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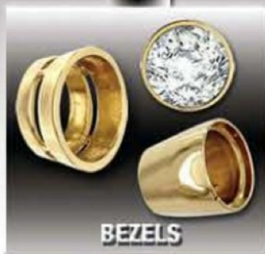
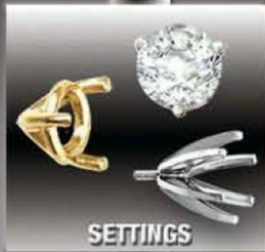


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Rock & Gem

Volume 41, Number 08

August 2011

ON THE COVER

Chinese lapidary artists have used jade to create exquisite artworks for centuries. This green nephrite carving resides in the Lizzadro Museum of Lapidary Art. (Jeff Kurtzman photo)

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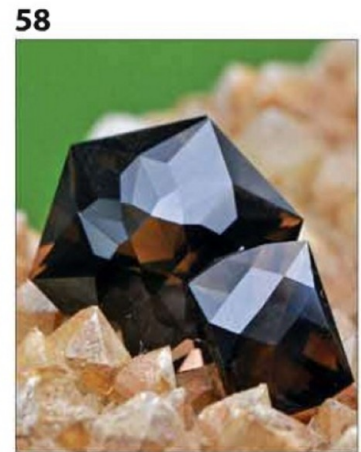
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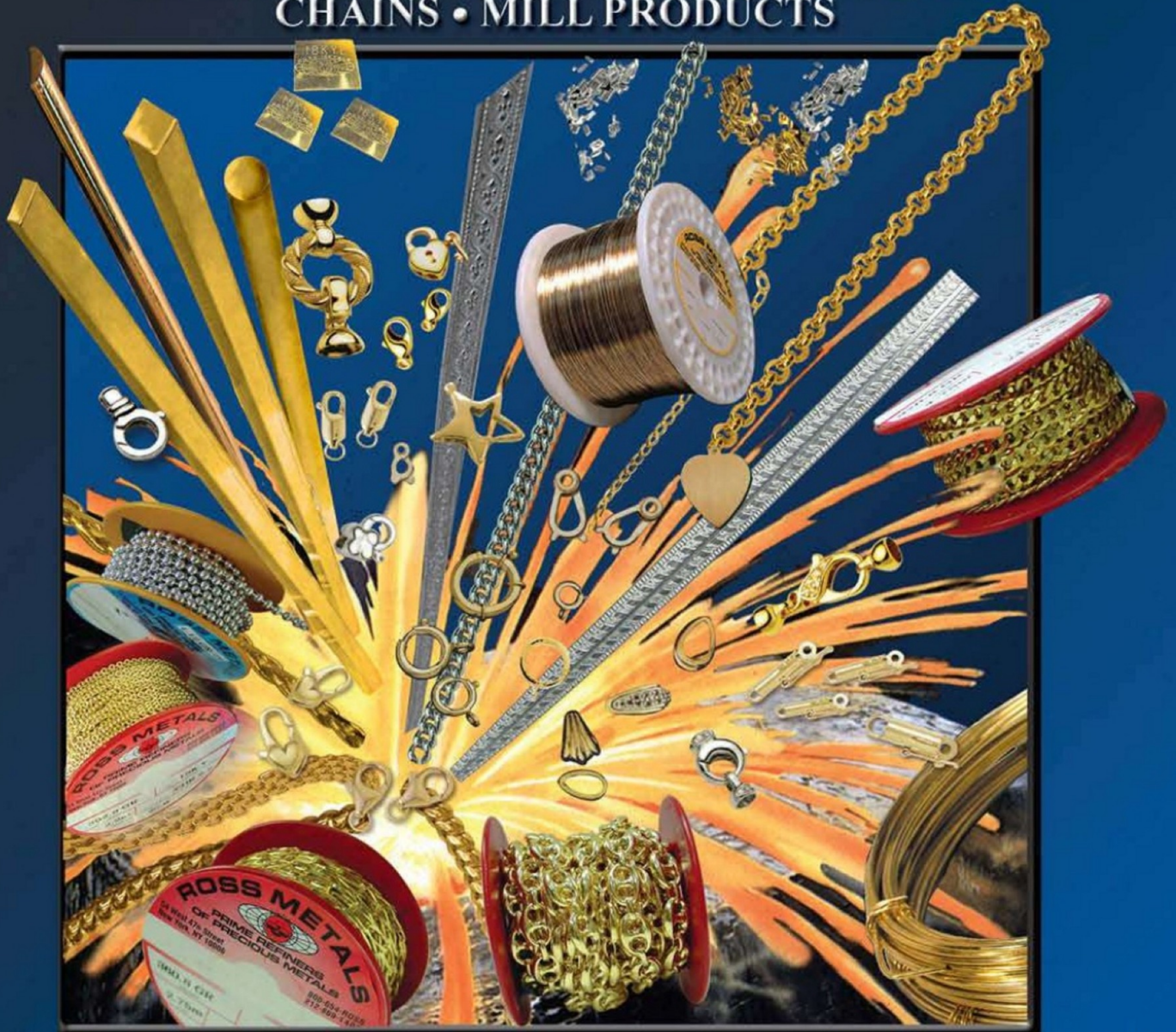
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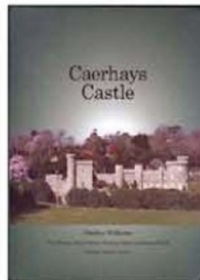
by Charles Williams, with sections by Peter Herring, Jaimie Parsons, Courtenay Smale, and Stephen Terrell
30£ (about \$48.00 US)

Readers who are interested in the minerals of Cornwall, England, will enjoy this treatise on one of Cornwall's leading mining families during the 18th and 19th centuries. If you found my articles "Cornwall's Secondary Minerals" and "The Caerhays Castle Mineral Collection" (March 2011 *Rock & Gem*) of interest, you'll enjoy reading this detailed history of the role the Williams family played in Cornish mining in its heyday! It controlled the production of at least 20 major mines in the district whose names are very familiar to advanced mineral collectors. They built a smelter and developed a shipping industry to move ore from Cornwall to Swansea, Wales, and developed interests in mining worldwide!

The text is well written by a group of knowledgeable writers and is an excellent historical reference on one of the more significant Cornish mining families living in one of the great mining provinces of the world. The Williamses, whose fortune was founded upon copper and tin, became business leaders in Cornwall and England, and developed a major horticultural industry that is so well described in the text.

Of particular interest to readers will be Smale's discussion on the Caerhays Castle mineral collection and the Williams family as leaders in the evolution of Cornwall's mining industry. Their role in the emergence of Cornwall as the world's most important copper mining region gives great insight into this important mining era. The 259-page text is illustrated with full color photos, charts, drawings and maps.

Collectors planning a visit to England should consider reading this text and including a visit to one of Cornwall's historically important mineral collections in their itineraries. (Pasticcio Ltd., 2011)



—Bob Jones

Roadside Geology of Missouri

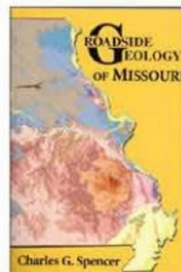
by Charles G. Spencer
\$20

Travelers who have passed through Missouri are well aware of the many limestone caves in that state, many of which are open to tourists. They are a direct result of the geology of the state and are nicely documented in this text. Its 273 pages include 180 color photos and 80 maps and illustrations, and features an excellent glossary and bibliography.

The author has divided the state into regions, each of which is unique and well explained. The book begins with an excellent brief description of plate tectonics and the geologic timeline as it relates to the state. The Road Guides provided for each region put the landscape you can see from your car window into geological context. The author has even provided some good information on the famous New Madrid earthquake, which had such a profound effect on that area.

Mineral collectors who enjoy the minerals of this great state and who want a deeper understanding of their origins will find this book a useful and worthwhile addition to their library. (Mountain Press Publishing Co., 2011)

—Bob Jones



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CRAFTSMAN OF THE MONTH

August Craftsman of the Month Don Deycous, of Ephrata, Washington, writes, "One Saturday morning, while at the local Farmers and Crafters market as a vendor, I was outside my book looking at how I had set up my display. The table looked very nice, with one exception: my business card holder. It was a cheap, plain wooden holder that my wife had found somewhere years ago. I decided that I needed to make a card holder that could complement the polished agate on my table. My favorite lapidary material is petrified wood. I have a good selection of material from Saddle Mountain, Washington, to work with so, naturally, I chose it for my project.

"The card holder dimensions are 1½ inches wide by 3⅞ inches long (bottom piece); 1½ inches wide by 2¼ inches (sides); ⅜ inch wide by 4⅜ inches long.

"First, I cut two ¼-inch-thick slabs to get the bottom and sides from. Next, I cut two slabs ⅜-inch-thick to get the front and back pieces from.

"Next, I put the two ¼-inch-thick slabs together in the saw and cut both 1½-inch-wide pieces at the same time. Then I took one of the slabs and cut the 1½-inch by 3⅞-inch piece for the bottom. From the other slab, I cut the two 1½-inch by 2¼-inch pieces for each end. Finally, I put the two ⅜-inch slabs together and cut the four ⅜-inch-wide strips for the front and back pieces.

"Before assembling the pieces, I needed to polish the surfaces of the bottom and side pieces that would be on the inside of the holder. I used the 180 and 280 grit wheels on the left side of my Genie, and the 600 and 1200 wheels on the right side. I finished polishing on a leather wheel with cerium oxide.



"I assembled the pieces by attaching the sides to the outside of the bottom slab and the strips to the outer edges of the bottom and side pieces using two-part 5-minute epoxy. You may want to break some of the polish glaze on the bottoms of the side pieces before gluing. Be very sure the sides are at exactly 90° to the bottom before the epoxy hardens.

"While the ends are curing, you can polish all sides of the strips that will become the front and back of the project. After attaching the front and back strips, I finished polishing the outsides of the end pieces and the bottom. I now have a card holder for my table that looks very nice." ♦♦



Would you like to be named Craftsman of the Month?

To enter the contest:

- Write a 500-word step-by-step description of how you crafted your lapidary project from start to finish. Save it as a document file.
- Take at least one sharp, close-up, color photo of the finished project. Photographic prints (no laser prints) or high-resolution (300 dpi at 4 inches by 5 inches) digital photos are acceptable.
- Burn your document file and digital photo (.tif or .jpg) to a CD.
- Mail your CD, photo, and a printed copy of your manuscript, along with your name and street address (required for prize delivery), to Craftsman of the Month, *Rock & Gem* magazine, 290 Maple Ct., Ste.



232, Ventura, CA 93003. Submissions will not be returned, so do not send originals. Only winners will be notified. Contact the editor at (805) 644-3824 ext. 129 or editor@rockngem.com with any questions about these requirements.

Craftsman of the Month winners receive a two-speed Dremel Model 200 N/40 MultiPro kit and a wall plaque in recognition of their creativity and craftsmanship. Winning projects are also posted on our Web site, www.rockngem.com.



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AUGUST 2011

Carleen Mont-Eton, 4134 Judah St., San Francisco, CA 94122, (415) 564-4230; e-mail: publicity@show.sfgms.org; Web site: www.sfgms.org

11-14—BUENA VISTA, COLORADO: 28th annual show; Contin-Tail LLC; Rodeo Grounds, Greg Dr. and Rodeo Rd.; Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; more than 100 dealers, rocks, minerals, fossils, gemstones, jewelry, tools, equipment, demonstrations, fluorescent mineral display Fri. and Sat., free rocks for kids; contact Carolyn Tunnick, 1130 Francis St. #7010, Longmont, CO 80501, (720) 938-4194; e-mail: ctunnick@comcast.net; Web site: www.coloradorocks.org

12-14—DALTON, GEORGIA: 20th annual show, "North Georgia Gem, Mineral & Jewelry Show"; Treasures Of The Earth Gem & Jewelry Shows; Northwest Georgia Trade & Convention Center, 2211 Dug Gap Battle Rd., I-75 Exit 333; Fri. 2-7, Sat. 10-6, Sun. 11-5; adults \$3 (3-day ticket), children under age 16 free; jewelry makers, goldsmiths and silversmiths, jewelry repair and design, wire wrap, wire sculpture, stone beads, pearls, stone setting, dealers, amber, opal, fossils, minerals, door prizes, grand prize; contact Van Wimmer Sr., 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: vawimmer@verizon.net; Web site: www.toteshows.com

12-14—PASS CHRISTIAN, MISSISSIPPI: Annual show; Harrison County Gem & Mineral Society; West Harrison Community Center, 4470 Espy Ave.; Fri. 12-6, Sat. 9-6, Sun. 10-4; adults \$3, children under 12 free with adult; geologist rock ID, prize raffle; contact Tomsey Westermeyer, 9270 Serenity Dr., Pass Christian, MS 39571, (228) 586-5279; e-mail: tomsey@cableone.net; Web site: www.gulfportgems.org

12-14—SAN DIEGO, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Scottish Rite Center, 1896 Camino del Rio S; Fri. 12-6, Sat. 10-6, Sun. 10-5; jewelry, gems, beads, crystals, silver, rocks, minerals; adults \$7 weekend pass, children 11 and under free; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

12-14—WEST SPRINGFIELD, MASSACHUSETTS: Show, "East Coast Gem, Mineral & Fossil Show"; Martin Zinn Expositions; Better Living Center, Eastern States Exposition, 1305 Memorial Dr.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$6, children 12 and under free with adult; more than 200 dealers, door prizes, guest speakers, museum-quality exhibits, gem panning, large wholesale section, Scott Randolph collection; contact Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexp@comcast.com; Web site: www.mzexp.com

13-14—ASHEVILLE, NORTH CAROLINA: Show; Intergalactic Bead & Jewelry Shows; Haywood Park Hotel, One Battery Park Ave.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

13-14—AUSTIN, TEXAS: Annual show; Austin Bead Society; Palmer Events Center, 900 Barton Springs Rd.; Sat. 10-6, Sun. 11-5; adults \$5; handcrafted jewelry, supplies, raffles, \$1 off admission with donation of two cans of food; Sat. 10-6, Sun. 11-5; contact Austin Bead Society Bazaar, 900 Barton Springs Rd., Austin, TX 78704, (512) 773-8323; e-mail: austinbeadsociety@yahoo.com; Web site: austinbeadsociety.org

13-14—EDMONDS, WASHINGTON: Annual show; Maplewood Rock & Gem Club; MRGC clubhouse, 8802 196th St. SW; Sat. 9-5, Sun. 10-5; free admission; more than 20 dealers, rough rock, jewelry, minerals, fossils, free rocks for kids; contact Susan Cooper, 1526 192nd St. SE, #A2, Bothell, WA 98012, (206) 650-5971; e-mail: duckansas@hotmail.com; Web site: maplewoodrockclub.com

5-7—HILLSBORO, OREGON: Wholesale and retail show; Gem Faire Inc.; Washington County Fairgrounds, 873 NE 34th Ave.; Fri. 12-6, Sat. 10-6, Sun. 10-5; jewelry, gems, beads, crystals, silver, rocks, minerals; adults \$7 weekend pass, children 11 and under free; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

5-7—NIPOMO, CALIFORNIA: Annual show; Orcutt Mineral Society; St. Joseph's Church Recreation Hall, 298 S. Thompson Ave.; Fri. 10-5, Sat. 10-5, Sun. 10-5; free admission; Treasure Chest Drawing Sun.; contact Gloria Dana, 426 Calisto Ln., Nipomo, CA 93444, (805) 929-6429; e-mail: info@omsinc.org; Web site: www.omsinc.org

5-7—NORTH BEND, OREGON: Annual show; Far West Lapidary & Gem Club; North Bend Community Center, 2222 N. Broadway; Fri. 10-5, Sat. 10-5, Sun. 10-4; adults \$1, children under 14 free; demonstrations, wheel of fortune, silent auctions, kids' treasure pool, dealers, rough rock, findings, beads, lapidary equipment, finished jewelry, slabs, carvings, gemstones, mineral specimens; contact Don Innes, 54416 Arago-Fishtrap Rd., Myrtle Point, OR 97458, (541) 396-5722; e-mail: donin11@hughes.net

5-7—MELBOURNE, FLORIDA: Show; Frank Cox Productions; Melbourne Auditorium, 625 E. Hibiscus Blvd.; Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

6—ISHPEMING, MICHIGAN: 36th annual show; Ishpeming Rock & Mineral Club; Ishpeming Elks Club, 597 Lake Shore Dr.; Sat. 9:30-4:30; free admission; mineral displays, dealers, kids' area, silent auction, hourly prizes, raffle, mineral demonstrations, field trips Fri. and Sun., Cracker Barrel session Sat., live auction, raffle, program; contact Ernest Johnson, 1962 W. Fair, Marquette, MI 49855, (906) 228-9422; e-mail: ejohnson@nmu.edu

