.

Even Scandinavia made contributions in the design of brooches, for they were of a great necessity with the heavy garments of the cold recesses of the north. Their brooches became fully developed in the latter iron age, when they took on an extraordinarily large and heavy appearance. Their most distinctive type was the tortoise or Viking brooch. These were made of tortoise shell, but so named because of their oval shape worked in solid bronze.

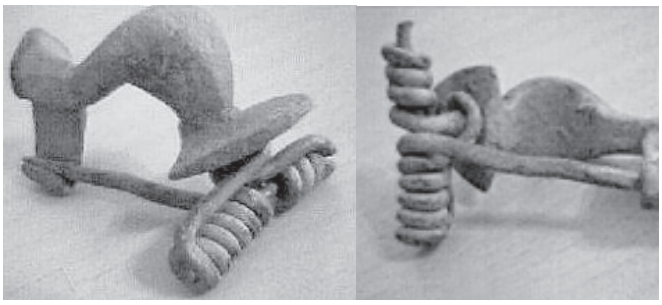
With the middle ages came a change in the manner of dress and so a lessening of the necessity of a dress fastener and the growth of the brooch as an ornament. Some styles prescribed the wearing of small brooches all over one’s clothing. The English and French used brooches with a ring and hinged pin. Jewels were popular to offset the look of the heavy metal. The ecclesiastical influence produced mottoes for decoration, usually of a religious or amatory character.

By the fifteenth century the discoidal brooch was the most universally worn and has continued to be so for the next five centuries. The discoidal face has varied in shape, sometimes is a solid or openwork design, but “the characteristic of having hinge, pin and catch on the back of a flattish ornamented front were retained.” The sixteenth century produced even more enameled gold in designs of figures and animals .

The use of large stones became scarce in the seventeenth century. In its place came groups of flowers made of gold and silver openwork set with smaller stones. These bouquets of flowers were set in a basket or vase, with the back of the brooch engraved in accordance with the front.

“The age of gems” revived the use of stones set in gold. The eighteenth century brooch became a geometrical arrangement of small stones grouped around a larger one. Pearls made up the most popular brooch called the “girandole.” It was a type of formal, flower arrangement of a large center ornament with three hanging pearls. There are variations, but the basic form is a knot of ribbon, with flowers and other ornaments. Their popularity combined with the scarcity of large pearls led to the use of imitation pearls set along with real gems.

The change from colored stones in the late eighteenth century to the use of silver set



A nice bronze Roman fibula brooch complete with pin.

with diamonds and pearls also affected the brooch. From 1780 onwards, small works of art became popular. Miniature portraits and Wedgwood cameos were surrounded by diamonds or pearls to follow the fashion.

There were utilitarian brooches in the eighteenth century that closely trace the fashion of clothing. These were built upon the safety-pin type of catch. Useful brooches were of smaller size to better serve as lace pins to secure finery worn all times of the day. These useful pins were wrought of gold, silver, pinchbeck, but no matter of their settings the stones were most often not of great value.

The nineteenth century brooch took on many looks, as did the rest of the jewelry created. Early in the century, brooches began to look like the lace that many of them held, with mixed wire-work and fancy stones. Later, the vogue was a brooch made with pavé turquoise and tiny seed pearls threaded on horsehair. Throughout the next century, brooches, as with all jewels, closely followed the latest fashion.

Using Opticon to fill pit in Cabachons

Q: Just a quick question, what's a good filler for cabs that have chipped, have natural pits or where soft material has undercut?

The specimens I have are mostly onyx, agates, jaspers & petrified wood. I've seen Epoxy 300 listed in a catalogue; it dries clear and takes a polish. Does anyone use this?

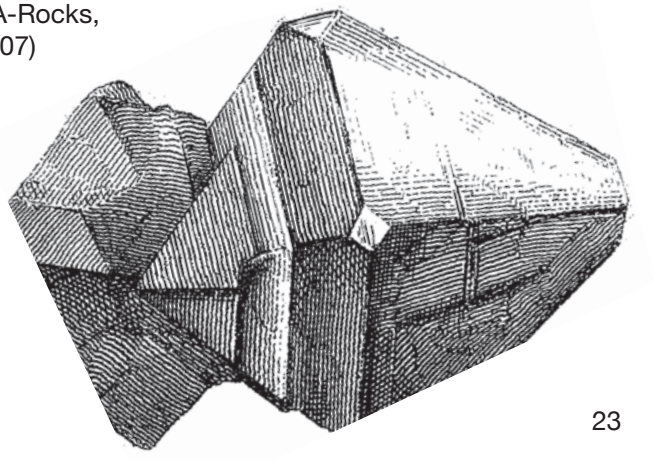
Any other fillers? Any recommendations, other than avoiding cabbing pieces like that?

A: As to your question about filling pits in cabochons, I have used Opticon (a thin, two-part epoxy) in the past, but might now be tempted to try one of the more modem thin superglues. I have used superglue a couple of times recently as a wood finish on several items and had excellent results. Opticon is available from Rio Grande and other lapidary catalogs. If you can't wait, I've heard you can thin down regular epoxy resin with acetone, but haven't tried this myself.

For filling pits in rocks, a thin compound is important in order to get as far into the pits as possible. A gentle heat or a vacuum chamber helps a lot. To use Opticon, finish your cab to the last stage of sanding, put it into a small disposable dish (I use aluminum foil or the bottom of a plastic bottle), cover it with the Opticon resin, and place it in a warm place for 4-5 hours. The heat from a light bulb keeps the cab at around 120° F and helps the resin to creep into all the pits. I put the dish on top of a floor lamp. A gooseneck desk lamp should work, also. I find that my kitchen oven, even on low, is too hot.

When the cab is done soaking, I lift it out, pour the excess resin back into the can, and mix a little of the hardener into the resin that remains in the dish. Use the mix to coat the top of the cab and return the dish to the lamp for another couple of hours. After a day to allow for hardening, I sand the plastic off the surface of the cabochon with 600 grit and then proceed with polishing as usual.

(Question from Shep Koss, with the reply from Brad Smith, on LA-Rocks, 11/9/07)



Fire Agate

By Wes Roth

A Fire Agate Field Trip to the Opal Hill Fire Agate Mine

One of my favorite rockhounding places is the Opal Hill Fire Agate Mine operated by Nancy Hill Fisher and Howard Fisher in Palo Verde, just southwest of Blythe, California and the Arizona border. Thanks to a series of questions from William Collins on the Lapidary Digest, I finally made the long overdue trip and spent a perfect weather weekend at the mine.

The mine is fairly easy to reach. From Palm Springs, it is east on Route 10, and from Arizona, it is west on the 10 to the Neighbors Road exit for Highway 78 south. Follow the 78 signs that zig-zag around the fields, to Palo Verde. You may see flocks of sheep from Oregon, wintering in the fallow fields. The depth of the green is startling in the midst of the desert. Certainly reminds you that a desert is just a place that doesn't get much water!

Palo Verde is a tiny town, just after a small patch of buildings and farms in Ripley. You'll see a Rock Shop sign just before the turnoff to Opal Hill mine. It's the old shop formerly run by the late Mr. Kinney, now owned by Dale Shutte. Stop in and get a preview of fire agate and other materials found around the area.

At Palo Verde Rd., just a block past the rock shop, turn right. (Check your gas gauge! The station at the corner is your last chance to stock up on food, ice, water, and gas before going back into the desert. The rest room was clean too!) If you miss the turn, you'll suddenly realize that there are no more buildings along the road! Just turn around and make the turn at the gas station.

Going straight ahead, you follow the signs into, and across the farm yard. Carefully please, this is a working farm with lots of heavy farm equipment! At the end of the road, you'll see another Opal Hill sign pointing to the right. Then, a short way ahead, there's an Opal Hill arrow to the left at a sandy road. You will be now go about 9 miles across BLM desert lands to the mine. Signage and ruts are pretty clear indicators. A regular vehicle can do it if it has good clearance and you take it easy. I feel much more comfortable in my 2WD pickup than the old Buick station wagon I bounced the freeze plugs out of on our first trip. 4WD would be a pleasure!

Be extremely careful if it's raining! That sand is slippery and you have to cross a couple of washes, and any puddle can conceal a deep pothole. I was there after a recent rain, and had no problem avoiding deep holes or really rough spots, but I wouldn't like to do it in a hard rain. If you see a deep, muddy rut, try to drive to the side of it, way up on the edge of the road so you don't risk getting stuck.

The trip in is a very mild adventure. In just minutes, you lose the sense of civilization (if you don't count the occasional RV camping near the road here and there). Depending on the time of year, the vegetation is different colors. The type of flowers that bloom in the spring in the desert is dependent on the amount of rainfall. This year, I saw whole hillsides covered with a light purple flower I have not seen before. There were a modest amount of yellow cornflower looking blooms, and just a few trailing white ones. There may be a whole new crop now because it rained heavily twice since I've been there.

