Mt. Higgins Field Trip

July 15th 2007

Put on by Washington Agate & Mineral Society

By RoseMae Bork

Several weeks ago we decided to go on the trip for rhodonite. We were told to meet at the Big Lake Store. **tip: always check with the Wagon-Master before going on field trips. I E-mailed the people in charge and was told that we were now meeting at Oso at 9 a.m. Mike e-mailed back saying that if going we would need good tires on the truck and he would need my auto insurance for the lumber company. I sent off the paperwork and early Sunday morning set out to meet the rockhound group.

We arrived in Oso shortly after eight 8 am and no one else had arrived yet so we took a short ride, and to my delight a sale was found. We looked at her nice collection of craft items she had for sale and I couldn't find anything I wanted. We were just leaving and I asked if she had any old jewelry for sale and she said "yes, I have some of my mothers." She disappeared into the house and a minute or two later brought out a plastic box filled with old earrings. I asked what she wanted for the whole box, purchased it, and joined the group that was arriving at Oso.

We left several cars there and carpooled. Brian Hughes from our club rode with us. There are two locked gates which had to be opened so the nine cars could pass through and then be relocked. The road up to the quarry was very rough in spots where they had put large hunks of crushed
rock, some of which was very sharp.

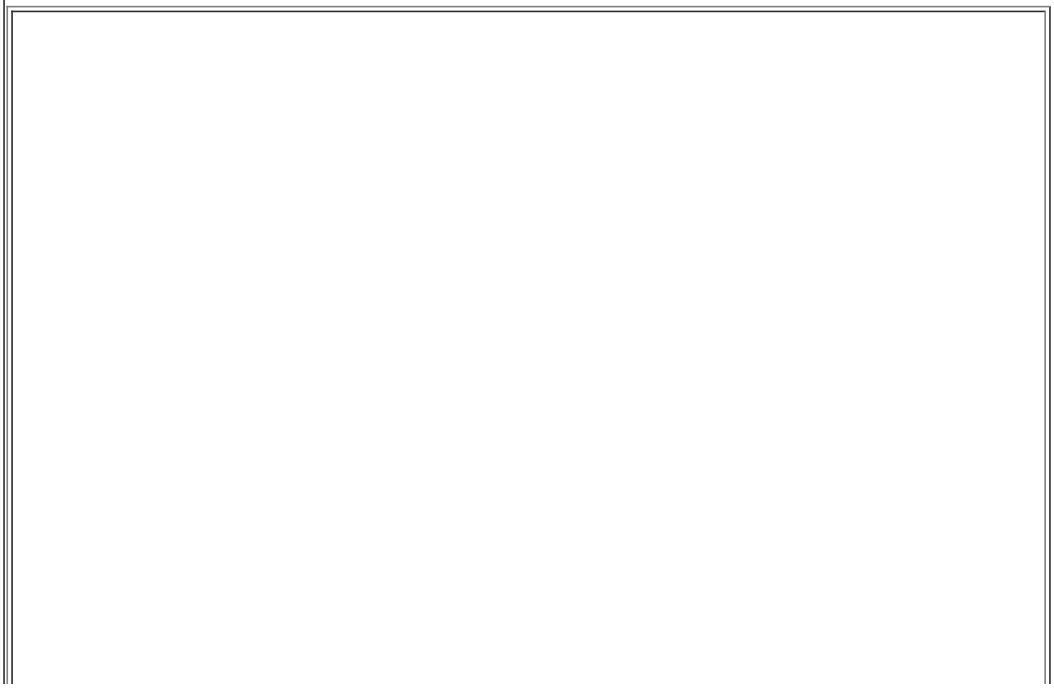
Last year on the field trip cars could take a better route, but mother nature saw fit to carry off the bridge over Deer Creek and deposit it further down stream closing that road. It took over an hour and a half to arrive at the dig site. Along the way se saw Tiger Lilies, Daisys, Salmon Berries, Strawberries, and Fox Glove. Some reported seeing a rabbit and a deer. An elderly gentlemen had to leave his car along side of the road part of the way up as he had two flat tires. He rode up the rest of the way in someone else's car. About ten minutes after arriving at the quarry, this gentleman lost his balance and fell, and had a serious head wound. We had a blanket in the truck so laid that on the ground for him. 911 was alerted and said the ambulance would be at the main road and someone would have to drive him down to meet them. He was laid in the back of a jeep and they left to meet the medics.