6-7—CINCINNATI, OHIO: Show; Intergalactic Bead & Jewelry Shows; Sharonville Convention Center-North Hall, 11355 Chester Rd.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

6-7—ORANGEVALE, CALIFORNIA: Annual show, "Treasure Trove of Gems"; Gimp & Balsach Inc.; Orangevale Community Center, 6826 Hazel Ave.; Sat. 10-6, Sun. 10-5; adults \$4 (weekend pass \$6), children 12 and under free with adult; more than 20 dealers, exhibitors, demonstrators, kids' activities, family activities, gold panning, displays, earth science presentations, educational opportunities, grand prize drawing, hourly drawings; contact John Moulder, 1911 Douglas Blvd. #85-150, Roseville, CA 95661, (916) 290-3193; e-mail: gbcorp@surewest.net; Web site: www.TreasureTroveofGems.com

6-7—WATERVILLE, MAINE: 41st annual show; Water-Oak Gem & Mineral Society; Mount Merici School, 152 Western Ave.; Sat. 10-5, Sun. 10-4; adults \$2, children under 12 free; minerals, jewelry, supplies, beads, faceted stones, demonstrations, lapidary art, fluorescent minerals, books, magazines, gems, fossils, exhibits, dealers; contact Ellery Borow, (207) 547-3154

6-7—SAN FRANCISCO, CALIFORNIA: Annual show; San Francisco Gem & Mineral Society; Presidio Golden Gate Club, 135 Fisher Loop; Sat. 10-6, Sun. 10-5; adults \$7, seniors and students \$6, children under 12 free with adult; exhibits, dealers, gemstones, fossils, minerals, crystals, beads, lapidary equipment, lectures, demonstrations, jade carving, chain maille weaving, wax carving, Etruscan chain forming, silver clay modeling, door prizes; contact

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- JUL. 22, 23, 24 EUGENE, OR
- JUL. 29, 30, 31 LYNDEN, WA
- AUG. 5, 6, 7 HILLSBORO, OR
- AUG. 12, 13, 14 SAN DIEGO, CA
- AUG. 19, 20, 21 SACRAMENTO, CA
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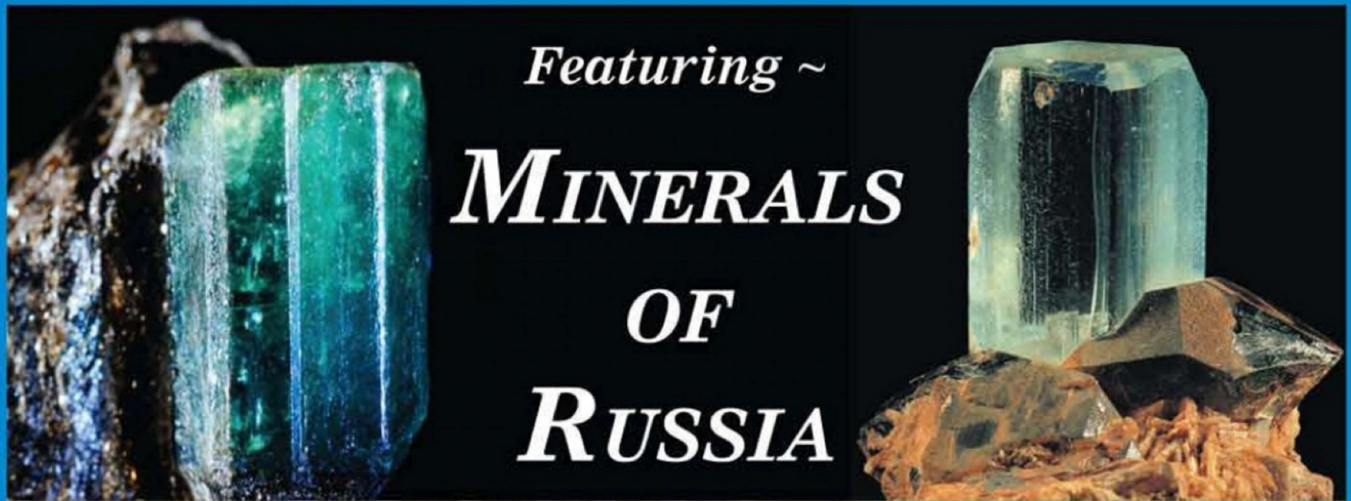
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LEFT: EMERALD, 8 x 335 CM, IZUMRUDNYE KOPY, MIDDLE URALS, RUSSIA
RIGHT: TOPAZ, SMOKY QUARTZ & ALBITE, CRYSTAL 4 x 2.5 CM, MOKRUSHA
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BIG SUR Jade Festival

A Celebration of Jadeite and Nephrite

Story by Dale Blankenship/Photos by Chris Poelma

It's a convention of jaded people, and it happens every October. In spite of the rather appropriate but inarguably remote location, the annual Big Sur Jade Festival draws thousands of people to this rural-flavored experience situated along the rugged central California coastline on state Route 1, also known as the Pacific Coast Highway (PCH).

The travelers on this road are either touring the seemingly endless seashore vistas or focused on a specific destination. Passengers are treated to breathtaking views where the cliff-hugging road repetitively ascends and descends while coursing in and out of countless hairpin curves. Only the foolish driver takes more than an occasional momentary glance at anything but the road ahead—or, at least, as far as the next bend in the road. Fortunately, there are ample pullouts to permit the designated driver to enjoy the view, too. The scenery alone is worth the restrictive speed of PCH.

Big Sur is situated south of Monterey Bay and north of San Luis Obispo. The Big Sur Jade Festival is located on the Pacific Valley School grounds, approximately halfway between Carmel-by-the-Sea and San Simeon, in an area of the coast that is somewhat more hospitable to human tenancy. Rather than the steep cliffs that abruptly disappear into the sea, this vicinity provides a somewhat gentle slope from the hills to the shore. The school is situated on a reasonably level area just above PCH. The half-dozen or so small school buildings are tucked along the perimeter of a grassy clearing. It is on this clearing that the festival takes place.



Botryoidal nephrite specimens are colloquially called 'botrys' or 'bots' by jade collectors.

From Plaskett Point, nearly opposite the school grounds, south to Jade Cove, jade can be found as pebbles, cobbles and boulders. Beachcombers frequent the shores in search of the prized nephrite pebbles. Larger jades are extracted from the sea by wet-suited skin divers. While jade collecting is permitted, there are restrictions, which are rigorously enforced by the state (consult the U.S. Code of Federal Regulations Title 15, Section 922.132 at <http://montereybay.noaa.gov/intro/mp/regs.html#prohibitions>). These restrictions were put in place to protect the bluffs above the beach from destruction by zealous commercial miners or over-exuberant rockhounds.

The locals here have first rights to all the jade collected here. It is not a legal right, but rather a right of opportunity. A goodly number of these coast inhabitants are avid jade collectors and spend many free hours combing the beaches or diving in the cold water. They know best where to look and have the opportunity following storms to discover newly exposed material.

Many, if not most, of these local collectors are more than just collectors. They are accomplished artists, as well, and comprise a fair number of the vendors at the Jade Festival. While they are rather down-home rural in their chosen environs, they apply remarkable ingenuity and artistic expression to pebbles and cobbles that the average person would kick aside. Many festival visitors, both female and male, leave with ingeniously carved jade pendants suspended by braided leather thongs around their necks.

It would be well to point out that two not-so-similar stones are appropriately, though unfortunately, called jade. It would take a whole separate article to explain why this is so. The short answer is that confusion existed in the sixteenth and seventeenth centuries about stones brought back to Europe by sea explorers.

One jade is called jadeite. It largely comes from Myanmar and, to a lesser extent, from Guatemala and Kazakhstan. A small deposit of jadeite exists in Japan, but is protected by law from exploitation. Jadeite also exists in California, not far from the festival site, but currently is of negligible commercial value, in spite of the fact that it can be rather attractive and takes a remarkable polish. The jadeite of Myanmar (formerly Burma) is most often referred to as "Burmese jade". It has the greatest commercial value of the jadeites. Most of it is only barely attractive, but it is used nonetheless in Chinese factories for banal carvings and trinket jewelry. The really good stuff is considerably less than common and is used principally for gemstones in mid-range to high-end jewelry. Imperial emerald green jadeite is so rare that most jewelers never see it in their lifetimes. Recently, I watched a noted gem dealer nonchalantly put two dime-size imperial green jadeite cabochons into his pocket to deliver



Internationally renowned jade carver Deborah Wilson discusses jade with fellow Canadian Kirk Makepeace, owner of Jade West and the trademarked Polar Jade.



This sculpture, titled "Jade Dragon Rising", was created by internationally recognized jade artist and regular festival attendee Donn Salt, of Rotorua, New Zealand.



Kenny Comello, of Big Sur Jade Co., was one of the principals who founded the annual Big Sur Jade Festival.



Jade carver Dan Beck displays a nephrite boulder taken by a diver from the waters of Jade Cove at Big Sur, California.



This oversized sculpture was carved from a 130-pound piece of fine New Zealand nephrite by native artist Rob Lynes.



Vonsen's Blue jade is a sky blue nephrite found only in Marin County, California.

to a client. Together, they were worth \$100,000 U.S. And they were not even the best of the imperial.

The other jade is nephrite. While its Mohs hardness is only 6-6.5, this type of jade is the earth's toughest mineral, owing to its tightly interwoven structure. The historical importance of nephrite reaches back five millennia. Nephrite offers nothing that compares to jadeite's extreme best qualities, but it is still highly sought after by jade artisans for its own virtues. In the United States, nephrite has been found in California, Washington and Wyoming, and some has reportedly been found in Oregon, Nevada, and North Carolina.

There are probably more than a dozen nephrite sites throughout California. The Wyoming jade is all but depleted after the "green gold" rush of the 1950s and '60s. Occasionally, a lucky find is made, but most Wyoming nephrite rough now turns up from estate liquidations. Washington nephrite is only recently becoming a significant commercial commodity. The unique and varied appearance of this jade shows a promising future if the right entrepreneurs appropriately exploit its characteristics.

Nephrite is also found in Canada, New Zealand, Australia, Russia, Korea, and the Chinese-controlled Uighur Autonomous Region of Xinjiang, which is known to jade followers as the Khotan (or Hotan) region. Even though Khotan is nearly 3,000 miles from central China, its jade was used by the Chinese for millennia. Today, jade mines in the northern part of British Columbia supply the great majority of jade to meet the ever-increasing demand in Asia.

It was the local interest in the nephrite type of jade that germinated the vision of a festival. In 1989, Big Sur residents Kenny Comello, Lincoln Curtis, and Molly Field developed the nonprofit South Coast Community Land Trust, which is "dedicated to the preservation and continuance of the south coast Big Sur community and culture" (www.scclt.org). Another local, Donna Olson, then manager of The Gorda Store, suggested a jade festival as an opportunity for generating community spirit and involvement. The first festival was held at The Gorda Store, a few miles up the road from Pacific Valley School. Although it was initially a small event, the festival garnered a surprising interest beyond the immediate region. In its fourth year, it had to move to a larger and a geographically more accommodating location. Currently, the Jade Festival is under the stewardship of jade dealer Kirk Brock, owner of Rock Solid Jade.

The vendors' stalls are situated around the perimeter and in the center of a grassy field. While truly a festival—a celebration of the local jade—this event has become much more. Many of the vendors are long-time dealers of jade, some as augmenters to their "day jobs". Others are rather successful entrepreneurs. These jade aficionados comprise what is becoming an increasing and interwoven community of dealers, admirers, carvers and collectors of jade.

This jade community, however, is not confined to this rugged and beautiful part of the California coastline. The event Comello championed and Brock has sustained has developed a worldwide following. Attendees of this annual three-day event form a Who's Who list of big-name players in the jade world. A past attendee and participant is Fred Ward, a world traveler and internationally recognized author, a contributor to *National Geographic* and the publisher of the much-praised Fred Ward Gem Books Series, including *Jade* (Gem Book Publishers, 1996). Fred, as a keynote speaker at the festivals, has related his experiences visiting remote areas of the world to personally inspect jade mining sites.

At the 2010 festival, David Fredericks, an internationally recognized expert and appraiser of artifacts and the owner-curator of Antiquities, Plus in Tucson, Arizona, presented a seminar on

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A beautiful, variegated slab of nephrite is thinly cut and displayed to effectively exhibit the stone's translucency.



The very fine chunk of apple green Wyoming nephrite in the center has an asking price in excess of \$3,000.

the microscopic examination of nephrite jade with audience participation. Also in attendance was Kirk Makepeace, owner of the Jade West group of companies. Kirk operates several mines in northern British Columbia, Canada, and is the largest producer of nephrite jade in the world, supplying thousands of tons annually, mostly to China. Makepeace owns the name of the highly prized Polar Jade™.

A regular attendee and participant at the festivals is the internationally recognized jade artist Donn Salt. Donn brings some of his exquisite and unique jade creations to the festivals. This is not an insignificant feat for him, as his studio is in Rotorua, New Zealand. Other highly recognizable names in the jade art world who have participated at the festivals include Peter Schilling, Matthew Glasby, Georg Schmerholz, Deborah Wilson, and Tom Finneran. The products of their efforts range from unfathomably intricate pendants to museum-caliber mantelpieces.

Jade carvers of less renown, though highly skilled in their own right, occupy a fair number of the vendor stalls. Much of their work is performed on the Big Sur jade pebbles. There are a panoply of pendants, some of which are minimally fashioned to best present a variegated pattern or color or translucency in the stone, while others are abstractly carved for the same purpose. Still others are fashioned into iconic forms, be they imaginative, mystical, mythical or realistic.

A surprising number of the attendees at the festival arrive by happenstance. The stretch of PCH between Monterey and Cambria is a popular weekend getaway scenic drive for many residents of the San Francisco Bay, Santa Barbara, and San Luis Obispo areas. Many a casual tourist has lured in by the vast assortment of jade rings, earrings, bracelets, belt buckles, and even simple "worry stones". The prices can range from affordable to astronomical.

While jade artistry abounds at the festival, much more is offered. Jade in the rough from just about every source in the world can be found for sale by the dealers. Absent only is the jade of New Zealand, which restricts the exportation of rough jade to promote in-country cultural use. There are also large jade boulders, highly polished and intended solely as objects of admiration in their own right. A proliferation of highly polished Big Sur jade cobbles and pebbles are arrayed on numerous sellers' tables, challenging the viewer to refrain from touching and picking them up. One year, I returned from the festival with a 100-plus-pound polished slab of



This pendant carved from quality Siberian nephrite is characteristic of the intricate work performed by Matt Glasby of Carmel, California.

British Columbia jade, which now commands attention in the living room as a coffee table.

Also seen are many superb examples of botryoidal jades. These unusual specimens, usually small but occasionally larger than a cantaloupe, are affectionately called "botrys" or "bots", shortened versions of the term defined as "grapelike cluster". Field collectors take these botrys to their shops, where they painstakingly remove extraneous material and give them a polished luster. These rocks, which might have been kicked aside by the casual hiker on a trail, are highly prized by collectors, and top-of-the-line specimens can easily command four-figure prices.

Similarly, the so-called Vulcan Jades can be found at the festival. These collectors' items may show a hint of esthetically pleasing jade within, but it is their naturally polished, iron-stained brown exterior that delights the jade aficionados. Vonsen's Blue jade is another unusual find. This anomalous nephrite is the only sky blue jade ever found and occurs only in one finite location in California.

While this jade thing is serious business to sellers and buyers alike, the festival has a party atmosphere. Near the entrance is a stage where local bands play folk, country, rock, blues, and more. The basketball court in front of the stage serves as a well-utilized dance floor—except, perhaps, when the local and appropriately attired belly dancers are on stage.

Although the weather frequently behaves itself for the festival, visitors should be prepared for anything from shorts-and-sandals heat to bundled-up cold weather. Overnight travelers to the festival must prepare before the trip. The few primitive camping areas in the immediate vicinity are first come, first served and inevitably fill up before the festival weekend, largely with the vendors themselves. Additional campsites for tents and RVs are about an hour's drive from Pacific Valley School. Motels are available to the south in San Simeon and Cambria.

There are food vendors during the festival, but the selection is somewhat limited. The food is good and not too high-priced. Restaurants are available in San Simeon and Cambria. Do make certain that your vehicle's gas tank is full when heading south from Monterey or north from Cambria on PCH, since there is a dearth of gas stations along this rugged coast.