The mine is open Nov. 1 to May 1. There is no phone connection up on the mountain, but you can write to Nancy c/o Opal Hill Mine, P.O. Box 497, Palo Verde, CA 92266 for full details on fees and directions. You keep whatever fire agate you dig or find weathered out or inadvertently thrown away by novices who don't know what to look for!

The last road up to the mine is a bit on the steep side. Just take is slow and steady and keep on coming until you reach the top where the office trailer is... but don't stop there! Just keep on going up the road to the right, and you'll find an area that levels off a bit, with plenty of room for parking. If you stop 3/4's of the way up, it'll be that much harder if someone comes in right after you, and you'll also tear up the road a bit trying to get the traction to get moving upward again. The BLM keeps a strict watch on this area, and Nancy and Howard will explain any new rules in effect at the time of your visit.

Nancy and husband Howard will also show you where to look, how to dig, and what to look for if you're willing to listen. If not, they'll let you waste your time in peace. You will be asked to take your tailings to a central wheel barrow or dumping place. That helps keep the actual digging areas clean for the next digger. No covering up someone else's hard work here!

On this trip, let Mike Moszer, another friend of the owners from Tilamook, Oregon. In the photo, Mike is holding a large specimen with fire agate at the bottom, and crystal pockets showing not only calcite and quartz crystals, but very tiny pink crystals as well.

Here, Mike is showing some folks a good place to look for fire.

It takes some experience to learn to 'read' the mountain, but after a visit or two, you begin to see (and sense) how the various rock formations have interacted over the eons. Sandstone, rhyolite, basalt are the basic rocks, and the fire agate forms in seams between them, and in vugs. There are a few areas with 'green eggs', not the Dr. Seuss type, but little egg shaped nodules. They haven't been conclusively identified yet, but I brought a few samples home this trip to pass on to an expert or two.

Occasionally, you might find a large nodule of

white agate, sagenitic agate, or even fire agate! Quartz 'crystal flowers' are being found too. These sometimes have a center of fire agate, or wanna-be fire agate, with lovely, radiating quartz crystals around them. Hopper crystals are found in these 'flowers' from time to time. A hopper crystal is one that started to form, then ran out of material. It is usually a slightly squared off, hollow quartz crystal form with no termination. Sometimes, several will appear together in one specimen. Other micro-minerals have been found, but I am not familiar with these yet. (A good reason for another trip!)

David and Jeff of Sun Valley are displaying some ironwood they were taking back for a snake aquarium after a weekend digging for fire agate.

A word to the wise—this is hard rock mining! Come prepared with rock hammer, sledges, chisels, etc., and a brush or whisk broom to clear away the dust and sand to see what you're working toward. A squirt bottle helps you see what you've got, after it's out of the ground, but it usually only makes a mess earlier on in the digging. A bucket or heavy sack for your specimens, thick gloves! and shoes (boots). Knee pads are nice, and a small, but sturdy square of foam to sit/lean on is a blessing! Watch for the occasional scorpion—another use for the whisk broom! Some folks say that metal detectors can pick up fire agate.. haven't tried this myself, so let me know if you do.

Bring your own food and water, hat, sunscreen, cookstove or firewood. There is no water on the mountain. There are outhouses. There are several small travel trailers available for use of diggers on a space available basis. (A good reason to let Nancy know you're coming if you're coming a distance.) Visitors often join forces and share companionable potluck suppers. If you're staying over, bring a beach chair to lean back and look up at the stars in the desert night. I was staying in one of the little travel trailers, and watched the constellations moving across the sky outside until I got tired, then watched in my sleeping bag through the window until I couldn't keep my eyes open a moment longer. There is no light pollution, and the brisk breezes keep the sky clear of other visible pollution.

If you've got a portable UV lamp, bring that for night looking too. Fire agate doesn't fluoresce, but the calcite around it sometimes does, as well as other materials occasionally. Look before you pick up anything lime green…scorpions also fluoresce intensely!

Howard's specialty is scrimshaw, and Nancy works with the fire agate. They will both show you some of their lovely pieces if you ask. Finished pieces are sometimes available for sale, so if you want to skip the hard part, just ask Nancy.

The history of the mine goes back to the late 1940's. It is located in the Sonoran Desert region which extends across to Arizona, and down into Mexico. The mineralogy of the Opal Hill Fire Agate Mine is rich and the owners are convinced that the best is still several layers down. Each year, they say, brings new forms or materials. That certainly has been my experience over the past 5 years. There are other prolific classic rockhounding areas nearby, like the Hauser Geode Beds, Pebble Terrace and

the Arlington manganese mine. Any of the old standard rockhound guides can give you more information on these areas, but check on new restrictions and on road conditions before you head for any of them.

The landscape is wonderfully rich. And the atmosphere changes with the light throughout the day. Remember to stop and look down to the desert floor, and across the hills to the mountains in Arizona. Out there, it's easy to understand how legends arose about places like this. You feel a kinship to land and sky and wind. You are enriched by the light, and the mountain drains off the negative stresses and tensions of city living. To me, it's a place to recharge my spiritual batteries and restore a sense of balance and perspective. And of course, to visit two people who have become dear friends. If you get to Opal Hill, make sure you say Carol said hello.

Fire agate is a botryoidal or bubble-structured agate formation covered in very thin layers of iron oxide (limonite). These layers, usually hidden under a thick layer of clear/opaque chalcedony, can be multiple colors one stacked on top of the other. Once the chalcedony layer is removed, the iron oxide layers can be carefully worked to reveal the brilliant colors. The cutter's skill can unveil a beautiful, multicolored gemstone and can be a major factor in the final value of the gemstone

Fire Agate Rough

The first step in working fire agate rough is the removal of the heavy chalcedony which covers the dark agate materials which contain the fire agate "bubbles". Removal of the chalcedony begins by cutting or grinding away with a trim saw. It is necessary to remove as much of the chalcedony as possible without touching the agate underneath. Do not rush this step. TAKE IT SLOWLY. It is very unpleasant to see a piece of chalcedony fall away with the top of a fire agate attached to it. Work slowly and when the colors start to show under the chalcedony, stop using the trim saw and move to the next step.

The next step is to continue removing excess material from above the agate with the use of a flex shaft type tool. Flex shaft type tools such as the Foredom or Dremel, use a series of bits ranging from coarse to fine that carve away the excess materials.The flexibility of the shaft allows one to follow the natural contours of the bubbles and bring forth the best possible colors slowly and with a greater degree of control.

Having removed the heavy chalcedony, it is now time to remove any remaining chalcedony bits and expose the fire in the bubbles. Using Diamond grinding points up to 400-600 grit range should bring the stone to a pre-polish stage. There are several other methods available as well. These can include but are not limited to Mizzy wheels (these are used DRY), as well as diamond plated or sintered tools. These can be balls, cones, routers, points, etc.

Remember, the objective is to get as close as possible to a selected color layer without cutting into the fire bubbles. As mentioned in the beginning, the fire bubbles are often coated with multiple layers of iron oxide, each layer with its own special color. When multiple layers are present, they are usually in the following order: red, gold or brown as the top layer, followed by green, then by purple, and in rare cases, followed by blue highlights. Other pastel shades can also sometimes appear. A stone with four or more color layers can be a Peacock stone, IF all of the color layers can be brought out.

Almost all types of diamond burrs as well as bullet points can be adapted to use with hand tools

and drill presses. The main difference with using these tools is that the stone must go to the tool instead of using the tool on the stone. This can be a disadvantage because when holding the stone to the tool the view of the work can be blocked.

When the stone says, go no further", use the final sanding and polishing procedures mentioned previously as well as the trim and finish procedure for the back of the stone.

NOTE: Bullet Points", referred to in previous text, are made from a resin and linen which has been found to be particularly effective in retaining diamond compounds while in use. The bullet points are easy to make. Cut off a 3/4" piece of phenolic rod, drill a 1/8" diameter hole approximately 3/8" deep in one end of the cut piece. Fit a 1-1/2 " to 2" length of 1/8" diameter welding rod or dowel pin into the hole and seal with epoxy or glue. After the glue hardens, shape the bullet point" by spinning it against a file or rasp. It can also be shaped by spinning it against a rough grinding wheel. Once the point has been charged with a specific diamond compound, it will retain the charge through several uses. Again, care should be taken to avoid contamination with other diamond compounds. A separate point should be made and used for each of the six compounds used. These points should last for years under normal usage.

As a sidebar to this, I have a friend who uses, in place of the Phenolic rod, wooden match sticks with the head removed and lincoln" log type sticks and won't use anything else. These do work; they just have a much shorter life.

Checking the multiple color layers is done by grinding or lightly chipping the exposed edge of the bubble, usually where it will not affect the shape of the stone. Color progression should follow the order stated in the previous paragraph.