A seam of rhodonite was uncovered and several of the men took turns breaking it up, a wheel bar- row was used to move extra rock and dirt and a pile of samples soon filled the roadway to be divided up at the end of the day.

The weather was great for the trip, but the deer flies, or whatever would have liked to have had us for dinner, they did get quit a few samples. **Tip: we laid out our tools at home and spray painted a strip on each; no trouble spotting them, and it also helps to prove they are yours. By 4 pm the pile was divided and the caravan started back down the road, stopped at the washed out bridge area to look for jade, the car with the flat tires was checked, and several of the men were to return on Monday to fix it and bring it out .. I inquired about our blanket and I guess it went to the Arlington Hospital with the man.

We had a good day of fellowship and collecting. 6 pm we arrived back at the meeting place in Oso and everyone left for home. Thanks to Mike Messenger and Ed Lehman, the contact people who arranged to get the keys for the gates and also Ed's big guard dog was along to keep an eye on everybody.

From Stone Age News 08/07



Mt Higgins Trip, July 15, 2007, Rhodonite Trench

Twinned Minerals

Twinned minerals can add a fascinating side to ordinary minerals or can add another dimension to already complex minerals. There are several minerals that form classic twins, such as chalcocite, fluorite, sanidine, microcline, staurolite, gypsum, cinnabar, spinel, and rutile to name a few. Some twins have colloquial names, such as 'fairy cross', 'iron cross' and 'cogwheel' twins. Twins form as a result of an error during crystallization. Instead of a normal single crystal, twins grow out of, or into, each other.

Accidental relationships are not considered twins, that is, where two distinct crystals grow more or less randomly side-by- side or toward each other. Twin formation is never random and follows certain defined rules called twin laws, usually named for well known twins, Spinel law, Albite law, etc.

The twin laws are crystallographic in nature and are caused by flaws in the crystal structure occurring during growth or change in phase. Many minerals form with a stacking sequence. If an error occurs during growth the twin forms as a mis-positioned sequence, which is repeated as if nothing happened. The crystal(s) grow outward in both directions. Twinning has dramatic effect on the outward symmetry of the mineral. There are two general types of twin styles, contact and penetration. Contact twins have a composition plane that forms the boundary between them, a mirror plane where the twins look like reflected images or an angled plane resulting in a 'bend' to the twin forming dove-tails, fishtails and chevrons. Penetration twins look like whoever made the crystal didn't know how it was supposed to fit and ended up twin crosses, 3-D stars, and complex structures. Twinning is actually rather common in the mineral kingdom, but perfectly formed twins are not.

Reference: http:/galleries.com
via eTumbler 07/07, via Breccia, 2/07; via Petrograph, 3/04; from Gem-N-I Newsletter, 7/03

Killer Collision
Dino demise traces to asteroid-family breakup

Ron Cowen
Science News Online 09/08/07

A huge chunk of rock hit Earth 65 million years ago, setting off events that wiped out the dinosaurs. That chunk, astronomers now say, was a wayward fragment from a collision between two giant asteroids in the inner part of the asteroid belt, which lies between Mars and Jupiter. The new study adds to the evidence that both Earth and moon have been bombarded by about twice the usual number of asteroid fragments during the past 200 million years.

Earth is now at the tail end of this asteroid shower, say Bill Bottke of the Southwest Research Institute in Boulder, Colo., and his colleagues in the Sept. 6 Nature.

The researchers began their study by pondering the pattern of craters on 951 Gaspra, a member of the Flora family of asteroids. Searching

for objects that could have caused the impacts, the team examined a much darker, harder-to-detect group of asteroids, the Baptistina family, that resides close to the belt's inner edge and near the Flora family.

Bottke and his colleagues were intrigued to find that the Baptistina family stretches over a region containing two gravitational-escape hatches, places where a gentle nudge could kick an asteroid out of the belt and into the inner solar system toward Earth. Once ejected, members of the Baptistina family could wallop a lot more objects than just Gaspra.