The 20th anniversary production of the Big Sur Jade Festival is slated for Oct. 7-9, 2011. For more information on this year's festival, visit www.bigsurjadeco.com/festival.html.

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SHOP TALK

by William A. Kappela

Internet Sites

As many of you have already discovered—and many more are discovering every day—the Internet is the most amazing storehouse of instantly accessible information the world has ever seen. If you have a question on any subject, chances are the answer is waiting for you somewhere out there in cyberspace. Even if you don't have a computer and Internet access, most libraries, community centers, senior centers, and so on offer free or very inexpensive use of their equipment. A few mouse clicks and a few typed words will get you answers to questions that you have been unable to find answers for elsewhere.

Would you like to find the closest club to you? Would you like to view tutorials on cabochon cutting? How about finding that slab that you have been looking for without success? Like to buy a new machine? A used one? Build your own? Just search the Internet. Would you like to join a forum where rockhounds and lapidaries go to ask and answer questions on all aspects of the hobby? Do you need a new part for a machine? A new tool? Some faceting rough? Maybe you are going on vacation and would like some field trip information for spots along the way. Just ask Mr. Internet.

Ready to give it a try? Here are some places to start:

www.amfed.org

The American Federation of Mineralogical Societies Web site is probably the first site you should visit if you are new to the Internet. It will give you information on the organized hobby, details of the Junior Rockhounds of America badge program, and useful links. Navigate to the Web sites of each of the regional federations to find an affiliated club in your state.

www.rockhounds.com

Bob's Rock Shop has collections of articles on rockhounding and lapidary topics, a bulletin board called Rock Net where you can ask and answer questions and read what others are asking and answering, classified ads where you might find that widge you have been looking for, and much, much more.

www.gemcutters.org/about.htm

The International Lapidary Association is a forum where you can communicate with other members of the hobby and ask and/or answer questions about all aspects of lapidary. The Home page gives an explanation of what the site is all about. From



there, you can click on an icon and go to the part of the site that interests you. This is one that's really worth looking at.

These sites are of general interest to the mineral and lapidary hobbyist:

www.gemsociety.org

The International Gem Society has a big site with information about a wide range of lapidary subjects. It's well worth a few mouse clicks.

www.dbrockwerks.com

D and B Rockwerks is a site where you can find loads of tips on lapidary processes and links to lots of other sites.

www.squidoo.com/lapidary

Squidoo Lapidary offers tips, projects, photos, and more on a wide range of lapidary interests.

www.stoneageindustries.com/lapidary_tips.html

The Stone Age Industries Web site has a section with tips for just about anything you can think of relating to lapidary. It's well worth a look.

<http://lapidary.brighterplanet.org>

The Lapidary and Rock Polishing Blog has commentary for a wide variety of topics having to do with rock polishing and lapidary in general.

These sites don't even scratch the surface of what awaits you out there on the Internet. Just use a search engine like Google and type in what you are looking for. You will be bombarded with possibilities. ♦

Please feel free to send your questions and comments about any of my columns to Shop Talk, 25231 Pericia Dr., Mission Viejo, CA 92691 or quappela@cox.net.

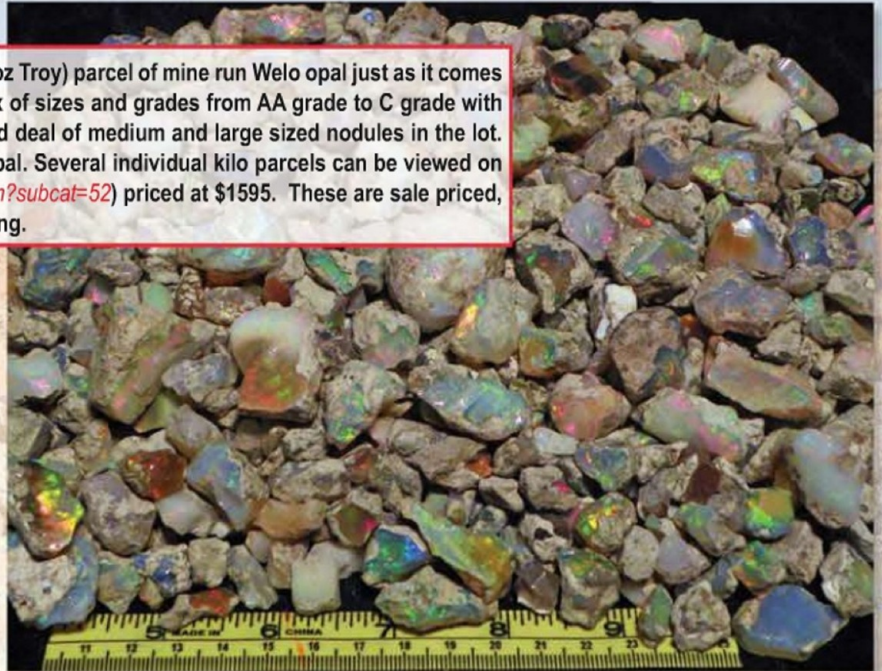


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The **CONNECTICUT MUSEUM and of MINING MINERAL SCIENCE**

A Treasure Trove of Mining, Minerals and Machinery

Story by Bob Jones



BOB JONES PHOTO

The Connecticut Museum of Mining and Mineral Science is in a lovely rural setting.

One of the more popular mineral shows on the East Coast is the East Coast Mineral & Fossil Show, held in West Springfield, Massachusetts, each August. If you are planning on visiting the show, consider making a side trip into nearby Connecticut, where some of the earliest Colonial-era mining occurred. Connecticut produced quantities of copper, tungsten, iron, and other minerals. When the Connecticut pegmatite deposits were investigated in the early 1800s, several new minerals, useful industrial minerals, and even some gems were discovered. All my research bears out the description of Connecticut as the “Cradle of America’s Mining Industry”. So the institution of the Connecticut Museum of Mining and Mineral Science, a museum devoted to Connecticut’s mining industry and the many mineral species found there, seems logical.

Keep in mind that, in the 1800s and into the 1900s, Yale University was a leader in the relatively new field of mineralogy. James Dwight Dana, a Yale professor, wrote the *System of Mineralogy* series of books. For a time, Benjamin Silliman and Benjamin Silliman Jr., two significant Yale professors who started the periodical *American Mineralogist*, were leaders in the science of minerals. It was Silliman Sr. who tested the first American oil, found by Edwin L. Drake in Pennsylvania.

In addition to being America's mining cradle, Connecticut was the leader in the field of mineralogy. Yet, it was a serious oversight on the part of the Connecticut science and mining communities that, in spite of the importance of mining and minerals in Connecticut, especially in the first 200 years of America's development, no museum to commemorate this history had been established.

The creation of the CMMMS in Kent, Connecticut, is not the result of efforts by any educational or industrial organization. One man, John Pawlowski conceived and created it. John is a geologist and earth science teacher and an amateur rockhound who was really bothered that there was no concerted effort to salute Connecticut's mining and mineral industries, so he decided to do something about it. What he has accomplished is nothing short of a small miracle!

After all, mining was very important to the earliest colonists. John Winthrop Jr., in addition to being politically active, was a dedicated prospector. It was Winthrop who, in 1630, sent to England the first specimen of an unknown black mineral that proved to be columbite. It was the first new mineral found in America, and it was found in Connecticut! Much later, other new minerals were found there.

Perhaps the most important early pegmatite deposit studied in Connecticut was at Branchville on U.S. Highway 7 not too many miles from the museum's new location in Kent, also on U.S. Highway 7!

Branchville is a complex pegmatite deposit that yielded several new species: reddingite, fillowite, fairfieldite and dickinsonite, named after the local cleric, who was fascinated by Branchville's complex phosphates.

As a dedicated rockhound, John was well aware of the importance and history of mining and minerals in Connecticut. He decided it was time to develop a museum. The result shows what one person, dedicated to an idea and a concept, can do with effort and the help of people he recruited.

Fortunately, John knew of a place where a mining museum might fit in quite nicely. The Connecticut Antique Machinery Association (CAMA) owned eight acres of land just north of the center of Kent. The land, a very lovely setting, had been the site of the Kent Iron Co. furnace village. This area of northwest Connecticut had been mined for iron back in the days of the American Revolution. Located on this site were the ruins of the old Kent Iron furnace, which has now been restored by the nearby Sloane-Stanley Museum and the Antique Machinery Association. This was an ideal place for John's idea of a mining and mineral museum to come to fruition.

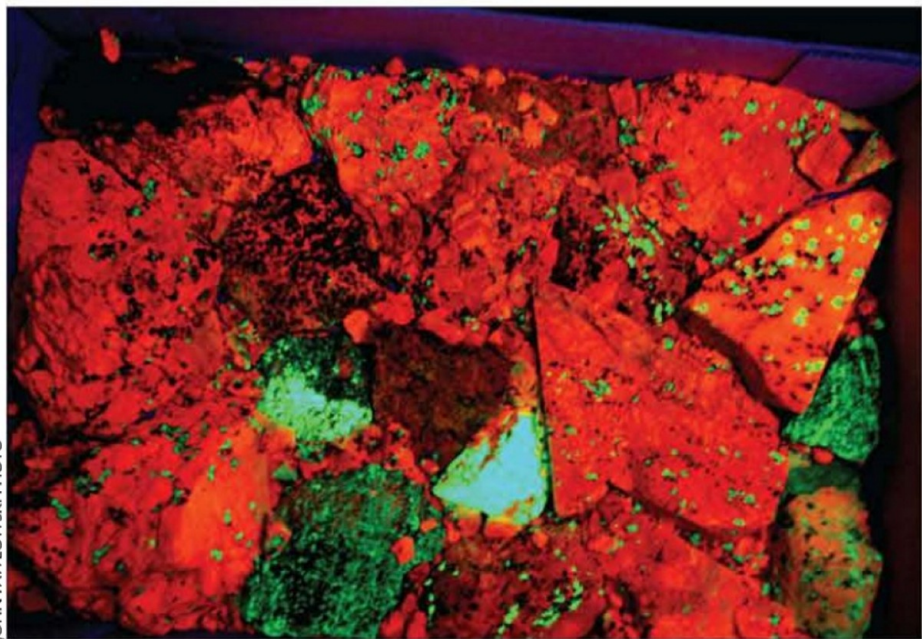


Connecticut's state mineral is garnet, which is best represented by the garnets from Roxbury, Connecticut.

Pledging his own mineral collection and mining artifacts, John was able to start a small museum in 2000 on CAMA's property. The first building was an immediate hit with rockhounds, and by 2006 John had added a larger wing to the museum. The earlier section was converted to the Hall of Mining Technology.

A visit to the CMMMS is an eye-opener! Because Connecticut's mining history and contributions to mineralogy happened so long ago, few rockhounds are aware they happened, let alone understand their importance. For example, did you know that Simon Ingersol, a Connecticut inventor, developed the first reliable pneumatic rock drill? Eli Whitney Blake, another Connecticut inventor, invented the Blake Jaw Crusher, a tool that eliminated the hand crushing of ore and is still in use throughout the world today! Kids who visit the museum can try their hand at working a small jaw crusher. Other kids' exhibits include the drill core xylophone, which really does produce musical tones when struck, and the "Magic Room", which houses the fluorescent mineral display always a kid pleaser!

Other exhibits explain the various rock types that make up the state's geology. The



The "Magic Room" houses a fine fluorescent mineral display, including these bright-red calcite-green willemite minerals responding under the UV lamp.



Some of the earliest copper produced in America was from huge float nuggets that were "mined" in Connecticut.



Danburite was first found in the town of Danbury, Connecticut, and is just one mineral that was first found in the state.

minerals found within those rock types are also shown. Many of those minerals were self-collected by John and others who have made contributions to the museum.

Some of you know that I am a regular lecturer at the East Coast show. I've been a speaker there almost since the first years of the show. For the last half-dozen years, I've had several chances to talk with John, and each year he has urged me to visit the museum. Because of my schedule, I was not able to visit until 2010.

My curiosity about the museum was high for a several reasons. I earned my master's degree in Connecticut and wrote my thesis on "Luminescent Minerals of Connecticut". In the process, I had visited and collected at more than 70 Connecticut localities. I have also researched the very important Bristol Copper mine, which is responsible for the birth of the brass and clock industries in Connecticut.

With that background, I was still very surprised and pleased when I visited the CMMMS. The variety of displays does a wonderful job of highlighting the various



A young visitor tries his hand at playing a tune on the drill core xylophone.

types of deposits in Connecticut in which minerals are found. For example, garnet is the state gem and the Green's Farm garnet deposit in Roxbury, Connecticut, where you can still collect for a fee, is featured in the museum.

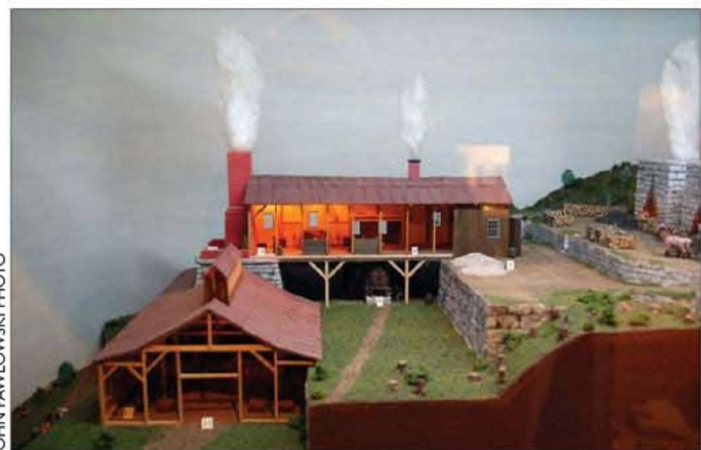
One reason Connecticut was so important in Colonial days was that it had iron ore and copper ore deposits. These were very important during the early growth of our country!

Another very significant type of deposit was pegmatites, source of the industrial minerals mica and feldspar. The cleaning powder Bon Ami® originally contained feldspar supplied by a huge pegmatite quarry in Connecticut. The pegmatites were also a source of several new mineral species and important gem minerals.

If you have ever heard discussions of architecture and the buildings in New York City, you have heard references to New York's famous "brownstones". These are row houses built using a reddish type of sandstone, all of which was quarried in central Connecticut near the Connecticut River, which runs through the heart of the state. The vastness



This diorama shows brickmaking, one of the important but little recognized industries in early Connecticut.



This model reminds visitors the museum is located on the site of the former Kent Iron Works, one of the earliest iron mines in America.

of the brownstone quarries, in both width and depth, is almost scary. Huge blocks of the sandstone were quarried and hauled to the Connecticut River, loaded on barges for transport to New York harbor!

Nobody gets too excited when you mention that the sandstone used for construction could also be used for brickmaking. Yet, this noble activity, which supplied so much construction brick for the buildings in New Haven and surrounding towns, was a major industry for decades in Connecticut. To recognize the importance of brickmaking, the CMMMS has the only brickmaking exhibit in the state!

Another rock type that is common in Connecticut is basalt-dabase in huge deposits that have created long spinelike ridges in the center of the state. East Rock and West Rock are two well-known ridges that overlook the city of New Haven. These old volcanics are generally referred to as "trap rock" and quarries in them produce dark, mostly fine-grained rock, which is crushed into small fragments and used for road metal and foundation rock.

You'd think a fine-grained rock type would lack anything to excite a rockhound. Wrong! These are the rocks that yield zeolites and related minerals from small gas pockets that are found during quarrying. Even today, rockhounds are able to collect in some of these quarries—with permission of course!

Another old mining property that is featured in the museum's exhibits and where rockhounds can collect is the old tungsten mine in Trumbull, Connecticut. The mine is in Old Mine Park, and with permission from the town, you can get in there and dig. Back in the late 1940s and '50s, I collected this site again and again before and during my thesis studies. It was rich in fluorescent scheelite in those days. The scheelite occurred as bright-blue fluorescent spots in the host rock. Another mineral there was fluorite in an unusual form called cleophane. This pale-greenish mineral had the unusual property of glowing intensely when heated below incandescence. Cleophane is another oddity for the fluorescent mineral collector to add to a collection.

Rarest of all the minerals at Old Mine Park was wolframite pseudomorphed after scheelite crystals. In all my hours, which probably total days, I found only three such pseudos. They did not fluoresce, which made them tough to find when you collected the site at night.