Working fire agate with conventional (wheel) type equipment.

To achieve satisfactory results with wheel type equipment is a trying and more difficult method, but it can be done. It works best when the contour of the stone is fairly flat and the bubbles are either very small or large enough that they can be worked on the wheel as a reasonably flat surface. Good results can also be achieved when the chalcedony coverage over the bubbles is very clear and the color very bright allowing a good clear reflection through the hills and valleys of the stone.

Remove any excess chalcedony with the trim saw or grinder as described earlier. Grind away the chalcedony until the shape and color of the bubbles begins to show through. At this point move on to the next grit (at minimum 220 level), and the smaller the diameter of the wheel the better. This will allow working into the smaller areas a much easier process. Always be sure to use plenty of water to prevent cracking the stone from overheating. As the shape and colors of the stone come more clearly into view, move to the next finer wheel, either silicon carbide or diamond, preferably one with a sponge rubber backing which will help follow the shape of the stone. Continue the sanding and shaping of the stone. Let the fire agate within the stone dictate the final size and shape it will become.

Previous comments relating to multiple color layers and their development should be reviewed. In addition to using wheel equipment, drill presses and hand held drills can be adapted to work on the chalcedony that does not respond to the flat wheel. Particularly useful are tools that have a variable speed control up to RPM's of 5000.

Continue to grind away the covering agate down to the top center of the stone. Grind down to, but DO NOT CUT INTO THE FIRST COLOR LAYER OF THE FIRE BUBBLES.

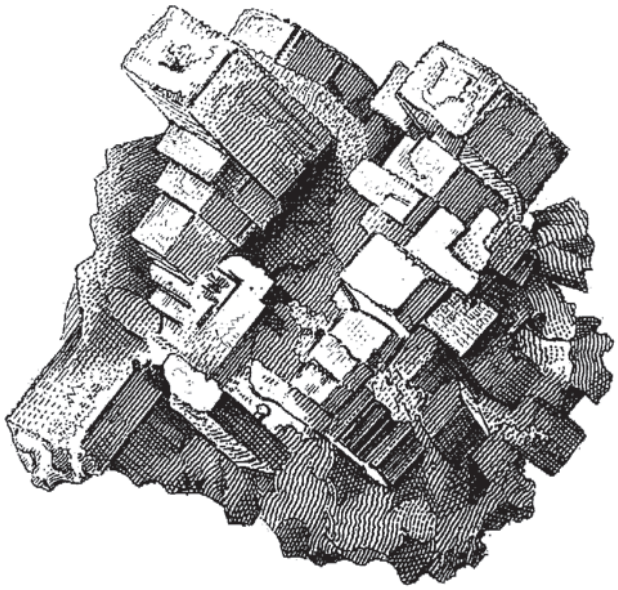
If the brown, red or gold color that is showing begins to reveal green, the first of the color layers has been reached. Now begin working towards the edge of the stone. Take care when working between and around the bubbles. The colors are thinner on the sides and between than on the top of the bubbles. Keep this in mind when working on the stone.

When the entire face of the stone is exposed to the color layer (almost), it is time to move to the next step, finer grinding/pre-polish points. Use the balls, cones, etc. to remove the remaining pockets of chalcedony from between the bubbles. For the really fine touches, Cratex Wheels or Phenolic points (Bullets) can be used. These can be shaped to fit the area being worked. When using these points always use a separate one for each grit, 325, 600, 1200, 14000, and 50,000.

In all areas where the bubble contour does not allow for the use of conventional equipment, the fine grinding, sanding and polishing, can be done with the bullet points. The procedure is as follows: wash and dry the stone, and place a small amount of diamond compound and lubricant (extender oil) on the face of the stone. Using the flex shaft and bullet point, spread the compound and lubricant over the face of the stone. Apply more time to the more difficult areas to bring them in balance with the rest of the stone. Three to five minutes with each level of grit will usually do the job. Remember, always wash the stone thoroughly before moving on to the next higher grit level. Always take care to avoid contamination. Once a point has been charged" with a specific micron keep it separate from the other points to avoid contamination.

If there are MULTIPLE COLOR LAYERS to develop, a decision must be made to determine which of the color layers for each bubble on the stone must be worked to achieve the best effect. Use the bullet points in increasingly finer micron sequence to remove some dull layers in order to brighten the

colors being kept. This is best done using micron levels 325 thru 1200. The procedures outlined in this and the preceding paragraph are the most critical to the final quality of the work produced. When the desired color balance has been achieved, finish sanding and polishing with the finer micron (8,000 thru 50,000). Trim and grind the excess from the bottom and shape to desired form. As a final touch, on the grinding wheel, (approximately 600 grit is good) gently roll the edges of the stone away from the face in a down and under pattern. This will give the finished piece a nice clean edge when bezeled.



The Wonderful World of the Lapidary Arts

By Rose Kapp

Why are people known as rockhounds so obsessed with stones? And, really, what is so interesting about these cold, hard objects that leads to all sorts of bizarre activities? It's all a mystery to most people.

But to those involved, the lapidary world is exciting, creative and diverse. Here are a number of rock-related persuasions.

Rockhunting is a wonderful way to discover nature, geology, and to get a yard full of rocks. The idea is that you go on a field trip with experienced rockhounds that know where and what to look for and before you know it, you're lugging heavy loads uphill through mud. You'll work harder than you ever have and actually enjoy it. You'll make friends and have bragging rights when you display that fabulous crystal you unearthed with your own hands.

Tumbling is how many people start on that slippery slope to becoming a rockhound. An inexpensive tumbler is purchased for a child, who quickly loses interest because of the length of time it takes to turn plain pebbles into shiny gems. If someone in the family has the patience, they will escalate further into this engaging hobby.

Cutting & Polishing, sometimes known as slabbing and cabbing, is the skill of grinding down a rough stone until it becomes a thing of beauty while you lose your manicure. At the Port Moody rock workshop, you'll find out it is Show & Tell every session with lots of advice on how to do it better next time. You'll also learn what 'staying out of the middle of the grinding wheel' means.

Faceting, shaping your gem with angles, is similar, except that the mistakes are more expensive. Bragging is mandatory.

Jewellery Design & Creation. This is where your inner Tiffany is released. And what everyone you know will be given as Christmas and birthday gifts. You will graduate from inexpensive pre-made settings, to learning how to wire wrap, bead, silversmith and otherwise find new ways to string a rock around your neck.

Soapstone Carving Some people discover they want to express themselves on a larger scale than jewellery. And make a bigger mess. While soapstone is the easiest stone to sculpt, is creates a fine powder that will be discovered everywhere, making you look artistic or just plain dusty.

Collecting Mineral Specimens is a wonderful way to discover how little money you actually have. Checking rock shops and gem & mineral shows everywhere you travel will make you realize how amazing Mother Nature is. Just as you think you've found the perfect specimen, another more lovely piece is there in front of you tempting your pocketbook.

Earth Sciences or Geosciences If you catch the bug early, you might want to make a career out of being a rockhound. Except you will call yourself a geologist. Other grand sounding subdisciplines are mineralogy and petrology, geochemistry, geomorphology, paleontology, stratigraphy, engineering geology and sedimentology. If you or someone you know is very interested, the Lapidary Society actually has a scholarship program. Just call us pebble-pushers.

While you are investigating this unique hobby, you will discover that there are many of us around the world. The traits you will find that most of us have include being talkative, friendly, inquisitive, involved and prone to laughter. We don't take ourselves too seriously and we love to share our knowledge. Rocks may be hard, but rockhounds are soft hearted.

Baby Mammoth

Ice wasteland reveals mammoth carcase preserved for 10,000 years

Steven Raeburn

The mammoth's trunk and eyes are still intact. In terms of its state of preservation, this is the world's most valuable discovery

Lying on her side with her trunk stretched in front of her, she looks as if she might have died yesterday. But Lyuba the baby mammoth probably met her fate more than 10,000 years ago.

The discovery of the best-preserved specimen of its type was made by a Siberian reindeer herder, who stumbled across a piece of ivory while working on the tundra wasteland.

Now the carcase of the six-month-old female calf, who has been named after the herder's wife, is to be sent to Japan for study.

She was discovered in May by Yuri Khudi near the Yuribei River, in Russia's Yamal peninsula.

She is in unusually well-preserved condition, with her trunk and eyes still intact. The body even retains some fur.

Alexei Tikhonov, the vice-director of the Zoological Institute of the Russian Academy of Sciences, said: "The mammoth has no defects except that its tail was bitten off. In terms of its state of preservation, this is the world's most valuable discovery."

Mammoths, famous for their furry coats, huge tusks and massive bulk, are believed to have appeared on Earth some 4.8 million years ago. They roamed the northern plains of Europe and Siberia until the retreat of the glaciers at the end of the last ice age.