Tracing the paths of the Baptistina asteroids back in time, the researchers calculate that the objects originated as a single, 170-kilometer-wide body that was shattered by another big rock in the belt some 160 million years ago. About 20 percent of the Baptistina family escaped the belt, and about one-tenth of those asteroids would have continued on to Earth, doubling the number of objects striking the planet over the past 150 million years, Bottke and his collaborators say. Some 20 percent of the near-Earth asteroids are Baptistina-family escapees, they estimate.

"This is an amazing result and shows that recent events [in the asteroid belt] can strongly influence our impact history," says planetary scientist Derek Richardson of the University of Maryland at College Park.

To link these findings to the death of the dinosaurs, Bottke's team examined the composition of the 180-km-wide Chicxulub crater in Mexico. Most scientists accept the crater as proof that a space object collided with Earth 65 million years ago, causing the mass extinction at that time.

Sediments from the crater indicate that the impactor must have been a carbonaceous chondrite, an especially primitive meteorite. Such rocks have compositions matching that of the Baptistina asteroids but not that of several other candidates. Bottke's team calculates a 90 percent chance that the dinosaur killer came from the Baptistina family.

"Dead is dead, no matter where the bullet came from," notes asteroid researcher Alan W. Harris of the Space Science Institute in La Cañada, Calif. What's most important, he says, is that the team, studying recent data on hundreds of thousands of asteroids, has dated the origin of this family and argued that it eventually sprayed an "asteroid shower" toward Earth.

Another escapee from the Baptistina family probably gouged the 85-km-wide Tycho crater on the moon, the team suggests.

KILLER ROCK. Artist's illustration shows collision of two giant asteroids (left). Ejected fragments might have struck the moon and Earth, creating the lunar Tycho crater (top right) and triggering widespread destruction on Earth some 65 million years ago (bottom right). SwRI

3rd Annual South Sound Gem, Opal and Mineral Show

The 3rd Annual South Sound Gem, Opal and Mineral Show will take place this year on November 9th though 11th, co-sponsored by the Northwest Opal Association and the Boeing Employees' Mineralogical Society. The venue will be the Expo Hall at the Western Washington Fairgrounds in Puyallup.

The show will feature individuals' display cases containing lapidary, faceting and jewelry arts, along with mineral and fossil collections. As in previous years, there will be Special displays. Other possible displays will be an array of Ellensburg Blue agate, carved stone, a dinosaur diorama, and a Space Needle model constructed of cut and polished rock and provided by the Puyallup Valley Gem and Mineral Club.

Thirty-to-thirty-five dealers will be offering their products, including gemstones, opals, minerals, rough rock and slabs, jewelry, beads, findings, fossils, books, lapidary equipment and tools.

Approximately a dozen demonstrators will be showing their skills in such areas as gemstone faceting, opal cutting and carving, wire wrapping, gem identification, beading and intarsia.

The Creative Center will once again cater to activities for adults and children.

There will be a silent auction, a fluorescent mineral display, a raffle and door prizes. Food will be available at the concession booth in the building. The show is wheelchair accessible and parking is free in the Gold Lot located across the street from the Fair Gold Gate entrance.

Show times this year are 10 a.m. to 5 p.m. Friday and Saturday, and 10 a.m. to 4 p.m. Sunday.

Admission is: Adults - $4.00, Seniors (+55) - $3.00, Students (age 13-17) - $3.00, and children age 12 and under accompanied by a parent or adult - free. An $8.00 Combo Ticket, which may be purchased at our gem show and at the Antique and Collectibles Show, is good for admission to both shows.

Oddities of Obsidian

Obsidian is an extrusive igneous rock formed when the magma of an erupting volcano reaches the earth's surface and cools rapidly. It is an extrusive rock because it was pushed out onto the surface. The cooling of the extrusive rock occurs so rapidly that the magma doesn't form minerals at all, but a volcanic glass.

It derives its name according to Pliny, an ancient Roman naturalist, from a fellow named Obsious, who found it in Ethiopia. Originally, it was named "obsianous", but the spelling was changed over the centuries to its modern form.

Obsidian occurs in many colors, black being the most common. It can also be red, brown, or even green. It can contain inclusions of magnetite, ilmenite, iron oxide, potassium oxide, sodium oxide, lime, and magnesium. It is composed of 66-77% silica, with about 13-18% alumina. Magnetite most likely gives obsidian its black color, and oxidized magnetite or hematite the reds and browns.