After visiting a number of museums in America and other countries, I do not recall seeing an effective display that explains the difference between a rock and a mineral. John, as a teacher, was sharp enough



BOB JONES PHOTO

This exhibit reminds visitors that Connecticut is "The Cradle of American Mining".

to install an exhibit in the CMMMS that explains the difference in simple terms. This is important because the museum hosts a considerable number of Scout groups, student groups, and even rockhound groups. Something as basic as showing the difference between rocks and minerals seems obvious, but is certainly useful as an introduction to mineralogy and geology.

The CMMMS also has some special events and, if you live in Connecticut or nearby states, you might plan on attending some of these. In conjunction with the Antique Machinery Museum, it holds a "Power Up Day" when they start up and, when possible, run the old machinery to demonstrate what it was like in the "good old days"! Antique cars and other power equipment are part of this festive day.

In the fall, there is a "Fair Festival", held as Connecticut's farming season draws to a close and crops are being brought in. When you come to the Fall Festival, you'd better bring your walking shoes because there are 11 different buildings to visit, including the antique machinery exhibits, the Cream Hill School, one of the first agricultural schools in America, and lots of active exhibits. The Sloane-Stanley Museum is part of the complex, and you can even visit the restored Kent Iron Co. furnace!

For rockhounds, the museum hosts a June mineral show. Local dealers are invited to display and sell minerals and tours of the museum are offered. You can even patronize the gift shop, which helps fund the museum.

Those of you who attend the East Coast Show in West Springfield in early August really should plan to visit the CMMMS. It will give you a new perspective on the importance of mining in Connecticut during Colonial days!

To learn more about the CMMMS, log on to www.ctamachinery.com. The museum is open from Wednesday through Sunday, May through October. Hours are 10 a.m. to 4 p.m. each day. Call (800) 927-0050 to arrange group tours. 💎

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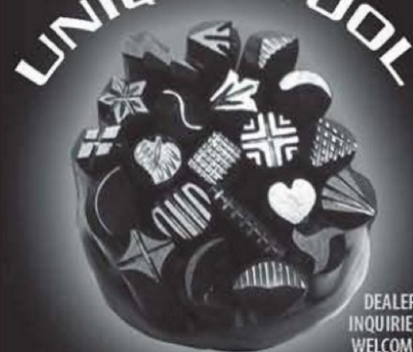
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13-14—RICE LAKE, WISCONSIN: 15th annual show; Northwest Wisconsin Gem & Mineral Society; University of Wisconsin, Barron County; Sat. 10-5, Sun. 10-4; free admission; contact Roy Wickman, (715) 357-3223, or Dave Skrupky, (715) 986-2547

13-14—WALNUT CREEK, CALIFORNIA: Show, "Contra Costa Crystal Fair"; Pacific Crystal Guild; Civic Park Community Center, 1375 Civic Dr.; Sat. 10-6, Sun. 10-4; adults \$6, ages 12 and under free; 30 dealers, minerals, gems, crystals, beads, metaphysical healing tools; contact Jerry Tomlinson, PO Box 1371, Sausalito, CA 94966, (415) 383-7837; e-mail: jerry@crystalfair.com; Web site: www.crystalfair.com

18-21—WOODLAND PARK, COLORADO: 2nd annual show; Rock Gypsies; Woodland Park Saddle Club, 19250 E. US Hwy. 24; Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; outdoor show, more than 40 dealers and jewelers; contact Rock Gypsies, (719) 360-9665, or Kim or Bodie Packham, 87 Plum Creek Rd., Divide, CO 80814; e-mail: runninboar@hotmail.com

19-20—TAHLEQUAH, OKLAHOMA: Show; Tahlequah Rock & Mineral Society; Tahlequah Community Bldg., 300 W. 1st St.; Fri. 9-6, Sat. 9-5; free admission; rocks, minerals, fossils, gems, jewelry, demonstrations, auction, children's activities, educational displays; contact Sara Brasel, (918) 458-0801; e-mail: crosstimberrsd@earthlink.net

19-21—BRIDGETON, MISSOURI: 19th annual show and sale; Greater St. Louis Association of Earth Science Clubs; Machinists Hall Auditorium, 12365 St. Charles Rock Rd.; Fri. 3-8, Sat. 10-8, Sun. 11-5; contact Robert Morse, (636) 462-4423; e-mail: rmorse@centurytel.net

19-21—LAKE GEORGE, COLORADO: Retail show; Lake George Gem & Mineral Club; US Hwy. 24, next to Post Office; Fri. 9-6, Sat. 9-6, Sun. 9-5; free admission; contact John Rakowski, PO Box 171, Lake George, CO 80827, (719) 748-3861; e-mail: President@LGGMClub.org; Web site: www.LGGMClub.org

19-21—LEBANON, PENNSYLVANIA: 14th annual show and sale, "Gem Miner's Jubilee"; Mid-Atlantic Gem & Jewelry Association; Lebanon Expo Center, Rte. 72 and Rocherty Rd.; Fri. 10-6, Sat. 10-6, Sun. 10-4; adults \$6, children under 12 free; gems, jewelry, minerals, fossils, beads; contact MAGMA, (301) 565-0487; Web site: www.gem-show.com

19-21—SACRAMENTO, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Scottish Rite Center, 6151 H St.; Fri. 12-6, Sat. 10-6, Sun. 10-5; jewelry, gems, beads, crystals, silver, rocks, minerals; adults \$7 weekend pass, children 11 and under free; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

19-21—SARASOTA, FLORIDA: Show; Frank Cox Productions; Municipal Auditorium, 801 N. Tamiami Tr. (Hwy. 41); Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

20—SHELTON, WASHINGTON: Tailgate rock sale and swap; Shelton Rock & Mineral Society; Shelton Soccer Park, 2202 E. Johns Prairie Rd.; Sat. 9-5; free admission; tailgaters \$15 pre-registration, \$20 on-site registration; contact Richard Buchholz, (360) 427-2497; e-mail: giggpig@aol.com

20-21—BOSSIER CITY, LOUISIANA: Annual show; Ark-La-Tex Gem & Mineral Society; Bossier Civic Center, 620 Benton Rd.; Sat. 10-6, Sun. 10-5; adults \$4, students \$1, children under 6 free; door prizes, youth activities, demonstrations, exhibits; contact Charles Johns, 9314 Overlook Dr., Shreveport, LA 71118, (318) 687-4929; e-mail: cwsejohns@bellsouth.net; Web site: www.larockclub.com

20-21—DULUTH, GEORGIA: Show; Intergalactic Bead & Jewelry Shows; Gwinnett Center-Hall C, 6400 Sugarloaf Pkwy.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

20-21—LIVE OAK, TEXAS: Wholesale and retail show; The Bead Market; Live Oak Civic Center; 8101 Pat Booker Rd.; Sat. 10-5, Sun. 10-4; glass, gemstones, pearls, lampwork, PMC, vintage beads and buttons, jewelry, books, tools, silver, findings; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

26-28—COSTA MESA, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; OC Fair & Event Center, 88 Fair

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26-28—SOUTH BEND, INDIANA: 48th annual show and sale; Michiana Gem & Mineral Society; St. Joseph County 4-H Fairgrounds, Esther Singer Bldg., 5177 S. Ironwood Rd., at Jackson Rd.; Fri. 2-7, Sat. 10-6, Sun. 10-4; adults \$3, children (6-12) \$1, under 6 free; dealers, gems, fossils, minerals, jewelry, demonstrations, exhibits, Kids' Korner, silent auction; contact Marie Crull, (574) 272-7209; e-mail: crullb2@sbcbglobal.net; Web site: http://sauktown.com/Michiana

27-28—COLUMBUS, OHIO: Show and sale; BeadStreet USA; Veterans Memorial Hall, 300 W. Broad St.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$5, children under 12 free; vintage beads, lampwork, gemstones, Swarovski crystals, seed beads, fibers, precious metal findings, jewelry, tools, equipment, educational materials; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

27-28—CONCORD, NEW HAMPSHIRE: 48th annual show; Everett Arena, 15 Loudon Rd.; Sat. 9-5, Sun. 10-4; adults \$5, children under 12 free with adult; contact Scott P. Hidding, (207) 439-1107; Web site: www.capitalmineralclub.org

27-28—FORT SMITH, ARKANSAS: Wholesale and retail show; The Bead Market; Fort Smith Convention Center, 55 S. 7th St.; Sat. 10-5, Sun. 10-4; free admission; gemstones, pearls, glass, lampwork, silver, findings, vintage beads and buttons, Swarovski Elements, crystals, books, tools, jewelry; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

27-28—FREEPORT, NEW YORK: Annual show and sale; Kaleidoscope Gem Shows; Freeport Recreation Center, 130 East Merrick Rd.; Sat. 10-5, Sun. 10-5; adults \$5.50 (\$5.00 with this ad), children 12 and under free with adult; dealers, gems, minerals, jewelry, fossils, beads; contact Ralph Gose, PO Box 1418, Melville, NY 11747, (631) 271-8411; e-mail: ralph_gose@kaleidoscopegemshows.com; Web site: kaleidoscopegemshows.com

27-28—JACKSONVILLE, FLORIDA: Show; Intergalactic Bead & Jewelry Shows; University Center, University of North Florida-Grand Banquet Hall, 12000 Alumni Dr.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

27-28—JASPER, TEXAS: 17th annual show; Pine Country Gem & Mineral Society; Sat. 9-5, Sun. 10-5; The Event Center, 6258 Hwy. 190W, 5 miles west of Jasper; adults \$2, students and children free; rocks, gems, jewelry, minerals, door prizes, grand prize, spinning wheel, silent auction, lapidary demonstrations; contact Lonnie Stalsby, 258 CR 066, Jasper, TX 75951, (409) 382-5314

27-28—MADRID, NEW YORK: 45th annual show; St. Lawrence County Rock & Mineral Club; Madrid Community Park, 1835 St. Hwy. 345; Sat. 9-4:30, Sun. 9-3; free admission; contact William deLorraine, (315) 287-4652; e-mail: wdellie@verizon.net; Web site: www.stlawrencecountymineralclub.org

27-28—MOUNTAIN HOME, ARKANSAS: Show; Ozark Earth Science Gem, Mineral & Fossil Club; Senior Center in Cooper Park, 1101 Spring St.; Sat. 10-6, Sun. 10-5; free admission; door prizes, mineral and gem displays, interactive children's events, minerals, fossils, handmade jewelry, demonstrations; contact Edward Hakesley, 821-1 Alexis Circle, Mountain Home, AR 72653, (870) 424-0956; e-mail: edscamp3@yahoo.com; Web site: www.ozarkearthscience.org

27-28—PEORIA, ILLINOIS: Annual show; Geology Section of Peoria Academy of Science; The Grand Hotel, 4400 N. Brandywine Dr.; Sat. 9-5, Sun. 10-5; free admission; displays, dealers, panning flume, kids' area, fluorescent display; contact Jim Travis, 2812 N. Peoria Ave., Peoria, IL 61603, (309) 645-3609; e-mail: boatnick@aol.com; Web site: www.pasgeology.com

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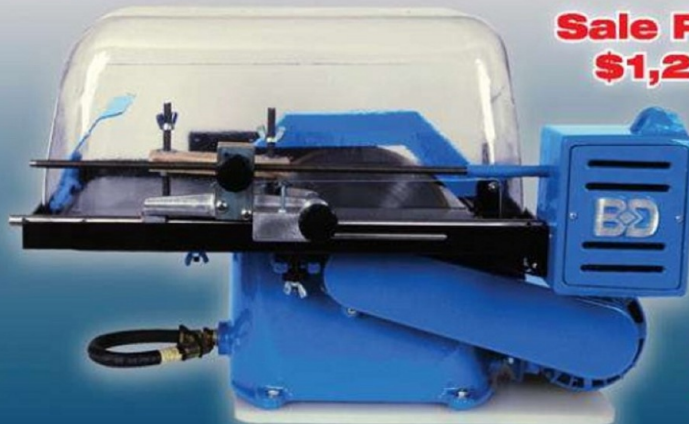
2-4—SANTA BARBARA, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Earl Warren Showgrounds, 3400 Calle Real; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300;

continued on page 36



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Pricing Your GEM ARTWORK

20 Costs to Consider

Story by Helen Serras-Herman

Probably the most common question I get from fellow gem artists—especially those who are new in the trade—is, “How do I price my artwork”? Whether your work is carved gems, cabochons, faceted stones, intarsia, jewelry or sculptures, there are several points you have to consider

before placing a price tag on your work. Some are straight out costs, while others are comparative guidelines that you will have to keep in mind, such as how your work compares to other artists’ work or to your previous work and the estimated rarity and value of your piece.

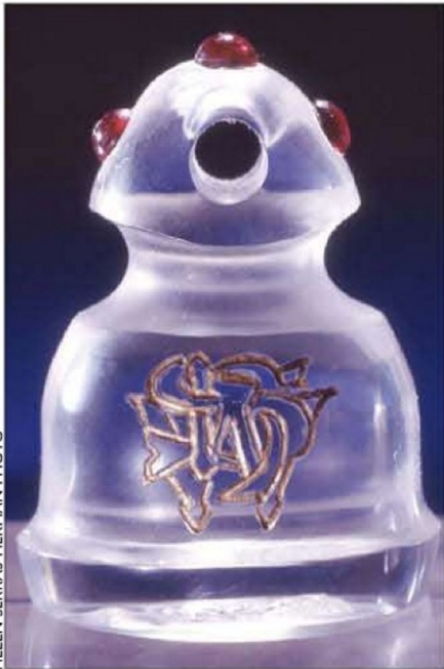
If you want to consider yourself a professional artist, selling your work and making a profit is vital. The Internal Revenue Service will consider you a hobbyist after three years of showing no profits, and that means that you will not be able to deduct your expenses. As a professional, most of the costs behind your artwork will be deductible on your business income taxes. Some expenses may be only partially deducted, such as food purchased during your shows and your health insurance. Your accountant will be able to give you advice and tell you exactly what is deductible.

While pricing your artwork, please remember a general rule of thumb: If it is on your taxes, it goes on your price tag. Any expense that is listed on your business income taxes is a cost that you must not forget to consider while setting your final retail price. These costs include:

- Your materials (gemstones, precious metals, etc.)
- Casting and setting
- Your labor, based on the time that you have spent
- Extra labor for custom work
- Studio expenses (rent, electricity, water, phone bill)
- Workshop expenses (machinery, extra wheels, belts, burrs, diamond paste, polishing powders, oil for your saws, saw blades, etc.)
- Computers, flash drives, CDs
- Office supplies (paper, envelopes, copies, labels, scotch tape, staples, pens, pencils, markers, etc.)
- Trade shows (booth fees, electricity fees, hotel, gas, tolls, food)
- Packaging (boxes, paper bags, tags, labels, bows)
- Displays (showcases, fixtures, lights)
- Advertising (print ads, mailings, postcards, stamps, business cards, banners)
- Your Web site (domain registration, Web hosting, Webmaster)
- Photography
- Professional licenses (state business license, visiting vendor licenses)
- Tax and financial services
- Annual professional membership subscriptions
- Professional magazine subscriptions
- Certificates of authenticity or appraisals
- Income taxes on your profits
- Health insurance

Now, you should do some comparisons for your artwork:

- Price artwork that is similar to yours, if it is possible.
- Price your artwork according to whether it is unique or limited edition. One-of-a-kind, original carved gemstones or jewelry should be valued the highest, as these pieces reflect the ingenuity and imagination of the artist.
- Evaluate your artwork independently from your costs. How does it compare with other pieces that you have done? Is it more



HELEN SERRAS-HERMAN PHOTO

The Seal of the Bead Society of Greater Washington was carved in rock crystal as a commissioned piece.



ANDREW HERMAN PHOTO

The cost of your trade shows, including booth fees, electricity, display cases and display fixtures, as well as gift wrapping, are a major expense.



M.J. COLELLA PHOTO

Evaluate your artwork independently from your costs: How does it compare with other pieces that you have done? Is it more complicated? Is it unique?

gallery. Many young artists show their work at local retail and craft shows, and don't take into consideration that, if their work were represented by a gallery, their profits would be reduced by 30% to 50%, the amount of the gallery commission. Consider the possibility that you may want to offer a discount to repeat clients or clients who purchase multiple pieces. Some artists are completely rigid with their prices.

So how do you use all this information to determine a price for your work? One way would be to consider your material costs, calculate your hourly labor, and add a percentage for all your other expenses. A better

COMMISSION WORK

Commission work offers the possibility of executing design ideas that you may have never thought about or using materials that you may not have been previously familiar with. It brings along challenges with carving, sanding and final polishing, particularly when fragile gem materials are involved. It involves a feverish state of creation and an agony of emotions until you are finished. It also brings excitement, stimulation and inspiration for future projects.