Herds were known to exist in Russia as recently as 5,000 years ago, and are the ancestors of the elephant species.

The 4ft 3in tall, 100lb specimen dates from the end of the last Ice Age.

Larry Agenbroad, the director of the Mammoth Site of Hot Springs research centre in South Dakota, said: "To find a juvenile mammoth in any condition is extremely rare." Dr Agenbroad added that he knew of only three other examples.

It is thought that Lyuba will now be sent to Jikei University in Tokyo, where a team led by Professor Naoki Suzuki will carry out an extensive study of the carcase, including scans of its organs. Two earlier recovered mammoths, including the "Jarkov mammoth" found frozen in Taimyr, Siberia, in 1997, were also sent there. Prof Suzuki said CT scans of the beast would provide "an unprecedented opportunity to obtain anatomically important data".

Dr.Agenbroad warned that scientifically valuable Siberian mammoth specimens were being lost to a lucrative trade in ivory, skin, hair and other body parts.

"You can now go on almost any fossil marketing website and find mammoth hair for $50 an inch. It has grown beyond anyone's imagination," he said.

Dr Agenbroad added: "Russia says that any mammoth remains are the property of the Russian government, but nobody really pays attention to that."

Cutting Amazonite

by Carol J. Bova

Last month, I wrote about my trip to the Morefield Mine and showed some of the rough amazonite I collected. This month, I cut a piece to get a feel for the material and how best to cut and polish it. At 6-6.5 in hardness, I knew it should be a good prospect for cutting a nice cab, but I did not know how its two cleavage planes at nearly right angles would impact the cutting.

Amazonite is a potassium aluminum silicate, and the material I was working with is intergrown with white albite, a sodium rich aluminum silicate which may be slightly harder than amazonite, and also has one perfect and one good cleavage.

To begin, I chose a piece of amazonite that had separated into a fairly even thickness, and measured about 20 mm wide by 30 mm long. It had good color, but also presented a few challenges in addition to its cleavage with a potential partially healed fracture, and a line of black inclusions. I chose to leave the inclusions in, rather than trimming them off, to see how they affected cutting and appearance.

Because the rough was already fairly flat, I decided to see how it worked using 400 diamond mesh on a hard sponge by hand. The back could be flattened on a wheel, but using the hand sponge gave me a better feel for how it handled. I was pleasantly surprised to find it worked as easily as good opal, and much more easily than quartz. So without formal testing, my guess would be it was about 6 or a little less in hardness.

I worked it wet, with the sponge on a table, and holding the rough on top with two fingertips flat against it. I moved my hand in small circles against the mesh, stopping to rinse both the stone and the mesh in water and look at the back to see how it was progressing. It took about 20 minutes with the 400 mesh, and 10 more on 800 to get a perfectly flat back with no obvious scratches. This is a very zen-like activity, not requiring much except steady motion, light pressure and occasional rinsing.

Once the back was done, I decided to use a freeform shaping, staying close to the orginal shape and working out two irregularly low areas. I turned on a small warming unit intended to keep a cup of tea or coffee warm, and put the stone near the heated area, but not on it. I put some green dop wax in the center and waited til it became soft, turning the stone over to warm on the other side too. I then took a dopstick and rolled it on the green wax until I had a nice amount built up on it. I checked that the stone was warm, and pressed the back against the wax on the end of the dopstick, making sure it was level. Then I shaped the still soft wax to form a support under the stone, and smoothed it on the stick tapering it downward. Using a dopstick gives more control in the actual shaping and cutting against the wheel.

Since the stone might be prone to cleaving, I was careful not to push too hard, and to use smooth motions while shaping the stone. It cut smoothly and without difficulty on a worn 600 grit wheel. I used plenty of water during the cutting, then washed the stone and my hands with detergent before moving on to 800, 1200 and 14,000 diamond wheels.

I decided to try using M-5 polish, which I've had good success with on difficult to polish materials. I washed the stone immediately after polishing with the M-5 to avoid any white residue.

After drying, I put the stone in the freezer for less than 1 minute to release it from dop stick. I took the cab and examined it closely under a good light, and saw that I lost the very tip to cleavage somewhere in the polishing process. I used the hand sponge with the 400 mesh to restore the curve, keeping it only on the sides where it would be covered by the bezel in setting. It reshaped very easily, with no further cleavage.

Overall, this amazonite took a good polish, with a high luster. In getting rid of the two low areas, I lost the original curve on one side and the final shape is a little awkward. Next time, I will avoid the black inclusions and trim them out before beginning. They tend to undercut. When I reshape this cab, I will take out most of the area with the inclusions. There is one small area next to the former low spot that looks like it might eventually flake and separate. On reshaping, I will remove that edge. More careful selection and orientation of the rough should help avoid that in future cabs.

All in all, amazonite is a delightful stone to cut. It takes a strong but not glassy polish, with good depth.

Given its natural cleavage, I would recommend it being used as a pendant in a bezel setting or in well-designed earrings. Amazonite is definitely a material I want to cab again.

Feathered giant crushes dinosaur theories

John Von Radowitz

WEIGHING more than a tonne, with a parrot's beak and dagger-like claws, Gigantoraptor was a far-from-pretty Polly.

Scientists who discovered the feathered, flesh-eating dinosaur in China were astonished by its size.

The creature, which stood on two legs, was at least twice the height of a man at the shoulder and more than 26ft long.

Weighing about 1,400kg, or 1.3 tonnes, it was 35 times heavier than any other feathered dinosaur known to date.

In fact, it may have been even bigger, because the fossil specimen unearthed from the Sunitezuoqi region of Inner Mongolia was not fully grown.

Gigantoraptor was the stuff of nightmares. Although it could not fly, it was covered in feathers and had short "forewings" ending in large clawed hands.

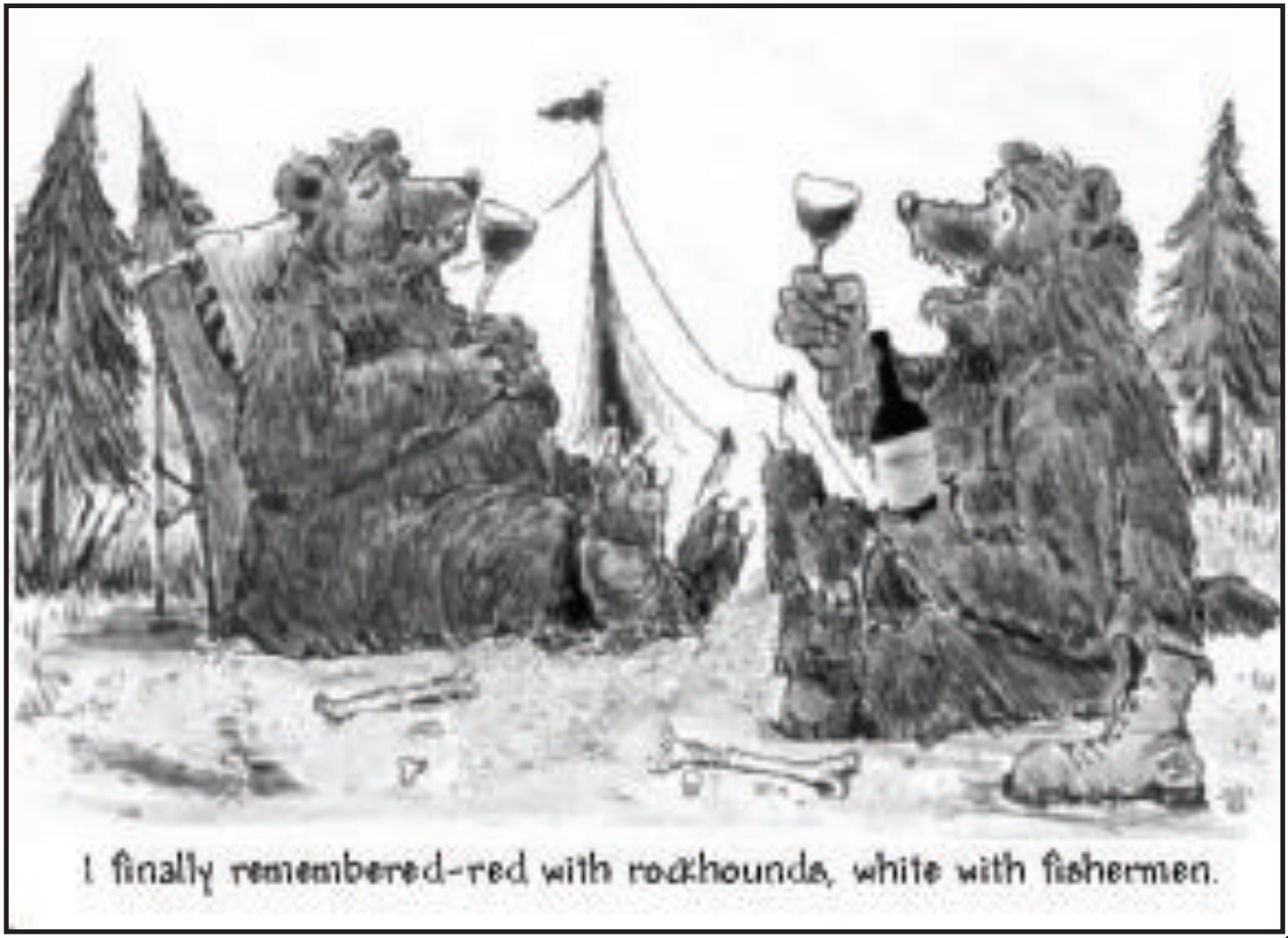
The head, which sat on an ostrich-like neck, resembled that of a bird, with a powerful snapping beak in place of toothed jaws.