With slow cooling, silica crystals of Cristobalite form, forming the "snowflake" obsidian or "flowering" obsidian. Iridescence reflected from minute inclusions arranged in layers is known as "rainbow obsidian". Another kind with gold inclusions with a strong metallic luster is called "gold sheen obsidian", and if the inclusions are grayish silver in color, it's called "silver sheen".

Obsidian is interesting in many ways, but mainly, for all practical purposes, it is a true glass. It has a hardness of 5-5.5 on the Mohs hardness scale. It represents a quickly congealed mass of molten rock, for if it had time to cool slowly, it would have crystallized into a rock similar to granite or rhyolite.

It shows no trace of crystalline structure nor possesses any established composition and must be considered a rock instead of a mineral. It is amorphous, having no regular internal arrangement of atom as is crystals. The amorphous is taken from Greek and means "no form" because there is no pattern to amorphous materials. The atoms are jumbled together in small groups like particles in a pile of sand. It is extremely brittle and breaks easily with shiny, black conchoidal fractures—a feature so perfectly developed that is is identifiable easily in the field. It is translucent and will not soften when heated to a bright red.

Obsidian is found throughout the western United States, mostly in Alaska, Colorado, Utah, New Mexico, Arizona, Wyoming, Oregon, Nevada, and California. It is also found in British Columbia, and throughout Mexico.

American Indians valued obsidian highly. Its perfect texture and easy fracture made it a prize possession for chipping into arrowheads and large ceremonial spear points.

The Aztec called obsidian "iztli" or teotetl" meaning "divine stone" because of its usefulness in carving and ceremonial blades. Even one of their gods was named "Itzpapalotl", meaning "obsidian butterfly".

Obsidian is also used to make attractive jewelry as cabochons or faceted. Thin slabs can be cut with a common glass cutter. Due to its extreme heat sensitivity, great care must be taken in working obsidian. Industries use obsidian as a raw material to make rock wool. Surgeons have even used thinly chipped obsidian knives is surgery because of the fine exact cut and obsidian knife makes.

By Delores E. Rose, from Stoney Statements, 04/01 via The Petrified Digest 06/07

About "Plate Tectonics" and Mineral Deposits

By C. E. Johnson from S.C.R.I.B.E. 2006CD

The concept of Plate Tectonics evidently is now nearly universally accepted and endorsed by the majority of geologists and earth-scientists,

and it can now be safely stated that nearly all of our continental and oceanic mineral deposits are created by the forces that cause the Plate Tectonics, and by the subsequent reactions and chain of events that follow.

What exactly is Plate Tectonics? To put it simply, it refers to the movements of the earth's continents, which are referred collectively as "plates" by the earth-science community.

Yes, continents do move, but they are actually being moved. There is abundant evidence that these plates actually slowly move away from and into each other (over periods of many thousands or millions of years). The ever-active dynamic and magmatic forces beneath the oceans' crusts and in the underlying "lithosphere" and upper "mantle" of the earth; are the primary movers of the plates.

The major processes involved are "sea-floor spreading", subduction, remelting, and magmatism. These processes have continued for millions of years since the earth was "born", and will probably continue for many more millions of years, or until the earth "dies" whenever. What is "sea-floor spreading"? This is simply magmatic material invading into the oceans' crusts from the lithosphere & upper mantle below, pushing upward & outward, creating under-sea mountain ranges (along with their own types of mineral deposits); expanding and pressuring the continental crusts; resulting in the subduction and remelting of some of the oceanic crust as it plunges downward underneath the edges of the continents. The great pressure and heat creates new magmatic bodies ("hot spots") which eventually rise into the disturbed continental crusts and create our various mineral deposits by the usual processes of magmatic intrusion and metamorphism in the continents.

This is fascinating, and is a giant step for exploration & mining, and earth-science in general. It answers many perplexing questions, and gives us a much better perspective for future planning.

This article is only a basic introduction. If you have read this far, you must be interested, so I strongly recommend that you borrow a few recent authoritative books on the subject for more details.

From Carny Hound 06/07