Commissions may be received in person or via telephone or by mail, which was the standard way a few years back.

"I worked more for fame than for wealth carving precious stones with great mastery ..."

—Mnesarchos

Reported by Lucious Apuleius, Rome 2nd century AD

complicated? Is it unique? Is it innovative? Artwork that has received awards or special publicity, that has been published in magazines or books, or that has been displayed in special exhibits may command a higher price. Certificates of authenticity or appraisals will add value.

- Artwork that has been worn by celebrities may also command a higher price.
- Your name and fame—how much of an established artist you are—will play a significant role.
- What is the lowest price you would like for your beautiful finished product? Calculate the bottom wholesale price that you will offer your work for a trade show or a

way is to find a formula that incorporates all your expenses. Start with the basic expenses, the materials, and raise it 300% to 400% to end up with a retail price. A 200% markup may serve as your wholesale price; knock off another percentage for a discount, and the rest should cover all the overhead costs we previously discussed—most importantly, your labor. If you believe there is room for more profit or that you can raise the price of your hourly labor, go for it! A 300% markup from wholesale to retail is common in jewelry findings; this is usually referred to as "triple key", while a 200% increase is "double key". You are, of course, free to price your artwork any way you see fit.

Now, of course, e-mail is a major form of communication, although sometimes you still need to pick up the phone and talk in person. For some commissions, drawings and models at the beginning is all that are needed; for others, viewing of the work in progress helps all parties involved. New ideas may be sparked by comments from the client, new directions may be suggested, and the customer may feel more secure about the way the commission work is evolving. Sending photos of the work in progress via e-mail to the client may also be a great idea.

There are a few challenges associated with commission work that the gem artist has to



ANDREW HERMAN PHOTO

A great concern in carving is orienting the rough material so that natural inclusions will not interfere with the viewing of the subject.



ANDREW HERMAN PHOTO

The drawback to having free rein from the client is not knowing how they'll react until they see the finished piece.



HELEN SERRAS-HERMAN PHOTO

When possible, use your own quality gem materials, like this turquoise from the Sleeping Beauty mine near Globe, Arizona, for commissioned pieces.

take under serious consideration. A great concern is orienting the rough material so that natural inclusions will not interfere with the viewing of the subject and optical phenomena are viewed correctly. Inclusions in gemstones can be gorgeous and distinctive for the artwork, but a decision must be made as to whether they should be incorporated into a unique design or be removed. This decision is much harder if the material belongs to the customer. Removing a lot of "waste" material for your design may not sit well with your client. Point out all possible trouble places at the beginning.

It is always wonderful to have free rein from the client. The only drawback with this kind of project is that you suffer a lot of heart palpitations until you see a smile on the client's face when you present them with the finished product. The trepidation of incorporating the customer's gemstones into your design, and you are hoping for the best can be very stressful! One way to avoid this tension is to offer to use your own gems in the design, if you have quality material.

Another major challenge is calculating the time needed when you're coming up with a proposal quote and then adhering to the time schedule and the projected cost. I have created several commission pieces over the years, and I still have a tough time calculating the time and energy required in order to reach a price upfront that will not shock and deter the client, but will cover my expenses and offer me emotional satisfaction. Every artwork is unique and new challenges arise with every project.

Following exact patterns or designs that your customer may have supplied is extremely time-consuming. You have to stop your work every so often to check the design and calculate the size of the piece or the dimensions you have to follow. I would probably venture to say that custom carving work that follows a strict motif or size,



ANDREW HERMAN PHOTO

Workshop expenses, such as machinery, tools, extra wheels, belts, burrs, diamond paste, and saw blades, should be factored into your final price.

or replicating another design or a damaged stone, takes about five times longer than carving an original design. This stop-and-go process is very difficult to explain to customers and calculate a price quote for.

Finally, a great difficulty that I face nowadays is keeping up with the suggested timetable of finishing a custom order. As is the case with most of us, the busy schedule of creating new work, traveling for shows, supporting galleries by being present at special events, writing articles, lecturing, and marketing our work, it is hard to keep to a promised date. Give yourself enough time to finish the work.

Some commission pieces are memorable and treasured because of the beautiful artwork you have created or due to the story

of the creation itself. Commission pieces are very rewarding, allowing the artist to develop lines of creative thought that she may have never been able to before. My vision is always to create a unique piece of art that the client will embrace and enjoy. I like my work to tell a story, make a statement, bring to life powerful emotions, and explore themes with metaphors and symbolism. I try to portray figures and faces with grace and elegance and with exaggeration, creating drama and pushing the visual limits. ♥

Helen Serras-Herman, a 2003 National Lapidary Hall of Fame inductee, is an acclaimed gem sculptor with over 27 years of experience in unique gem sculpture and jewelry art. Visit her Web site at www.gemartcenter.com.

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ROCK SCIENCE

by Steve Voynick

Pyrite: From Cubes To "Suns"

Abundance, affordability, and brassy-yellow crystals that gleam with a bright, metallic luster make pyrite an eminently collectible mineral. Pyrite (iron disulfide, FeS_2) crystallizes in the isometric, or cubic, system and is best known for its classic, sharp-edged, cubic crystals. But pyrite takes forms that are far different from its cubic habit.

The double sulfur ion in its molecule tends to disrupt the perfect cubic symmetry within its crystal lattice, so pyrite also occurs in modified cubic forms like four-faced tetrahedrons, eight-faced octahedrons, 12-faced dodecahedrons, 24-faced cubic trapezohedrons, and combinations of these forms. The largest and best developed crystals occur in hydrothermal-vein or replacement-type environments where open space allows unrestricted crystal growth.

But in the absence of space for growth—a typical condition in metamorphic and many igneous environments—pyrite usually forms unremarkable, tiny, individual grains or granular bodies consisting of aggregates of grains. These grains have pyrite's internal cubic structure, but they have no discernible external cubic shape.

Some of pyrite's most interesting forms are found in sedimentary environments, in which open space is available, but restricted. Both iron and sulfur are present in many sedimentary environments and coal-shale deposits that originate from intermixed strata of organic matter and inorganic sediments. Within such coal-shale formations, pyrite often forms interesting spherical or flattened concretions.

Concretions are volumes of sedimentary rock in which crystallizing minerals have displaced surrounding sediments or filled pores between sediment grains. Concretions can be spherical, ovoid (egg-shaped), elongate, flattened or irregular in shape and range in size from microscopic to many feet in diameter. They form within sediment layers soon after deposition and usually before the sediments have lithified.

Concretions, which are common in such sedimentary rocks as shale, siltstone and sandstone, form when minerals dissolved in groundwater precipitate around a nucleus. Pyrite concretions begin their development when iron- and sulfur-rich groundwater precipitates pyrite around carbon particles to form tiny "seed" crystals. These crystals promote further pyrite precipitation and, under proper conditions of chemistry and temperature, concretions slowly grow.



One form of sedimentary pyrite is the ovoid concretion with a radiating internal structure.

When this process takes place in recently deposited sediments that are unconsolidated, the energy of the crystal-growth process can physically displace the surrounding sediments, creating the necessary space—however restricted—for the continued growth of the concretion. The space restriction prevents the crystallizing pyrite from developing its characteristic external cubic form. Instead, the crystals become elongated and interlocked, and grow with a radiating internal structure into bodies with external shapes that are spherical or ovoid.

A modified form of pyrite concretion is disklike "suns" or "dollars". With their thin, flat, circular shape, brassy color, and bright luster, they are perennial favorites in rock shops. Pyrite "suns" also form by precipitation in coal-shale environments, but only in strata that has already lithified. Because the surrounding hard rock prevents spherical growth, these concretions can only develop laterally along the paths of least resistance, which in this case are the horizontal laminations within the coal-shale seams.

So whether pyrite is destined to form unremarkable grains, well-developed cubes, spherical concretions, or disklike suns all depends on the absence, availability or restriction of growing space. ♦

Steve Voynick is a science writer, mineral collector, former hardrock miner, and the author of books like *Colorado Rockhounding* and *New Mexico Rockhounding*.



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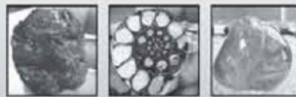
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The STORY of SAND

It's More Than Just Tiny Rocks



Sand from Japan is indeed star-shaped, but it is not really made of star babies, as one legend says.



A fulgurite is made of sand grains fused together by the intense heat of a lightning strike.

Story and Photos by Lori Carter

Most people probably think of sand as beach stuff: construction material for sand castles or an annoying substance with the irritating habit of getting into the nether regions of your swimsuit. Even if they thought about its geology, they would probably think it is just tiny rocks. But a closer look reveals much more.

Geologically, sand is defined mainly by its grain size, generally a diameter of $\frac{1}{16}$ mm to 2mm. There is no specific definition regarding its composition, but it is definitely not just tiny rocks. Sand forms in different ways. It may erode from larger rocks or precipitate from mineral solutions, or it may be fragments of fossils, shells, coral, or other hard parts of water-dwelling creatures.

COLLECTING SAND

I would imagine that, to a true psammologist (one who studies sand), all sand must be quite interesting. To an average rockhound like me, most sand can be a little boring. But if you take the time to give sand a closer look, you may find some with a fascinating composition. And like anything you collect, most sand has a story behind it.

As a child I was enchanted by some sand from one of the Okinawa Islands in Japan called "star sand". The traditional story of its origins says a star called the Southern Cross put all her babies in the ocean. The Seven-Dragon was angry because she did not ask his permission to put her babies in his part of the ocean, so he instructed a giant serpent to clean them up. The giant serpent swallowed all the babies and spit them out. The star babies turned into star-shaped sand and floated to Taketomi Island. To this day, the people of the island put star sand in incense burners so the smoke will carry the babies back to their star mother.

After a little research, I learned that star sand is actually made of the shells of microscopic, single-celled creatures known collectively as foraminifera. I still like to think of them as star babies.

Avid sand collectors gather samples from all over the world and carefully catalog each

location. Since my house is already sinking from all of my other rock, mineral, and fossil collections, I have limited my own sand collection to sand I find truly interesting. So far, my collection is very small, but very special, though I still have many sand collecting sites on my "must do" list.

Most individual sand grains are easily visible through a 10X loupe. What may seem like just tiny rocks to the naked eye may prove to be something extraordinary when magnified. The sand I have collected or received from other people definitely must be magnified to be appreciated.

Sand I collected in a creek near Chunky Gal Mountain, North Carolina, has mostly boring little rocks, but if you look closer you will see tiny chips of blood-red garnet. This sand is eroding from surrounding rocks. In fact, we used the presence of garnet chips in different parts of the creek to locate the source of the garnets upstream.

One of my in-laws collected green sand in Hawaii. It consists of particles of olivine that were belched out of the earth by a volcano. The cone of the old volcano is eroding away into tiny pieces of basalt and olivine. The lighter basalt washes away, leaving the harder, heavier olivine that forms what is one of the few green-sand beaches in the world.

Similarly, black obsidian sand from Hawaii that I received from a rockhound friend is made of obsidian particles that were left behind when lighter, softer volcanic material eroded away.

Sand I collected in Cancun, Mexico, is made of polished pieces of shell and coral from the Yucatan Peninsula, so it is a biological type of sand. Each white or pink grain has been tumbled by the water until it is smooth and shiny. The origin of this sand is mostly overlooked by the tourists basking in it. They never realize why it is so soft and comfortable to walk on.

On a recent trip to Utah, I collected gypsum sand from an area west of Salt Lake City called Knolls. The sand from Knolls is precipitated sand. Gypsum precipitates out of solution in the top layer of the moist, salty clay around the Great Salt Lake Desert. As the clay dries, the tiny gypsum crystals—lots of them—are blown by the wind to form huge, flowing dunes. The sand has thin, opaque, white crystals that look like grains of rice, perhaps due to impurities from the clay.

My favorite Utah sand (so far) is oolitic sand from Stansbury Island, located in the Great Salt Lake. Oolitic sand is composed of spherical calcium carbonate concretions called ooliths. Often mistaken for fossils, ooliths are tiny concretions formed in shallow water by wave action that causes concentric layers of calcium carbonate to build up around a nucleus like a fragment of shell or a grain of sand.



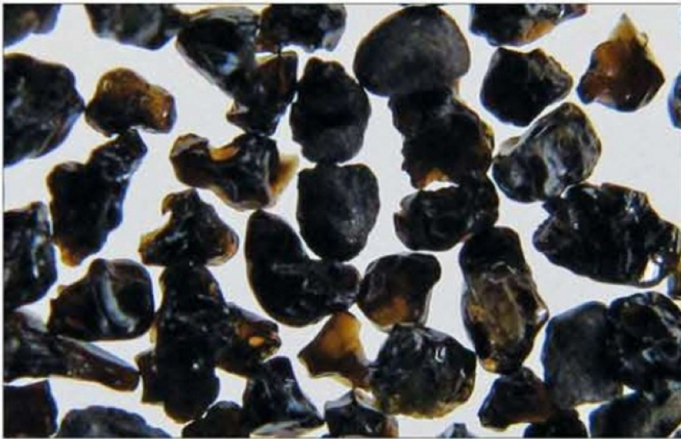
Sand from North Carolina looks ordinary at first, but closer inspection reveals tiny chips of almandine garnets.



Trinitite is sand that was fused into a crust by the intense heat created by the detonation of a plutonium device.



Olivine particles from an eroded volcano form the famous green sand in Hawaii.



Black obsidian sand from Hawaii is made of obsidian particles that were left behind when lighter, softer volcanic material eroded away.



Oolitic sand from Utah is composed of particles called ooliths, tiny concretions that are often mistaken for fossils.

You are not allowed to collect specimens from Meteor Crater in Arizona, but the gift shop does sell bags of sand from the crater. With the help of the magnet included with your purchase, you can find meteor spheroids in the sand. Tiny, black objects are clearly visible in the sand and are easily extracted with a magnet, but I am not sure how to tell which bits are meteor spheroids and which bits are more terrestrial.

Oil sand from the Athabasca Range in Fort McMurray, Alberta, Canada, smells so strongly of oil I haven't examined it closely yet, but it is definitely an unusual addition to my collection, courtesy of a rockhound friend. I learned that the sand is composed of bitumen, which is a semisolid form of crude oil, plus silica, clay and water. The oil sand reserves are processed to extract petroleum. With this and other conventional sources, Canada's total oil reserves are believed to rival those of Saudi Arabia.

Some of my most treasured specimens were given to me by my rockhound pen pal, whom I met through *Rock & Gem*. She collected sand from beaches in Maryland and sent them to me in the cutest little jars, along with the tiniest vial I have ever seen filled with sand from White Sands, New Mexico, that she shook out of her shoes!

The grains of sand from Maryland are many different colors, including clear, orange, black and yellow. The grains are very small and relatively uniform, and they appear to have eroded from larger rocks.

The gypsum sand from White Sands consists of small, clear, angular grains. Unlike the gypsum sand I collected in Utah, it is not directly from recent precipitate. Gypsum crystals form in Lake Lucero near White Sands. Those crystals can be very large, sometimes up to 3 feet long. Over time, freezing and thawing, wetting and drying cycles erode the crystals, and particles are blown by the wind to form the White Sands dunes. So this sand results from precipitation followed by erosion.

Sand collecting is a fascinating side of geology, but it need not be limited to just

sand in its tiniest form. My collection includes other sand-related specimens, too. Sandstone is a sedimentary rock composed of cemented sand grains. Beautiful sandstone can be found all over the United States, and spectacular sandstone formations can be seen in several national parks in the American Southwest. When you are collecting sandstone, look for colorful layers and swirled patterns, and you will have some lovely specimens for your collection. Consider cutting and polishing sandstone to reveal its beautiful patterns.

Fulgurites (from the Latin *fulgur*, meaning "thunderbolt") are sand grains that have been fused together by the intense heat of lightning striking sandy soil. They are literally a rocky image of the path of the lightning. I have never found a fulgurite, but I hope to someday. For now, I have a specimen I purchased at a rock show.

When the plutonium device nicknamed "The Gadget" was detonated near Socorro, New Mexico, at 5:29:45 a.m. on July 16, 1945, sand on the ground, as well as sand drawn up into the fireball, was fused into something called "trinitite" (from the code name "Trinity"). This unusual material illustrates the massive power and heat of an atomic explosion. Crusts of trinitite were found all over the desert floor in the testing area. Pieces were collected and sold as a novelty in the 1940s and '50s. The test site is now a National Historic Landmark, so it is illegal to collect trinitite there, but previously collected specimens are still available for purchase.