The dinosaur lived in the Late Cretaceous period, around 70 million years ago, at the same time as Tyrannosaurus rex terrorised what is now North America.

Most theories have suggested that carnivorous dinosaurs became smaller as they grew more bird-like.

The discovery of the Gigantoraptor, which evolved towards the end of the dinosaurs' reign on Earth, has proved this was not always the case.

A team led by Dr Xing Xu, of the Chinese Academy of Sciences in Beijing, described the find in the journal Nature.



Club News

Courteny Gem & Mineral Club

Quadra Island Field Trip — Oct 27

Submitted by Paulette Dilks

After meeting various places—in Courtenay, in the parking lot of Tyee Plaza, and in the ferry line up—Jack, our Wagonmaster, rounded us up and we set out with festive identifying yellow ribbons on our antennae and what turned out to be VERY INADEQUATE MAPS (helpfully provided by the ferry corporation).

Shortly thereafter we were lost and seeing some interesting parts of Quadra, but not relevant to our goal. Jack did eventually get all but one car full of us to the Lucky Jim Mine. Unfortunately the winding roads wiped out Jasper's appetite for further travel and almost this reporter as well. We agreed to see them later at the beach and carried on to the mine site.

The mine had long ago been reclaimed by moss and forest although it appears someone is reactivating it. The tailings did not yield anything astounding, however the conversations and trading of information and collecting spots were hot. Jan's chili and homemade buns, which she and Jack provided to us on site, were great and the lack of more pyrite to lug home was OK by me.

We then went to the beach at Cape Mudge where everyone found more rocks that they HAD to have than they could easily carry. Joe and his son Ben found a beautiful pale green with quartz stringers hunk of something, and Jack passed on to me a beautiful rounded piece of diorite with large hornblende crystals (probably hornblende, dark and stubby anyway). There was a variety of rocks found that I have not seen on this side of the water. Jasper and his group were there—they probably loaded up. We all agreed we could have stayed longer at the beach but there was a ferry to catch. The fact that it was drizzling rain didn't seem to dampen peoples' enthusiasm.

The high point of my day was being in the presence of people all bent over exclaiming over beach rocks. How many times in my life have I been the only one with rocks in my pockets after a walk?

I feel like I've found my tribe and I suspect we all have large piles of rocks in our back yards.

Thanks again to Jack and Jan for their excellent facilitation of this trip.

...and now from Jan's perspective

The forecast promised fair weather. It lied. Some of us gathered at the Boyes homestead, and then we proceeded to Tyee Mall where we expected to meet CR folks for carpooling. Nope. We met them on the 10:30am ferry. So 6 vehicles drove off and headed into the wilds of deepest Quadra. Since it had been a while since Jack and Jan had been taken on a bus tour to Lucky Jim Mine site, and Jan had not brought a map, and Jack was watching the road, and Jan had no glasses and couldn't read the signs worth a darn, we went merrily off on the wrong road and

found a popular Quadra recreational site down Village Bay Road. We'll have to go back there some time with a boat. Having realized that we were not at the Lucky Jim, we circled the wagons and headed back. Sorry about that folks. Everyone was very patient with us, and off we headed again. We were looking for the sign marking the road to Granite Bay. Jan didn't see it. Blind again. Got back to Hyacinth Bay when we realized we had passed it. Turn around and back we go. This time all went sort of well, but about 1 km before the Lucky Jim, Barb and Jasper and Aileen had to halt, and opted to return to civilization because Jasper's stomach wasn't up to the trip. He has my sympathy, poor kid. While the seekers of stones scrambled in the moss and dirt, finding whatever they could in the old overgrown tailings piles, Jan looked down deep dark holes with a flashlight. Soon the heavy steel grids will be over the holes, and the danger of innocent critters falling down there will be over. Jan found a tree that gave some shelter from the light rain, and set up lunch. Coffee, chili and buns were welcome and made up (a bit) for the long trip and lack of stony success.

With lots of help to pack up the lunch stuff, we were soon on the road again. A brief halt at the cop shop to report a car that had been apparently 'abandoned' at the Lucky Jim, and we headed for the Lighthouse. Once again Jan's eyesight missed the signs and we were off to the end of the wrong road. Try again. Success at last.

Found the Lighthouse and the beach and ROCKS! Everyone seemed to find something, and we were reunited with Barb and Jasper and Aileen.

All in all, we didn't lose anyone, there were no serious accidents (just Jasper's stomach troubles) and everyone had the chance to find rocks. We caught the 5:00pm ferry. Jack and Jan and Muriel stopped for coffee with their daughter, who lives on Quadra.

The patient people, who deserve our thanks, were Bob & Joyce Collins, Lewis Ross Thompson, Muriel

Bakker, Joe and Ben Morin, Paulette and Terry Egeli, Barb & Jasper Wallington and Aileen Park. Thank you all for coming and making it a fun day. *Janice*

The Cowichan Valley Rockhounds

Nov.27/07

The first snowfall of the season arrived late yesterday afternoon. It made a few of us hurry to get home from the shop before things got really interesting. Amazing to think we've had our first major storm of the season, now the snow, and for sure the festive season is sneaking up quickly. When the next issue of the Rockhounder is published bulbs will be breaking through or already blooming and all this will be but a faint memory. Gazing out at the glistening white blanket covering everything makes me reflect on how fortunate we all are, and what a great year it's been for our club the Cowichan Valley Rockhounds.

A few years ago we were happily settled in a terrific shop, all we could hope for, that included huge inside storage space for not only our saws but the rocks too. Outside there was a garden perfect for BBQ's and get-togethers, and only 10 minutes south of Duncan with perfect access and parking. Then alas the property was sold, we packed up ready to move, but to where. A very generous and kind member couple had a space in their detached shop building they thought might be suitable, and offered its use to the club to fix up and make it our new home. Now to drywall, insulation, wiring, plumbing, painting, shelves, exhaust venting system, water lines, an add-on for the saws and our own "loo"—who would believe it! We even have controllable heat! Watching a group of members the other day working on the Pixie's, at the tables creating more of those exquisite silver pieces, polishing of a pendant ready to go I thought it just doesn't get much better. How fortunate are we to have a membership of involved, enthusiastic people and skilled supportive instructors that share their knowledge and expertise in lapidary, silver-smithing, geology, beading, and take us roaming on our field trips. We've tossed in occasional wire-wrap and even faceting.

We have shop time Monday, twice Tuesday, Thursday, and Friday. Our meetings are still held on the 3rd Monday each month and our Wagonmasters plan a field trip for the following weekend. Of course like everyone else that depends on gates, logging, high rivers, snow at higher elevations, and the weather. On the Island we're lucky to have many beaches to choose from. We usually have one dinner meeting in early Spring and a BBQ in June. This year we hosted the V.I. Gemboree in June and hosted the Friday night BBQ dinner. We enjoyed welcoming our new friends to the Cowichan Valley for the weekend and hope they come back for another visit. In August we have a large booth at the Cobble Hill Fair where we demonstrate what we do to the public, have displays of our creations as well as games for the children. December is our annual Christmas Pot Luck Supper with a marvellous assortment of favourite dishes, Secret Santa, rock quizzes, and donations to the food bank. Our Club was founded in 1961 so we have a fifty year birthday just around the corner, exciting! Our new Executive for 2008 is VP-John Boland, Secretary-Michele Heath, and Treasurer-Helen Oakes. Gene Leavitt is our Sr. V.I. Zone Rep. and of course many members as committee appointees.

As with any other club or organization our success is a result of the efforts and contributions of our membership and supporters. Most rockhounders I've met are down-to-earth, kind and sharing practical

folks who are a whole lot of fun too! We send our best wishes for health and happiness in the New Year, and hope everyone finds something a little special treasure hunting.
Ulla Williams, President, Cowichan Valley Rockhounds

Club Shows 2008

Maple Ridge Club

February 16–17, 2008
"Everything Jade"
Sat. 10am–5pm, Sun. 10am–4pm
St. Andrews United Church
22165 Dewdney Trunk Rd.
Maple Ridge, BC
Displays, Dealers, Demonstrators, Food & Beverages
Admission by donation
For more information contact
Irene Goss 604-466-8607
or 604-466-4938 at the club, if no one answers please leave a message.
E mail: irene_gross@yahoo.com

Alberni Rock & Gem Club

March 8 & 9, 2008
"Gem & Mineral Craft Sale"
Sat. 10 am–5 pm, Sun. 10 am–4 pm
Cherry Creek Hal, corner of Moore Rd & Cherry Creek Rd.
Port Alberni, B.C.
Displays, Dealers, Demonstrators
Adults $2.00, children under 10 free with an adult
For more information contact Dan Mooney at 250-724-2832
or e mail: drmoo@shaw.ca

Victoria Lapidary & Mineral Society

March 14–16, 2008
"Annual Rock & Gem Show"
Fri. 1–9pm, Sat. 10am–6pm, Sun. 10am–4pm
Leonardi Da Vinci Centre
195 Bay Street, Victoria, BC
Displays, Dealers, Demonstrators,
Admission: Adults $5, Students & Seniors $4, Family of 4 $10, Children under 6 free
For more information contact
Don Myer 250-381-3356
E mail: dmyer@shaw.ca
or visit the club web page:http://www.islandnet.com/~vlms

Creative Jewellers Guild of B.C.

Tips & Tricks

Embossing Metal Sheet

Brass templates used for paper embossing canalso add texture to silver and copper sheet.

Place the brass template on top of your metalsheet and run through your rolling mill. Thetemplate should hold up for several passesthrough the mill and give a nice sharp imagetransfer. These templates can be found at mostcraft stores among the scrap booking supplies.

Submitted by Heather Loney

Keeping Your Metal Clay Moist

There are few things more disappointing than sitting down at your bench and finding that the lump of metal clay you were about to use has dried-up into an unworkable, useless blob.

Keeping your unused PMC or Art Clay moist is much easier with a package of Soil Moist granules from your local garden center and an empty film canister. Place 1 teaspoon of Soil Moist granules into the film canister (or otherair-tight container) along with 1 tablespoon of distilled or tap water. Allow the granules to absorb the water, then pour off any excess. To use, simply place your metal clay (wrapped in plastic wrap) into the container. The Soil Moist granules will keep your clay from drying out and prolong its life indefinitely. And when the granules begin to lose their moisture, just add a few drops of water to the container. It's that easy!
Submitted by: R.E. Rourke

Thanks to the Contenti Company for the above.

Ripple Rock Gem & Mineral Club

There have been many Ripple Rock members who have contributed greatly to the club over the years. We see them at meetings, on field trips, and at the shop, but as many of us have come to the club in more recent years, we may not fully appreciate the their contributions. Thanks to Charlie for composing the following tribute to Gordon Billings.

GORDON ALAN BILLINGS

Gordon was first inspired by his Campbell River neighbors Myrt and Bob Thompson. While living on the mainland he joined the Richmond Gem and Mineral Club in the early 80's. Being a large club he benefited from their many wonderful instructors, such as in basic lapidary, silversmithing and faceting. He held several Executive positions in the Richmond Club as well as in the BC Society and he was also director of the BC Federation for ten years. Although Gordon was a charter member of The Ripple Rock Club, it wasn't until after his retirement that he and Jean moved to Campbell River where Jean had grown up.

Gordon was president of The Ripple Rock Gem and Mineral Club for four years and has been involved in every facet of our hobby. He is a very skilled, enthusiastic and simply wonderful Lapidary and Faceting Instructor. Every year he gives excellent courses in both. We are so very lucky to have him in our club. Gordon has taken University courses and is exceptionally talented at identifying rocks and minerals. He is also more than willing to share his knowledge.
Gordon Billings

Gordon and Jean seem to attend every Rock Club function within BC be it Rendezvous, Summer Camps, Shows, Island Faceters meetings, Gemboree, field trips and auctions. Jean and Gordon are two exceptional people and

obviously both very proud to have their daughter and grandchildren participating in their hobby. Gordon and Jean have both been granted lifetime members from our club.

Once Gordon was on a field trip to the Fraser River bar, near Agazzi and was accompanied by his Weimaraner, aptly named Rocky. Gordon kept throwing rocks to entertain his dog, however the rocks all returned; but now they were in Rocky's stomach. The rocks clinked and clanged like rocks under water and this eventually resulted in an obstruction (you know where) and a vet bill for (you don't want to know how much). Gordon had developed perhaps the most expensive method of tumbling rocks ever heard of.

Here are some memorable quotes from Gordon:

1. "Were leaving on the field trip at eight?" "Eight in the morning? EIGHT AM !!!! ARE YOU NUTS??? "
2. "Somebody fed me too much wine last night ,and I think it was you."
3. "I can't remember who won the hockey game last night Kevin? Oh? Oh, it was? Oh Yes, I remember now it was curling, good game eh!"
4. "Never go rockhounding before breakfast, if you do; have breakfast first."
5. "That's not Jade, Jade is Jade, smooth, clean, that's not even, no don't throw it, the Damn dog might eat it."
6. And an all time favorite from Gordon's grandson Aidan— "Baaaaaaaaaaaaaad Grandpa"

Thank you Gordon and Jean. Thank you very much, from all 142 Ripple Rockers and from all the other clubs in BC.

Thompson Valley Rock Club

Great news from the BC Wildlife Park. Their Board of Directors has agreed for us to move to the Wildlife Park and set up our workshop for free. This will ease the financial burden of the rents we now have to pay to the city and will give us access for more hours to the workshop. The move date will be in mid-January, once they have put away their Wild Lights displays. More to come on getting ready for the move.

The Mall Display at the Northhills Mall on October 27, 2007 was a huge success. We had a lot of people stopping by the display and talking to the members. Thanks to everyone who helped out with setting up, taking down and manning the tables. It was great fun and generated a lot of interest for the club. Many folks took brochures and said they'd come out and join the club. The treasures on display and the friendliness of our members were something to be proud of.

We had 42 guests, members and family members attend the Gold Panning trip and Weiner Roast at Pine Park on October 14, 2007. News:There were an abundance of snacks and a good time was had. Bonnie and Tom worked hard to put this event on and the club thanks them for all their efforts. It was a great day. This was the last trip of this year and it was a nice way to see everyone and enjoy the day.

Pine Park:—This was the site where we have had our gold-panning and Weiner roasts and it is owned by the Pine Park Society. They are apparently thinking of destroying the site as t there are several buildings that have been vandalized badly. There is an increased cost in operating the site when they have to continually rebuild when buildings get torn down and burned down by vandals. This is another case of a few rotten ones taking away the enjoyment of the many good folks that go through the site and use it occasionally. The public can contact the society and arrange to stay there if they wanted to have access to the toilets, buildings, etc. It has historically been used on an "honor basis" where whoever uses it cleans up when they leave and they don't ruin anything. Most people are good at this and the site has been enjoyed for years by many good folks. The constant repairs have made it difficult and expensive to maintain.

Creative Jewellers Guild of B.C.

Club Contact:

Maria Tomsich, (604) 224-1951
or Email Maria at
mtomsich@interchange.ubc.ca

Courteny Gem & Mineral Club

Club Contact:

Jack Boyes (250)337-8461
E mail: janboyes@telus.net

Cowichan Valley Rockhounds

Club Contact:

Gene Leavitt (250)246-4571
E mail: gleavitt.shaw.ca

Thompson Valley Rock Club

Club Contact:

Jacki Dowdell 250-554-9519
E mail: jackidowdell@telus.net

Before it is destroyed and then no one can enjoy it, contact the Pine Park Society and let them know you support keeping the site and seeing if there are ways the public can help.

Vancouver Island Zone Meeting

submitted by Janice Boyes

The November 24 meeting was once again at Barclay's beautiful home. Jack& Jan Boyes and Lois Stevenson arrived early to visit a bit with Lorne and Marion. With Lorne as doorman, and the Christmas music on the doorbell, we got into the season's spirit. Marion had the Christmas Décor up and the tree with all the lovely handmade decorations was the focal point of the living room. Gracious hospitality and excellent coffee made us super glad we came.

While we waited for the rest of the Delegates from other clubs, Lorne serenaded us on his bagpipe chanter. He still has "Amazing Grace" at his fingertips. By noon we decided that it was time to eat the party consisted of the hosts with Marion and Jens Hoye as Parksville delegates, Lois Stevenson and Jan Boyes as Courtenay delegate, with Jan accompanied by Jack, Dan Mooney as Alberni Valley delegate accompanied by Rose, Barb and Murdo Smith both Victoria delegates. There were no delegates present from Cowichan or Ripple Rock.