Sand dunes are also examples of sand formations, though they are a little too large to add to most collections. They are ever changing, almost alive, though you can see 200 million-year-old "petrified" sand dunes in Arches National Park in Utah. The term "petrified" is used loosely to describe these formations as they were not formed by the replacement of molecules the way organic material like wood is preserved in the process of petrification. They are sand dunes that were covered by layers of sediment

that compressed the sand into sandstone. The sandstone preserved the original shape of the dunes and was exposed over time due to erosion of the overlying sediment. Ironically, the sandstone is now eroding back into sand.

SAND ART

Sand collectors may also appreciate sand art. In the Navajo religion, sand painting is performed in sacred ceremonies to restore balance and harmony. Various colors of sand and crushed stone are drizzled onto clean sand in special patterns. A patient is seated in the center of the painting, which is ultimately erased with a sacred feather to destroy the illness. Reproductions of these sand paintings are now made on epoxy-coated boards. The images are altered slightly from the original design so that the power of the sand painting is not lost.

An unusual modern version of sand painting called sand animation can be seen on the Internet. In a form of performance art, the artist drizzles sand and swirls it by hand onto lighted glass panels to create fantastic ethereal images. Often accompanied by music, sand animation is a mesmerizing demonstration of artistic skill.

In other sand art, layers of colored sand are put into bottles or other clear containers to produce abstract art or images like landscapes. Some layered sand art is permanently preserved. Once the layering is complete, the glass container is heated so that the sand grains adhere to one another. Even if the glass breaks, the sand inside will remain in its layered shape. Kits to create your own layered sand art can be found in many craft stores.

Sand castles are a very common form of sand art. They range from the simple plastic pail-shaped castles to elaborately designed and carved sand sculptures. Though they are not likely to be found in an actual sand collection, I have a real sand castle that, like layered sand art, was heated so that the sand grains adhered to one another and retained their sand castle shape.

TELLTALE CHARACTERISTICS

Forensic geology often looks to sand to solve problems and answer questions. One of the first cases of forensic geology involved bags of sand used as ballast. During World War II, the Japanese attempted a stealthy form of attack on American soil. They launched unmanned rice paper balloons armed with bombs. Elaborate devices used hydrogen and sand bags to control the balloon's altitude so the jet stream could carry them all the way to the continental United States. If the balloon traveled too high, hydrogen was released to lower its altitude, and if it drifted too low, a sand bag would be released so the balloon would regain altitude.

When the balloons were first discovered, military leaders wanted to know where they had been launched from. It was imperative that the launch sites be located and destroyed to prevent further attacks. Forensic geologists examined the sand used for ballast to determine the origin of the balloons. Initial inspection concluded that the sand did not come from North America. Characteristics like the absence of granite and quartz, which would be present if the sand had eroded from a continental mass, indicated that the sand must have come from an island. The absence of coral meant it came from an area north of warm water, in which coral lives. Further study showed microscopic fossils and certain minerals that narrowed the field to a particular area of Japan. Finally, rare microscopic diatoms documented by a French expedition to Japan in 1889 were found in the samples.

Based on this information, factory sites in northern Japan were verified, then bombed. Once the factories were destroyed, no more bomb-laden balloons were found. It has been estimated that 9,000 balloons were launched, with an incredible 1,000 balloons actually reaching the United States. Six people were killed by one of the balloon bombs when they stumbled upon it in an Oregon forest, but many more people, as well as war-time morale, may have been saved by the work of the forensic geologists.

COLLECTING TIPS

If these stories have inspired you to start your own sand collection, there are a few things that will make your collecting experiences better:

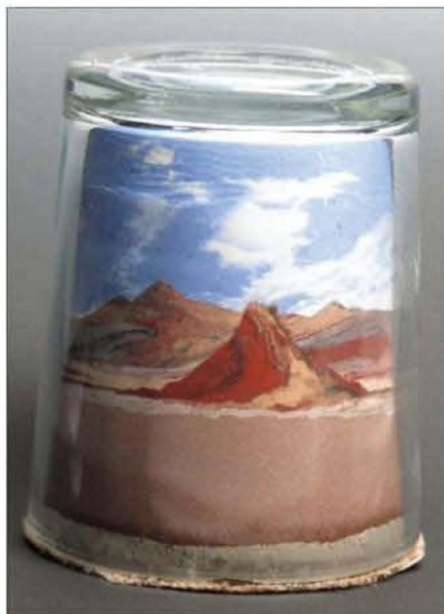
- Make sure you collect the sand legally. Do not venture into restricted or dangerous areas.
- Although plastic bags may appear to be adequate collecting vessels, they are prone to punctures and tears. Instead, use wide-mouthed plastic jars with lids that screw on tightly, like peanut butter jars. The



Sand castles are a very common form of sand art. This one has been fused together with heat.

wide opening makes getting sand in and out much easier. The wide lid can also be employed as a makeshift shovel. Transparent jars are better than opaque jars because you can see the contents without opening the container.

- Be sure to label the jar with the location and date of collection and the contents.
- If you collect a little extra sand, you'll be able to share with other collectors, perhaps even trading for interesting samples.



Carefully placed layers of colorful sand are used to create sand art in a bottle.

You can display small bottles of sand and store the excess for sharing.

When you get the sand home, you may or may not have to clean it. Sand collected from dry areas usually only needs the rocks, leaves, twigs, or other organic material removed. Sand from wet areas may need to be washed and dried. A quick rinse in plain tap water is usually enough to remove biological debris, since much of it will float to the top, but if there are algae, snails, or slimy little bugs, or if the water the sand came from was not very clean, a few drops of chlorine bleach in the wash water should help. Be sure to rinse the sand thoroughly to remove all the bleach.

The washed sand must be dried. Spread it out on a flat pan and stir it every now and then until it is completely dry. Remove any remaining contaminants by hand. A screen is helpful for this step and ensures relatively uniform results. Now the clean sand can be stored. If you want to store the sand in the same jar you used to collect it, make sure the jar itself is clean and dry before you put your clean sand back into it.

Photographing sand can be a challenge, but with a good macro function on your camera, adequate lighting, and a little work, it can be a satisfying endeavor. Some people insist that a digital single-lens reflex (DSLR) camera is best, but I think a reasonably good point-and-shoot digital camera with a good macro function will work just as well. Mount the camera on a tripod to keep the camera as still as possible when photographing, because even a tiny wiggle in macro mode will blur the picture. I recommend using a digital camera because you will need to review the images as you take them.

I usually have to make several adjustments to the distance, light, aperture, ISO speed, and other settings before I get a picture I like. A light box, photo tent, and full-spectrum lamp are helpful, but not necessary. Lighting is particularly tricky, since the camera must be very close to the sand and may block light due to its own proximity. Natural light is best, but be prepared for curious onlookers if you set up a photo session in your front yard.

Sand collecting can be an enjoyable and rewarding addition to your rockhounding activities. Sand is easy to collect, fun to examine, and wonderfully shareable. I learned about the Japanese balloon bombs from my optometrist when I shared some Japanese star sand and some Cancun sand with her young son. Learning that those small samples of sand are something more than just tiny rocks may have sparked a young boy's interest in geology. Who knows where something as simple as sand will lead him? Or you? 💎

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2-5—CRAWFORD, NEBRASKA: 25th annual show; Northwest Nebraska Rock Club; Crawford City Park, Main St.; Fri. 8-6, Sat. 8-6, Sun. 8-6, Mon. 8-6; free admission; agate bed field trips, 13th annual Agate Collectors presentations, buy, sell, trade, rocks, fossils, artifacts, jewelry; contact Wade Beins, PO Box 569, 120 Gordon Ave., Chadron, NE 69337, (308) 430-1399; e-mail: agates@bbc.net

3-4—ARLINGTON, TEXAS: Annual show; Arlington Gem & Mineral Club; Arlington Convention Center, 1200 Ballpark Way; Sat. 10-6, Sun. 10-5; adults \$6, seniors and children \$3, Scouts in uniform free; silent auctions, Gem ID, Kids' Korner, door prizes, gem, lapidary and jewelry displays and demonstrations, Rock Food Table; contact Jack Spinks, 209 Overlook Dr., Midlothian, TX 76065, (214) 335-9452; e-mail: jspinks@sbcglobal.net; Web site: www.agemclub.org

3-4—AUGUSTA, MAINE: 21st annual show; Kennebec Rocks & Minerals Club; National Guard Armory, Western Ave.; Sat. 10-5, Sun. 10-4; door prizes, demonstrations, cabbing, lapidary, mineral displays, dealers, minerals, jewelry, gems, fossils, geode slicing, kids' mineral mine, "Rocky" the rockhound dog; contact KRMCC, (207) 873-6270

3-5—SILVER CITY, NEW MEXICO: 28th annual show; Grant County Rolling Stones Gem & Mineral Society; Grant County Business and Conference Center, Hwy. 180E, next to Ace Hardware; Fri. 10-5, Sat. 10-5, Sun. 10-4; free admission; mineral ID, Wheel of Fortune, silent auction, dealers, rough rock, minerals, handcrafted jewelry, field trips, special exhibits; contact Marcia Andre, (575) 534-0006; e-mail: rollingstonesgmsshow@gmail.com; Web site: http://rollingstonesgms.blogspot.com/

9-11—FERNDALE, CALIFORNIA: 7th annual show, "Wildcat Gem Fest"; Wildcat Gem Society; Humboldt County Fairgrounds, 1250 5th St.; Fri. 12-7, Sat. 10-6, Sun. 10-5; free admission; door prizes, games, raffles, silent auction, more than 40 dealers, gems, minerals, fossils, crystals, jewelry; contact Mike Martin, P.O. Box 189, Miranda, CA 95553-0189, (707) 943-1575; e-mail: micknora@directv.net

9-11—GREENFIELD, INDIANA: Annual show; 500 Earth Sciences Club; Hancock County 4-H Fairgrounds, 620 Apple St.; Fri. 10-7, Sat. 9-7, Sun. 10-4; free admission; silent auctions, door prizes, kids' activities, demonstrations, educational displays and programs, club meetings Sat.; contact Erit Marchani, 1328 S. Buttercup Dr., New Palestine, IN 46163, (317) 370-1008; e-mail: emarchani@sbcglobal.net

9-11—MARIETTA (ATLANTA), GEORGIA: Show; Frank Cox Productions; Cobb County Civic Center, 548 S. Marietta Pkwy.; Fri. 1-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

9-11—TOLEDO, OHIO: 40th annual show; Toledo Gem & Rockhound Club; Stranahan Theater Complex, 4645 Heatherdowns Blvd.; Fri. 2-8, Sat. 10-6, Sun. 11-5; adults \$4, seniors and students \$3, children under 12 free; Midwest Federation of Geologic Societies Annual Convention, more than 22 dealers, minerals, jewelry, fossils, lapidary supplies, silent auction, club sales, scholarship raffle, exhibits, demonstrations, kids' area, mini classes; contact Jerri Heer, 247 Decatur St., Toledo, OH 43609, (419) 389-9204; e-mail: jheerx6@aol.com; Web site: www.rockyreader.com

9-11—WINSTON-SALEM, NORTH CAROLINA: 40th annual show; Forsyth Gem & Mineral Club; Educational Bldg., Dixie Classic Fairgrounds, 27th St., gate #9; Fri. 10-7, Sat. 10-7, Sun. 12-5; contact W.A. Marion, 1163 Bear Creek Church Rd., Mocksville, NC 27028; e-mail: MarionA1@yadtel.net

10-11—DOWNEY, CALIFORNIA: Annual show; Delvers Gem & Mineral Society Women's Club of Downey, 9813 Paramount Blvd.; Sat. 10-6, Sun. 10-4; free admission; more than 20 dealers, displays, demonstrations, books, grab bags; contact Guynell Miller, 7315 Cloverlawn, South Gate, CA 90280-2819, (562) 633-0614; e-mail: guynellallen@sbcglobal.net; Web site: http://groups.yahoo.com/group/delvers

10-11—FAIRFIELD, IOWA: Annual show, "Gold Rush Fever"; Sac & Fox Lapidary Club; Fairfield Arts & Convention Center, Main and Briggs, 1 block north of the Square; Sat. 9-6, Sun. 10-5; adults (17+) \$3, children (6-16) \$1; Winning Wheel, gem panning, Ol' Glory Hole Mine treasure dig, gems, jewels, pearls, geodes, fossils, rocks, minerals, carvings, books, handcrafted jewelry, displays, demonstrations, door prizes, silent auction; contact Betty Morris, (641) 233-1300; e-mail: emorris@lisco.com

10-11—MOUNT PLEASANT, SOUTH CAROLINA: Show; Intergalactic Bead & Jewelry Shows; Omar Shrine Auditorium, 176 Patriots Point Dr.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

10-11—NEW MILFORD, CONNECTICUT: Show; Danbury Mineralogical Society; New Milford High School, Rte. 7; Sat. 10-5, Sun. 10-4; contact John Pawloski, (860) 354-0296; Web site: www.danburymineralogicalsociety.org

10-11—POWNAW, VERMONT: Show; Northern Berkshire Mineral Club; American Legion Post #90, Rte. 7; Sat. 10-6, Sun. 10-4; adults \$4, children 15 and under free with adult; minerals, gems, jewelry, gifts, children's fish pond, prizes; contact Larry Michon, PO Box 297, North Adams, MA 01247, (413) 663-8430

10-11—ROSEBURG, OREGON: Annual show, "Oregon Really Rocks"; Umpqua Gem & Mineral Club; Douglas County Fairgrounds, I-5 Exit 123; Sat. 10-6, Sun. 10-4; contact Eileen Paul, (541) 672-5229; e-mail: beadpatch@cmspan.net

10-11—SILOAM SPRINGS, ARKANSAS: Fall swap; Northwest Arkansas Gem & Mineral Society; clubhouse parking area, Hwy. 43 N; Sat. 9-5, Sun. 10-5; admission free; gem wash, auction Sat.; contact David Leininger, (479) 263-1424; e-mail: hulagrub@aol.com; Web site: www.nwarockhounds.org

10-11—WALLA WALLA, WASHINGTON: 42nd annual show; Marcus Whitman Gem & Mineral Society; Walla Walla County Fairgrounds Community Center, 9th St. and Orchard; Sat. 10-5, Sun. 10-5; adults \$2, kids under 12 free; dealers, rough, slabs, gems, minerals, beads, fossils, jewelry, equipment, silent auction, door prizes, raffle, demonstrations, knapping, gold panning, wire wrapping, rock cutting, interactive kids' section; contact Warren Rood, (509) 522-2330; e-mail: warrenrood@yahoo.com

10-18—DENVER, COLORADO: Wholesale and retail show; Eons Expos RLLLP; Denver Coliseum, 4600 Humboldt St.; Sat. 9-6, Sun. 9-6, Mon. 9-6, Tue. 9-6, Wed. 9-6, Thu. 9-6, Fri. 9-6, Sat. 9-6, Sun. 9-4; free admission; minerals, fossils, dinosaurs, crystals, gems, jewelry, meteorites, children's activities, contact Christine Coyle, 38 Fox Ridge Rd., Sparta, NJ 07871, (516) 818-1228; e-mail: lowellcarhart@yahoo.com; Web site: www.coliseumshow.com

11—BLOOMINGTON, MINNESOTA: Show; Rings & Things; Ramada Mall of America, 2300 E American Blvd.; Sun. 12-5; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/index.html

13—GREEN BAY, WISCONSIN: Show; Rings & Things; Suamico Banquet Center, 2310 Lineville Rd.; Tue. 12-4; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/index.html

14—MILWAUKEE, WISCONSIN: Show; Rings & Things; Clarion Hotel Airport, 5311 S. Howell Ave.; Wed. 1-5; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/index.html

14-18—DENVER, COLORADO: Show, "Denver Coliseum Show"; Eons Expositions LLC; Denver Coliseum, 1900 44th St.; Wed. 9-6, Thu. 9-6, Fri. 9-6, Sat. 9-6, Sun. 9-4; free admission; minerals, fossils, rough, gems, jewelry, amber, meteorites; contact Lowell Carhart, 7514 Antelope Meadows Circle, Peyton, CO 80831, (516) 818-1228; e-mail: lowellcarhart@yahoo.com; Web site: www.DenverColiseumShow.com

14-18—DENVER, COLORADO: Fall wholesale/retail show, "Colorado Mineral & Fossil Show"; Martin Zinn Expositions; Holiday Inn - Denver Central, 4849 Bannock St.; Wed. 10-6, Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; 200 wholesale and retail dealers, free shuttle to Merchandise Mart; contact Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