Finances and insurance were reviewed. Following are Club Reports:

Alberni Valley Rock and Gem Club is preparing for their 50th Anniversary Show and "Gemboree 2008", but before that is the Christmas Party on 2 December at the Cherry Creek Hall. It will be a catered affair, and is expected to be a really good party.

There will be a workshop to prepare gold painted "Treasure Rocks" for the kids at the show. A real Gold Nugget will be a main prize, with hourly prizes of vials of placer gold flakes. There haven't been many turn out for the field trips, just Dan and Bob.

Dave should have the Gemboree information out in January. It will be at Arrowvale Campgrounds again. There will be the usual fun and games, skits, bucket auction, potluck supper, pancake breakfast, and field trips.

Campbell River—No delegates were present from Ripple Rock Gem and Mineral Club and Jan wasn't prepared to give a report other than reviewing details for the Christmas potluck.

Courtenay Gem and Mineral Club—Jack reported on the Quadra Island field trip, and the Christmas potluck on Dec 18, at 6:00pm in the Tsolum Bldg, in Lewis Park.

The show will again be in the Royal Canadian Legion on Cliffe Avenue in Courtenay. It will be May 3 & 4, 2008.

Jack will take a field trip to Oyster Bay on Sunday 25th, to look over the storm turned beach rocks.

Parksville & District Rock and Gem Club—They had a successful field trip. They had elections, and the Christmas party will be the first Tuesday in December at Helen's place. They are thinking of Gemboree 2009 already. Some new members are coming in to the club and they may soon need to rent a meeting room as the club is growing too big to fit into anyone's living room.

Victoria Lapidary and Mineral Society—Murdo submitted a written report.

On Monday December 3rd VLMS will be having its annual Christmas potluck dinner and members have been asked to bring a food for donation for a local food bank.

The 2008 Rock and Gem Show is now being organized for March 14–16. Some reasonably successful field trips have been held, one in particular to Jordan River. Membership is growing and is at 120. The AGM is in January.

Victoria Lapidary & Mineral Society

Field Trip:

Three members and 5 non-members participated in the field trip to Jordan River and found crystals and fossils.

Gem Show:

Don Meyer gave an update on the 2008 annual rock and gem show, to be held Friday, March 14,2008 to Sunday, March 16, 2008 at the Leonardo Da Vinci Centre, 195 Bay Street, Victoria. The theme for the 2008 show is "Focus on Fossils".

The British Columbia Lapidary Society

Rendezvous "08"

Art Holding Memorial Arena,

320 Shepard Road, Chase, BC
May 16–19, 2008
Hosted by the **Shuswap Rock Club**
Chase is located on the Trans-Canada Highway 1, at the confluence of Little Shuswap Lake and the South Thompson River, 56 km (35 miles) east of Kamloops and 53 km (33 miles) west of Salmon Arm.
Free dry camping will be available at the hall.

Planned activities:

Late Friday afternoon and evening—Registration and setting up of display cases
Saturday—Field trips, Rock Auction at 7:00PM
Sunday—Field trips, Bucket Raffle at 4:00PM
Sunday 6 pm—Catered Dinner
The Annual General Meeting of the

British Columbia Lapidary Society will be held after the dinner
Monday morning—Pancake breakfast
Club members are invited to display their collections and demonstrate their skills.
If you require a Society case please contact Pat Boden;
Tel. 250-675-2849 or patboden@telus.net
Field trips will be posted later
Donations for the bucket raffle and the rock auction are needed and greatly appreciated

Accommodations:

Chase Country Inn

576 Coburn St, Box 1031, Chase, VOE 1MO
Toll Free 877-679-3333, Fax 250. W9-8018
Adjacent to Hwy 1, 2nd exit to Chase.
Maj CC, Cash, DC, Other, Travellers Cheques; pets accept ed, $5; CP 48 hrs
21 Units—$59-89; Add'l $10 LS Rates

Overlander Motel

181 Shuswap Ave, Box 368, Chase, VOE 1MO
250-679-8633, Fax 250-679-8603
Toll Free 866-679-8633
Air-conditioned; kitchenettes & sleeping units; queen beds
Maj CC, Cash, DC, Personal Cheques, Travellers Cheques; small pets; CP 4 days.

Sunny Shuswap B&B

302 Arbutus St, Box 1400, Chase, VOE 1MO
Tel: 250-679-8324, Fax 250-679-8324
Cash, MC, Travellers Cheques, VI; pets ok with approval.
CP 2 days.3 Units—$60-100; Add'l $15 LS Rates

Chase Lions RV Park

625 Mill Rd, Box 12, Chase, VOE 1MO
Te; 250-682-0283
(Apr-Oct) Shuswap Ave, turn on Pine St to Mill Rd. 14
fully serviced RV sites plus tenting sites; washrooms, showersReservations available; Cash; pets on leash; CP nil.
30 Sites—Vehicle $15-20

Ponderosa Pines RV Park

4910 Trans Canada Hwy E, Chase, VOE IMS
Tel; 250-577-346
(Apr-Oct) 30 mins. east of Kamloops on Hwy 1. Larg shaded sites; full hookups; 30 amp service; laundry large pull throughs; pay phone; tenting; washroom; coin showers; internet modem available; playground Cash, MC, VI; pets on leash only; CP 3 day; except long weekends.
60 Sites—Person $16-22.75; per 2, Add'l $2, Elec, Sewer Water Inc.

Victoria Lapidary & Mineral Society

Club Contact:

Magdalene Magon 250-592-8963
Or visit:
Victoria Lapidary & Mineral Society
http://www.islandnet.com/~vlms/

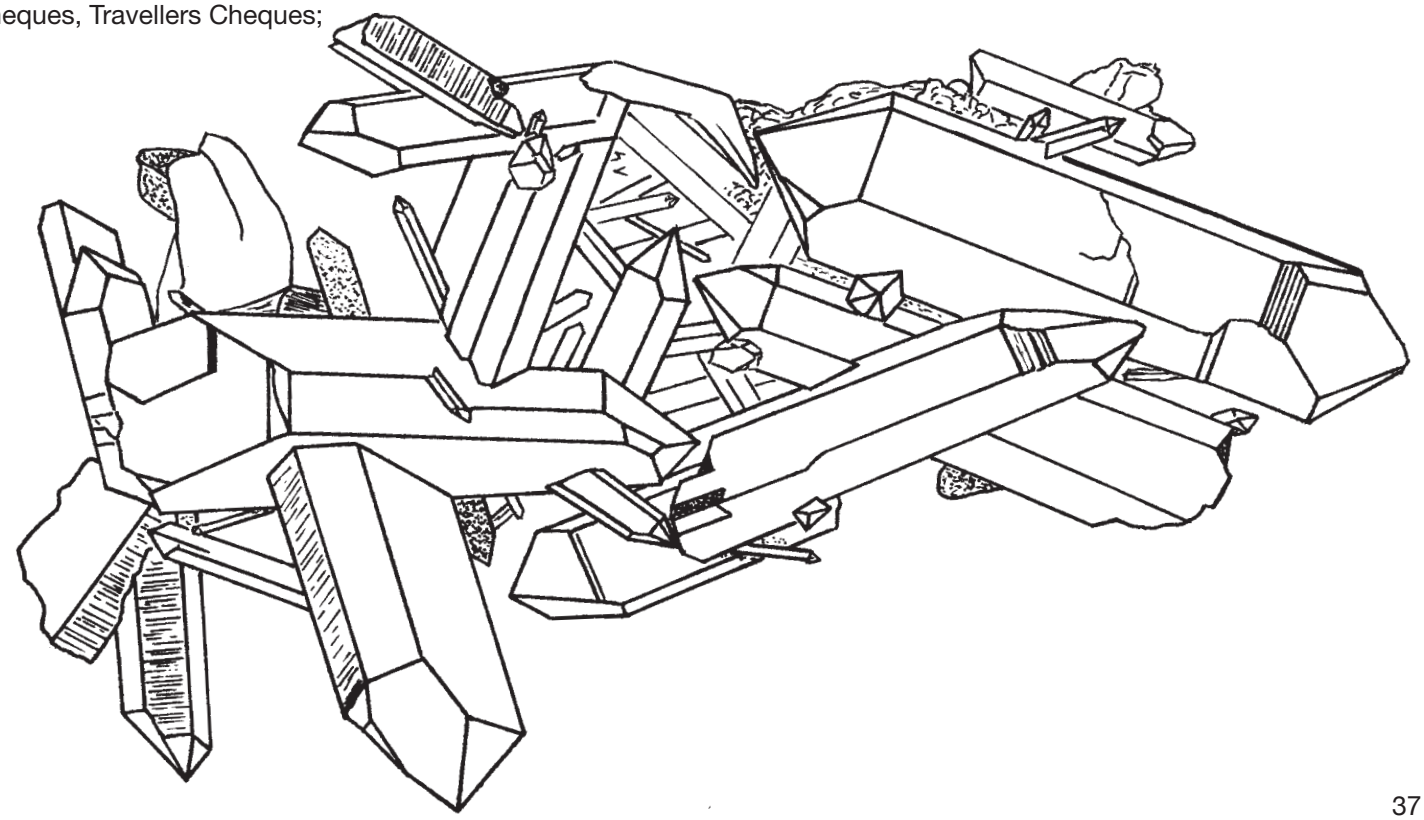
Ripple Rock Gem & Mineral Club

Club Contact:

Emily Faak, (250) 337-57241
or Email Emily at wiredbyemily@msn.com

For more information about The BC Lapidary Society or a club near you, visit

www.lapidary.bc.ca



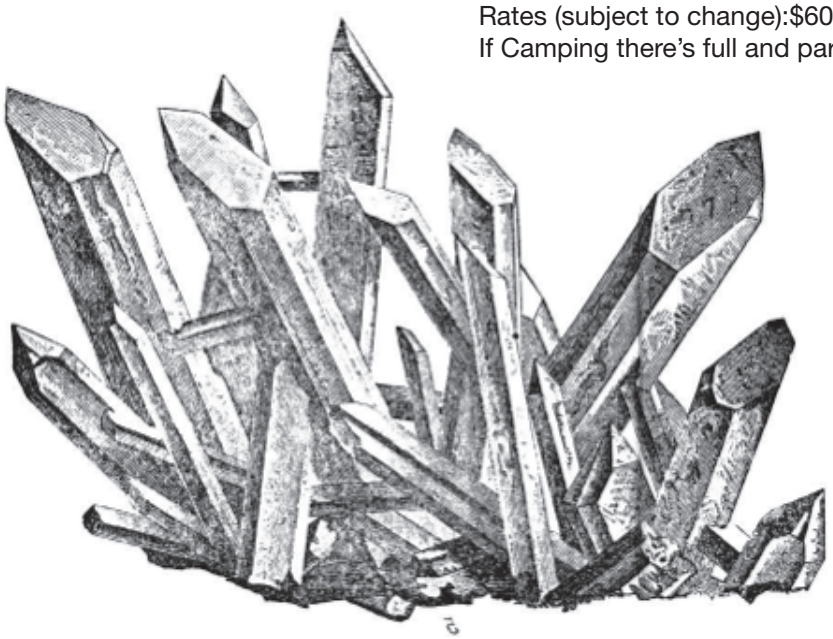
The British Columbia Lapidary Society Summer Camp "08"

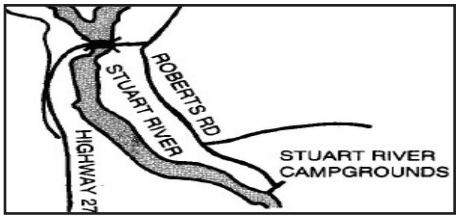
Fort St. James, BC
August 3–8, 2008
Fort St. James is located on the south-eastern shore of Stuart Lake, at the head of the Stuart River, 160 kilometres northwest of Prince George on Highway 27, off Highway 16 just west of Vanderhoof.

Stuart River Campgrounds

PO Box 306, Roberts Rd.
Fort St. James, BC V0J1P0
Phone: 250-996-8690
26 treed and sunny campsites for tents/ motor homes and other recreational vehicles.

Full & partial hook ups, picnic tables & fire rings. Laundry room, free showers, horseshoe pits and a children's playground. Sani dump, power and water, boat rentals, boat mooring and launching.
Pets must be leashed & cleaned up after.
$18.00—full hook up, Partial hook up & tents $15.00, weekly rate available.





Other accommodations:

New Caldonia Motel

167 Douglas Ave
Fort St. James, BC V0J 1P0
Phone: 250-996-8051, Fax: 250-996-8061
Toll-free: 866-996-8051
Quiet surroundings, 17 rooms built 1997. Housekeeping rooms; microwave; TV/VCR; free movies; DD Phones; winter plug-ins; hair dryers, complimentary coffee/tea; near shopping
Rates (subject to change): $50.00—$60.00

Pitka Bay Resort

Box 1834, Fort St. James, B.C V0J 1P0
Tel: 250.996.8585 Fax: 250.996.8585
No Pets
Only 4km from Stuart River Campground, very safe location for those camping with young children. 14 one and two bedroom motel units are available with kitchens and color TV.
Rates (subject to change):$60—$70
If Camping there's full and partial hookups, tenting, showers, flush toilets, sani-station, indoor BBQ, free firewood.
Rates (subject to change): $16—$22
Also offers a private beach and a full marina with moorage and boatlaunching.

Chundoo Motor Inn

290 Stuart Dr E, Box 130,
Fort SL James, VOJ 1PO
Tel. 250-996-8216, Fax 250-996-2213
Sleeping & housekeeping units; 2 studios with gas fire place; combination baths; DD phones; high-speed wireless internet; individual thermostats; in-house movies; complimentary coffee & tea; 35 Units—$59-72; Add'l $15; LS Rates
Reservations recommended; 6 smoking rooms;
Maj CC, Cash, DC; pets $6; CP 48 hrs.

Paarens Beach Provincial Park

Hwy 27, Fort St. James, BC V0J 1P0
Phone: 250-964-3489 or 604-689-9025 (Res.only)
Toll-free800-689-9025 (Reservations only) Off Hwy 27, 11 km from Fort St James.
Day-use area; wheelchair access; drinking water; pit toilets; fire rings; hiking; playground; beach area; swimming; canoeing; kayaking; boat launch; fishing; biking; windsurfing; waterskiing.
Rates (subject to change): $10.00—$10.00 for 4 persons

Sowchea Bay Provincial Park

Hwy 27, Fort St. James, BC V0J 1P0
Phone: 250-964-3489
Off Hwy 27, 20 km west of Fort St James.
Situated on Stuart Lake, popular for fishing & boating. Drinking water; pit toilets; fire rings; boat launch; windsurfing; waterskiing; no day-use area—use Paarens Beach
. Rates (subject to change): $10.00—$10.00 for 4 persons

Gilbert A. LaBine 1890—1977

Mr. Uranium

Gilbert LaBine helped shape the course of world history when in 1930 he discovered pitchblende at Great Bear Lake in the Northwest Territories.

With his discovery there of the ore that yields radium and uranium, LaBine pushed Canada into the atomic age. He was probably one of the few Canadian prospectors of that time who could have identified the pitchblende mineral.

A largely self-taught man, LaBine well before his historic find of the famous Eldorado uranium mine at Great Bear had already tried to make his mark on Canadian mining, though his earlier efforts at discovery and development of silver and gold had not borne much fruit.

Born in 1890 near Pembroke, Ontario, LaBine early on in his life was active in the silver fields of the province's Cobalt area, and enjoyed some modest success at the time of the Porcupine and Kirkland Lake gold staking rushes. He prospected in the years before the First World War with such notables as Benny Hollinger, and lent a hand to Harry Oakes when Oakes was just a greenhorn fresh out from England.

But LaBine and a brother, Charles, had little luck with a gold prospect at Sesikenika Lake, or with another gold find in central Manitoba, where he and Charles formed a company, Eldorado Gold Mines.

Though Eldorado Gold didn't succeed as hoped, it did provide LaBine with the finances he needed to move further afield, and led directly to Great Bear Lake, and the new Eldorado uranium mine.

That trip, with partner C.E. St Paul, was an epic of human hardship and perseverance. LaBine's successful development of the mine, and the building of a refinery at Port Hope, Ontario, to produce radium and the then-useless uranium was another battle against great odds.

The Eldorado radium/uranium ore was so rich that it broke a stranglehold on radium then held by Belgium. But with a saturated market and stockpiles building, production at Eldorado was suspended until the advent of World War II and the sudden urgent demand for uranium—uranium used to produce the first atomic bomb, the bomb that at Nagasaki and Hiroshima ended the most devastating war in history.

As a war measure, the Canadian government had arbitrarily expropriated the Eldorado mine in 1943, although LaBine continued to manage it until 1947.

Just a few years after he discovered the great Eldorado deposit, however, LaBine had returned to central Manitoba, where, in 1934, he formed Gunnar Gold Mines, a successful gold producer for several years.

Then, in the post-war period after LaBine had left the now Crown-held Eldorado operation, his Gunnar Gold company discovered a large uranium orebody in northern Saskatchewan, and it too made a significant contribution to Canada's pre-eminent and continuing position as a uranium producer.

LaBine richly deserved the title as Canada's Mr. Uranium, and honors were heaped on him from all sides. He was invested into the Order of the British Empire in 1946, received the coveted Inco Medal in 1957 and in 1969, toward the end of his life, was made a member of the Order of Canada.