15—SCHILLER PARK, ILLINOIS: Show; Rings & Things; Comfort Suites O'Hare Airport, 4200 N. River Rd.; Thu. 12-4; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/index.html

16-18—BEREA, OHIO: Show and sale; GemStreet USA; The Cuyahoga County Fairgrounds, 164 Eastland Rd.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$7, seniors (60+) and students (12-17) \$5, children under 12 free; gems, jewelry, beads, fossils, minerals; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

16-18—DENVER, COLORADO: Show, "Colorado Fossil Expo"; Martin Zinn Expositions; Denver Merchandise Mart Plaza Annex, 451 E. 58th Ave.; adults \$6, seniors and teens \$4; Fri. 9-6, Sat. 10-6, Sun. 10-5; 50 dealers, fossils, meteorites, petrified wood, amber, paleontological exhibits, part of the Denver Gem & Mineral Show; contact Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

16-18—DENVER, COLORADO: Annual show, "Minerals of Russia"; Greater Denver Area Gem & Mineral Council; Denver Merchandise Mart, 451 E. 58th Ave. (I-25 Exit 215); Fri. 9-6, Sat. 10-6, Sun. 10-5; adults \$6, seniors and students \$4, children under 13 free with adult; dealers, demonstrations, speakers, exhibits, free gem and mineral identification, kids' activities, free gold panning, Colorado Fossil Expo; contact Larry Havens, Greater Denver Area Gem & Mineral Council, c/o Denver Museum of Nature & Science, 2001 Colorado Blvd., Box 4, Denver, CO 80205, (303) 233-2516; e-mail: info@denvermineralshow.com; Web site: www.denvermineralshow.com

16-18—ENID, OKLAHOMA: Annual show and sale; Enid Gem & Mineral Society; Oak Wood Mall, 4125 W. Owen K. Garriot Rd. (Hwy. 412W); Fri. 10-9, Sat. 10-9, Sun. 12-6; free admission; rocks, gems, minerals, jewelry, beads, fossils, rock food table, junior activities, grab bags, demonstration, door prizes; contact Billy Wood, (580) 234-5344 or (580) 402-5568; e-mail: baronladislaus@att.net

16-18—HOLLAND, MICHIGAN: Annual show, "Petrified Wood: Ancient Forests"; Tulip City Gem & Mineral Club, Holland Recreation Department; Holland Civic Center, 150 8th St., between Pine Ave. and Maple Ave.; Fri. 9-8, Sat. 9-7, Sun. 11-5; adults \$2, students 50 cents, Scouts and military in uniform free; more than 50 collection displays, fluorescent mineral display, interactive touch rock display, lapidary demonstrations, Petoskey stone polishing, children's games, silent auction, club sales, door prizes, eight dealers, fossils, minerals, geodes, jewelry, lapidary equipment; contact Patty Valentine, 3880 M-40, Holland, MI 49423; e-mail: valentineoak@hotmail.com; Web site: www.tulipcity.org

16-18—JACKSONVILLE, FLORIDA: Annual show; Jacksonville Gem & Mineral Society; Morocco Temple, 3800 St. Johns Bluff Rd. S; Fri. 1-6, Sat. 10-6, Sun. 10-5; adults \$3, children 12 and under free; exhibits, Gems, Minerals, Fossils, Jewelry, lapidary arts, competitive displays, demonstrations, silversmithing, cabbing, faceting, beading, wire wrapping, chain making, glass bead making, door prizes, Kids' Education and Fun Zone; contact Tom Frame, 3133 Chapelwood Ln., Jacksonville, FL 32216; e-mail: JGMS_SHOW@hotmail.com; Web site: jaxgemandmineral.org

16-18—LINCOLN, MISSOURI: Show and sale; Mozarkite Society of Lincoln; Lincoln City Park, Lamine St. and Benton St.; Fri. 9-5, Sat. 9-5, Sun. 9-4; free admission; dig for mozarkite; contact Robin Kimber, 907 W. 4th, Sedalia, MO 65301, (660) 827-2538; e-mail: robin480@att.net

16-18—SAN RAFAEL, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Marin Center, 10 Avenue of the Flags; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

17—GRAND RAPIDS, MICHIGAN: Show; Rings & Things; Prince Conference Center, 1800 E. Bellline SE; Sat. 12-4; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/index.html

17—TWO HARBORS, MINNESOTA: 12th annual show and sale, "Agate City Rock Show"; Agate City Rock Shop; 721 7th Ave.; Sat. 9-5; free admission; show, "Agate City Rock Show" Agate City Rock Shop; 721 7th Ave. (Hwy. 61); Sat. 9-5; free admission; dealers, collectors, buy, sell, trade, Lake Superior agate, agate, thomsonite, fossils, crystals, rough and polished

continued on page 46



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Moqui Marbles

Dark-brown stones found eroding out of the Navajo Sandstone Formation in Utah are called Moqui (mō' kē) marbles. The Navajo Sandstone was deposited during the Jurassic Period, and today it is exposed as spectacular cliffs and domes. Over the millennia, groundwater containing iron flowed through the sandstone. The iron precipitated out as iron oxides (hematite and goethite), which cemented sand grains together into concretions. A concretion is a spherical mass found in sedimentary rock that shows concentric growth and is harder than the matrix surrounding it. Concretions are more resistant to weathering, so as the sandstone erodes, the concretions fall free.

Gumball- to baseball-size moqui marbles have been found throughout southeastern Utah and are especially abundant at the Grand Staircase-Escalante National Monu-



"Female" moqui marble



"Male" moqui marble

ment. That area is now off limits to collecting, but Moqui marbles that were collected before the region became a monument are available in rock shops and at gem shows. You can also search outside restricted areas. Robotic rovers have photographed similar concretions on Mars! These hematite spheres are called "blueberries".

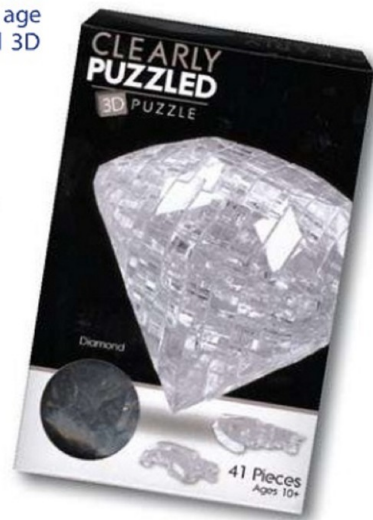
Hopi tribes have collected Moqui marbles to honor their ancestors. Modern-day mystics divide them into "female" stones (round and smooth) and "male" stones (disk-shaped and rough). Native American families might keep a pair as protection against false friends. In the Hopi language, *moqui* means "the dead" or "dear departed one", and in one legend, the spirits of Hopi ancestors play games with these marbles at night. At sunrise, they leave them as a comforting gesture to let living relatives know they are well.

—Jim Brace-Thompson

The Quiz is open to U.S. residents 17 and younger. Mail your answers to **August Quiz, Rock & Gem magazine, P.O. Box 6925, Ventura, CA 93006-9899**. Five winners will be drawn from the valid entries received by **Aug. 31, 2011**. Valid entries must include the correct answers, the entrant's name, age and address, and the signature of a parent or guardian. This month's prize is a Clearly Puzzled 3D diamond puzzle.

The Quiz

1. The iron oxides _____ and _____ cement sand grains together into concretions.
2. _____ releases the hard concretions from their sandstone matrix.
3. Hematite concretions on Mars are called _____.
4. "Sapphire" refers to corundum gemstones that are any color except _____.
5. *Maiasaura peeblesorum* was a "_____ _____" because it cared for its young.



Check your answers at www.rockngem.com beginning September 1.

Montana's State Rockhound Symbols

In a fine example of bipartisan compromise, Montana chose two state gemstones in 1969: sapphire and Montana agate. The gemstone variety of the mineral corundum comes in many colors. If it's red, it's called "ruby". If it's any other color—blue, green, yellow, orange, pink or white—it's called "sapphire". Real beauties are found in Montana. Sapphires are faceted to bring out their dazzling sparkle and are sometimes heated to intensify their color.

Cornflower-blue "Yogo sapphires" from Yogo Gulch were mined by British investors and are famously included in England's Crown Jewels. But they weren't always as highly valued as they are today. In the 1800s, gold miners were only annoyed by sapphires that clogged their sluices! You can sift for your own from river gravel at fee diggin spots in Montana or purchase mail-order bags to sift through at home.

Montana agate (also called Montana moss agate) has been used in the gem trade for over a century to craft beautiful cabochons. It's often transparent, with splashes of orange, yellow, or translucent gray. This background



Sapphires

may be decorated with jet-black speckles or dendrites (branching, treelike patterns) caused by inclusions of manganese and iron oxides. Montana agates are found in gravel beds of the Missouri, Yellowstone, and Powder rivers as rounded, water-worn nodules with a yellowish exterior. They're notoriously hard to cut, and it can prove difficult to determine the best plane for cutting, since patterns that are vividly clear when viewed from one direction may be invisible when viewed from the opposite direction!



Montana agate



Maiasaura peeblesorum

The state fossil was named in 1985: the 80 million-year-old duck-billed dinosaur *Maiasaura peeblesorum*, or "good mother lizard". This dinosaur was made famous by paleontologist Jack Horner, who studied nesting sites at Egg Mountain near Choteau, Montana, that helped prove some dinosaurs were social creatures, living in colonies and caring for their young.

—Jim Brace-Thompson


Mineral Names That Aren't Used Anymore by Darryl Powell

If you look through old mineral books, you will see mineral names that are not used anymore. See if you can find them in this word search puzzle, looking diagonally, left to right, right to left, top to bottom and bottom to top.

Albin
Allochroite
Amianthus
Beaumontite
Bitterspar
Buratite
Calc Spar
Chladnite
Christianite
Copper Glance
Crocoisite
Desmine
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Moroxite
Noselite
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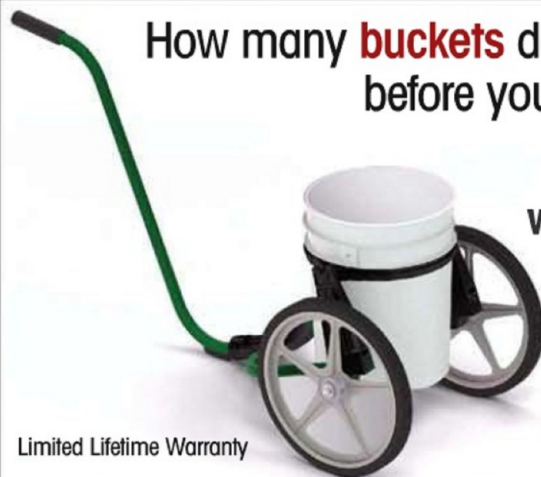


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August 4 - 7 Spruce Pine, NC: NC Mineral and Gem Festival; Pinebridge Coliseum; 97 Pinebridge Ave., Spruce Pine, NC 28777;
Thu. - Sat 10am - 6pm, Sun. 12:30pm - 5pm

August 12 - 14 West Springfield, MA: East Coast Gem, Mineral & Fossil Show; Better Living Center, Eastern States Exposition;
1305 Memorial Dr, West Springfield, MA; Fri. & Sat. 10am - 7pm, Sun. 10am - 5pm

August 19 - 21 SHOW CANCELED Cartersville, GA

September 11 - September 18 Denver, CO: Colorado Mineral & Fossil Show - Summer; Holiday Inn Room 200, 4849 Bannock
St., Denver CO, 80216; Sun. - Sat. 10am - 6pm, Sun. 10am - 5pm

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REQUIEM for a Bead Museum

History Is Lost When a Museum Dies

Story and Photos by Bob Jones

On Mar. 12, 2011, The Bead Museum in Glendale, Arizona, had to close its doors. This precious and historically important collection of beads that dates back 11,000 years is now in storage and away from the view of all of us. This unique museum was the only one in America devoted to the development and history of beads. It is really a shame that this Trojan effort to provide an historical view of an art that is so popular today should fail.

The city of Glendale did its best to bring the museum to fruition. It was housed in a fine brick building in downtown Glendale, and whenever it held a special function, city officials were on hand to help and support the effort. Just two years ago, I attended a fundraising function that was very successful. About \$200,000 was raised with the intention of starting a nest egg. It was hoped that this endowment fund would grow and keep the museum vital. Unfortunately, the museum's income from attendance fees and gift shop sales could not support the budget, and monies intended for the fund had to be used to pay operating expenses.

If you have never been to The Bead Museum you might ask, What it was like? What did it offer visitors? Major museums have always had displays of beads found in various archaeological sites, as they are always one key to the culture of a civilization. But in every case I've seen, museums use beads simply as part of the overall story of a particular site or culture. The making of beads seems to have emerged independently in a host of cultures. Unlike other museums that may treat beads as a footnote of civilizations, The Bead Museum was devoted exclusively to beads in every major region and culture we have researched.

What I liked about The Bead Museum was that it was alive and vital. You could find something new every time you visited. This is far from the usual static nature of many museum displays. Granted, The Bead Museum had permanent displays that did not vary. They formed the core of the museum, as they explained the history of beads and the variety of bead designs found in a vast array of cultures from all over the world. Displays of amber beads, beads made from organic material, and beads from every continent were well worth studying. Now these, and the history associated with them, are lost to us!

The last time I visited the museum, one room was devoted entirely to "Family Jewellery". It told the story of modern trends in beads and jewelry ranging from sparkling Swarovski rhinestone works to modern plastics that we regard because of their vibrant colors and light weight.



This display featured beads made in China that date back many thousands of years.



The museum's displays explored cultures from around the world through their bead-making techniques.



The Bead Museum was housed in this elegant 2,000-square-foot brick structure in downtown Glendale, Arizona, through a lease granted by the City Council.

What I liked when viewing the displays was that you quickly realized people used just about anything to make beads and bead jewelry. One display had organic materials in it, including the skull of a snake suspended from a beaded necklace! I have to wonder whether the original owner wore that to ward off the hazard of a snake bite!

Artists found it interesting to see that the ancients had developed a variety of techniques for making beads. Many of them depended on clay, which was shaped into a bead and then fired. The clay could be pressed into a mold to get the desired shape or it might simply be hand shaped before firing. Modern artists will no longer be able to gain inspiration from these ancient techniques.

Humankind uses silver, gold, gems and minerals for a host of decorative purposes, but it is most likely that beads made from clay, shell, agate and other minerals preceded all these more desired trappings. Through the study of beads and bead making you may come to realize that some of the earliest rockhounds and lapidaries were probably bead makers!

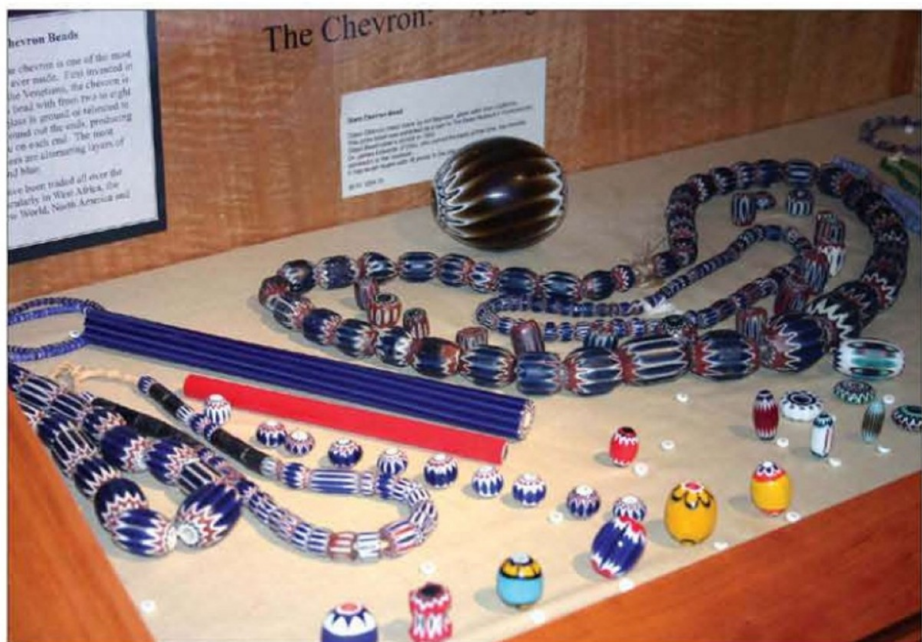
Long before humans began to recognize and gather minerals, simple beads were being used as adornment or talismans. Experts estimate the earliest known bead use at over 100,000 years ago based on actual discoveries of beads in archaeological sites in the Near East. Who knows what future research and scientific digs might unearth?

The earliest beads found thus far are made of shell, a substance that was easily worked, drilled and shaped even before metal tools evolved. Shell beads have been found in the Eastern Mediterranean region that date to more than 100,000 years BCE.

Obviously, the earliest bead makers used what was readily available; shell came from nearby water or trade. As tool making improved, artists could work with harder materials, so readily available animal teeth were also turned into beads. Animal teeth may very well have had a votive meaning, endowing the wearer with the skills of a particular animal or granting them protection from it.



Successful fundraisers helped the museum stay alive, but the recession finally caused its closing.



Before it closed, modern bead artists could visit the museum and get ideas for their work.

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REQUIEM for a Bead Museum from page 43

As peoples began to develop ways to produce high-temperature fires, glass was produced, and this could be drawn or blown into a useful bead shape. Cultures in which the spinning of threads or fibers was common attached a bit of weight to the spindle to help balance it. The weight might be a bit of clay; the spindle was shoved through it, then the clay was fired. Such clay beads were called "wound beads" because the spindle was used to wind threads and fibers. The beads that were cast in a mold are now referred to as "mold beads". These various methods for producing beads give us the four general types of beads: molded, wound, drawn and blown.

Of course, beads have always been used for adornment, but almost invariably they have had a ceremonial, votive or religious use. Prayer beads and worry beads are two examples.

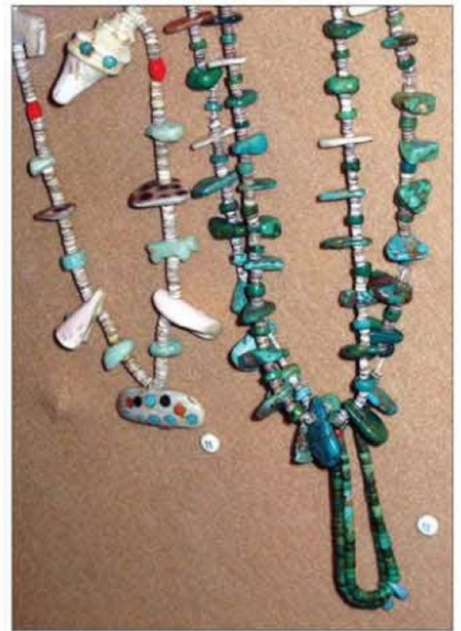
Because of the varied uses and ways of manufacturing beads, research scientists study them to learn about the culture of the peoples who lived in those ancient times. Beads can also help us develop an understanding of the active intercourse between cultures that are often thousands of miles apart! With the storing away of this extensive historically important collection, any new understandings are inhibited.

You might wonder how such a vast bead collection grew. The museum was really the dream and the effort of one woman, Gabrielle Liese. I was fortunate to meet her during a fundraising open house at the museum.

Mrs. Liese has been a bead collector all her life. Her collection eventually grew so extensive that she decided in 1984 to open a small museum in Prescott, Arizona. Prescott is located in the foothills of the Bradshaw Mountains, northwest of Phoenix. Her personal collection formed the core of the vast bead collection that came to be on display at the museum before it closed.

With the help of donations and contributions, the Prescott bead displays grew until they had to be moved to a new location in Glendale. Fortunately, the Glendale City Council voted to grant the museum a lease on a very fine 2,000-square-foot building, so it did its best to help.

The Bead Museum is far more than a repository and exhibition of beads. Museum personnel examine the significance and nature of beads through scientific, historical and cultural perspectives from the Stone Age through the Age of Metals to modern times. By studying beads scientists gain insights into human values, the artistic expression of cultures, and even the technical abilities of the peoples who produced



These shell and turquoise beads were created by early artists in the American Southwest.

the beads. Access to the bead collection for future study has now been lost!

Through educational and outreach programs, the Bead Museum promoted an appreciation of the historical, cultural and artistic significance of beads. Through understanding how beads and related artifacts were used for adornment, scientists can develop an understanding of ancient, ethnic and contemporary cultures. Results of their research studies are published. What we have lost now is a journey of discovery, for beads tell the story of the history, the geography, anthropology, art and archeology of various peoples and cultures.

For the rockhound, the bead collection gave insights into the time when ancient peoples began to collect and use minerals, not only for bead making, but for other purposes. By studying beads through history, the rockhound gained an understanding of the importance of certain minerals in early times and an idea of when certain minerals became important to humans.

A list of the kinds of minerals used for bead making by early peoples sounds very familiar to today's lapidary! The quartz minerals—agate, carnelian and the like—were frequently used, in part because they are so common. But early bead makers also used organic materials like ivory, amber and coral. The materials used were determined partly by the geographic location of the peoples and partly by their ability to trade. The serious student of beads and the history of beads can obtain the revised, expanded text *The History of Beads*, by Lois Sherr Dubin (Harry N. Abrams, 2009). It costs \$75, but is well worth it.

As for minerals, just about anything with color gradually became bead material early on. This includes lapis and turquoise, two

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The Bead Museum had displays like this one to encourage the study of beads and bead making.

of the earliest gems known to be mined by ancients. Azurite and malachite, two of my favorite minerals, were used for beads in Europe 6,000 to 8,000 years ago. The quartz minerals, particularly carnelian and agate, came into use thousands of years ago. Our favorite Southwestern stone, turquoise, appears in bead form about 6,000 years ago.

Artists also used jade, and gradually got into metalsmithing, so beads dating to 6,000 BCE were hollow spheres of copper and, in a few cases, silver. These metals are strong evidence of early peoples developing crude metallurgy and smelting techniques! One archeological dig conducted by an American scientist in Turkey found copper, coral and malachite beads that date to 6,000 BCE. This site is considered one of the earlier sites at which humans developed smelting skills to process copper ores.

The use of beads may have tapered off during austere times, but today beads and beading have become a very popular

and fascinating hobby. Clothing designers choose cloth in colors that can be complemented by a string of beads. Clothing the color of turquoise is almost always enhanced by a necklace of turquoise nuggets or a belt with inlaid turquoise. Elegant evening wear is enhanced by pearls and other beads.

For the general public, making personal bead adornment is all the rage. Bead shops have popped up even in small towns. Check the magazine stand at any major bookstore or local drugstore and you'll find several magazines devoted to beads and beading right alongside *Rock & Gem*.

With the closing of The Bead Museum in Glendale, Arizona, we have lost the one facility where we could relate beading to rockhounding. It is a tragic loss and we should all hope that the day will come when The Bead Museum's collection will, once again, emerge from the darkness of storage so we can study and enjoy an art that dates back millennia. 💎



Ancient rockhounds in Southern Asia had to collect agate to make these fine beads.

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Show Dates from page 37

SEPTEMBER 2011

rocks, flintknapping, marbles, spheres; contact Bob Lynch, 721 7th Ave., Two Harbors, MN 55616, (218) 834-2304; e-mail: bob@agalecity.com; Web site: www.agalecity.com

17-18—CASTLE ROCK, WASHINGTON: 46th annual show; Southern Washington Mineralogical Society; Castle Rock Fairgrounds, A St. and Cowlitz River; Sat. 10-6, Sun. 10-4; contact Dave Furuli, (360) 430-4092, or Jackie Furuli, (360) 431-0059; e-mail: jfuruli@yahoo.com

17-18—CLARKSVILLE, INDIANA: Annual show; Falls of the Ohio Foundation; Falls of the Ohio State Park, 201 W. Riverside Dr.; Sat. 9-6, Sun. 10-5; free admission, museum admission separate; tours of fossil beds, fossil and mineral collecting, guest speakers, resource tent, children's geocraft area; contact Alan Goldstein, Falls of the Ohio State Park, 201 W. Riverside Dr., Clarksville, IN 47129, (812) 280-9970; e-mail: park@fallssoftheohio.org; Web site: fallssoftheohio.org

17-18—HAMPTON, VIRGINIA: Show; Intergalactic Bead & Jewelry Shows; Howard Johnson Plaza & Conference Center-Regency Ballroom, 1815 W. Mercury Blvd.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

17-18—HARRISBURG, PENNSYLVANIA: 46th annual show; Central Pennsylvania Rock & Mineral Club; Zernbo Shrine Center, 2801 N. Third St.; Sat. 10-6, Sun. 10-5; contact Betsy Oberheim, 7953 Appalachian Trail E., Harrisburg, PA 17112-9409, (717) 469-2243; Web site: webmaster@rockandmineral.org

17-18—PASO ROBLES, CALIFORNIA: Annual show; Santa Lucia Rockhounds; Pioneer Park Museum, 2010 Riverside Ave.; Sat. 10-5, Sun. 10-5; free admission; dealers, exhibits, raffle, youth activities, silent auction, demonstrations, games, fossils, shark teeth; contact David Nelson, 5453 San Anselmo Rd., Atascadero, CA 93422, (805) 423-0188; e-mail: L7Nelson@yahoo.com; Web site: www.slockhound.org

17-18—RHINEBECK, NEW YORK: 42nd annual show, "The Fossils of New York"; Mid-Hudson Valley Gem & Mineral Society; Dutchess County Fairgrounds, Rte. 9; Sat. 10-5, Sun. 10-4; adults \$5, seniors \$4, students \$2, children under 12 free; special exhibits by New York State Museum and Vassar College, more than 30 dealers, free rocks for kids, fossils, minerals, gems, jewelry, beads, books, lapidary demonstrations, fossil and fluorescent exhibits; contact Carolyn Reynard, (845) 471-1224; e-mail: sunstone33@verizon.net; Web site: www.mhvms.org

17-18—RICHMOND, BRITISH COLUMBIA, CANADA: 51st annual show; Richmond Gem & Mineral Club; Richmond Arts Centre, Performance Hall & Lapidary Workshop, 7700 Minoru Gate; Sat. 10-5, Sun. 10-4:30; donation requested; member displays, lapidary, silverwork, faceted gems, member booth sales, Kids' Corner, Rock Critters, Spin & Win, Lapidary Society book sale, demonstrations, lapidary, silversmithing; contact Livia Waterson, (604) 301-3744; e-mail: liviaw@telus.net

23-25—HILLSBORO, OREGON: 31st annual show and sale; Portland Regional Gem & Mineral Show; Washington County Fairplex, 873 NE 34th, across from Hillsboro Airport on Cornell Rd.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$5, children under 12 free with adult; dealers, member exhibits, special exhibits, demonstrations, Kids' Corner, door prizes, silent auction, raffle; contact Joshua Heater, 22563 South Day Hill Rd., Estacada, OR 97023, (971) 570-5456; e-mail: jfrankray@hotmail.com; Web site: www.portlandregionalm-mineral.org

23-25—SANDY, UTAH: Wholesale and retail show; Gem Faire Inc.; South Towne Exposition Center, 9575 S. State St.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooey Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

23-25—SANTA FE, NEW MEXICO: Annual show; Palace of the Governors, New Mexico History Museum; Palace of the Governors courtyard, 113 Lincoln Ave.; Fri. 9-7, Sat. 9-4:30, Sun. 9-4:30; free admission; dealers, specimens, talks, demonstrations, contact Inessa Williams, 113 Lincoln Ave., Santa Fe, NM 87501, (505) 476-5106; e-mail: inessa.williams@state.nm.us; Web site: www.nmhistorymuseum.org

24—COLUMBUS, OHIO: Wholesale show; Rings & Things; Courtyard by Marriott Columbus West, 2350 Westbelt Dr.; Sat. 1-5; free admission; gemstones, bead strands, findings, stringing supplies; contact David Robertson, PO Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/city.php?city=Col

24-25—COLUMBUS, NEBRASKA: Annual show; Loup Valley Gem & Mineral Club; Knights of Columbus Hall, 3115 6th St.; Sat. 9-6, Sun. 10-5; adults \$1, children under 10 free with adult; contact Ben Vrana, 3576 Linden Dr., Columbus, NE 68601, (402) 563-3265; e-mail: mlemp-ke68601@yahoo.com

24-25—FRANKLIN, NEW JERSEY: 55th annual show; Franklin Mineral Museum; 50 Washington Ave.; Sat. 9-6, Sun. 10-5; adults \$7, children \$4; expanded fluorescent area; contact Pat Seger, 22 Palomino Trail, Vernon, NJ 07462, (862) 266-4472; e-mail: pesolutions.minerals@gmail.com; Web site: www.franklinmineralmuseum.com

24-25—MISSOULA, MONTANA: Show, "Amber"; Hellgate Mineral Society; Ruby's Inn and Convention Center, 4825 N. Reserve St.; Sat. 9-6, Sun. 10-5; contact Bob Riggs, 14 Holiday Ln., Missoula, MT 59801, (406) 543-3667

24-25—MONTEREY, CALIFORNIA: Annual show; Carmel Valley Gem & Mineral Society; Monterey Fairgrounds, 2004 Fairgrounds Rd.; Sat. 10-6, Sun. 10-5; adults \$3.50, children free with adult; more than 50 displays, gems, minerals, fossils, 15 dealers, jewelry, cut and uncut gemstones, beads, crystals, rough and polished rocks, mineral specimens, fossils; demonstrations, jewelry making, sphere making, rock grinding, polishing, silent auction, kids' activities; contact Janis Rovetti, 1047 Roosevelt St., Monterey, CA 93940, (831) 372-1311; e-mail: janis12@sbgglobal.net; Web site: cvgms.com

24-25—OSHKOSH, WISCONSIN: Annual show; Oshkosh Earth Science Club; Sunnyview Expo Center, 500 E. County Rd. Y; Sat. 9-5, Sun. 10-4; adults \$2, students with ID \$1, children under 12 free; Rocks, Minerals, Fossils, Lapidary Arts, Jewelry, more than 80 dealers, demonstrators, exhibits, kids' events; contact Wanda Timm, (920) 231-2332; e-mail: wjilt656@msn.com; Web site: www.oessclub.org

24-25—POMPANO BEACH, FLORIDA: Show; Intergalactic Bead & Jewelry Shows; Emma Lou Olson Civic Center, 1801 N.E. 6th St.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

24-25—RICHARDSON, TEXAS: Wholesale and retail show; The Bead Market; Richardson Civic Center, 411 W. Arapaho; Sat. 10-5, Sun. 10-4; free admission; gemstones, glass beads, lampwork, vintage beads and buttons, Swarovski Elements, crystals, pearls, bone beads, jewelry, books, tools; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

24-25—SHARONVILLE, OHIO: Show and sale; BeadStreet USA; Sharonville Convention Center, 11355 Chester Rd.; adults \$5, children under 12 free; vintage beads, lampwork, gemstones, Swarovski crystals, seed beads, fibers, precious metal findings, jewelry, tools, equipment, educational materials; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

24-25—SOUTH SIOUX, NEBRASKA: 46th annual show; Siouland Gem & Mineral Society; South Sioux City Senior Center, 1501 W. 29th St.; Sat. 9-6, Sun. 10-4; adults \$1.50, students 12 and older 50 cents, children under 12 free; exhibits, four dealers, agates, rough and polished specimens, gems, beads, geodes, minerals, faceted jewelry, fossils, door prizes, spin the wheel, silent auction, displays, Siouland dinosaur hunters exhibits; contact Bob Powell, (712) 378-2775

24-25—TRAVERSE CITY, MICHIGAN: Annual show; Grand Traverse Area Rock & Mineral Club; History Center of Traverse City, 322 Sixth St.; Sat. 10-5, Sun. 11-4; dealers, rocks, gems, minerals, jewelry, demonstrations, jewelry making, rock cutting and polishing, kids' area; adults \$2 (includes Con Foster Museum entry), children under 12 free with adult; contact Lauren Vaughn or Cynthia Vaughn, (231) 276-6150; e-mail: Maple2b@aol.com

SEPTEMBER-OCTOBER 2011

30-2—DALLAS, NORTH CAROLINA: 34th annual show; Gaston Gem, Mineral & Faceters Club; Gaston County

Park (Biggerstaff Park), 1303 Dallas-Cherryville Hwy./Hwy. 279, just past Gaston College; Fri. 9-6, Sat. 9-6, Sun. 9-5; free admission; minerals, fossils, cutting material, gemstones, wire wrapping, stone setting, geodes, jewelry, raffles, sluice, gem sand; contact Jackay McDaniel, 2631 W. Franklin Blvd., Gastonia NC 28052, (704) 865-6748; e-mail: Jackaythegrizz@aol.com

30-2—DEL MAR, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Del Mar Fairgrounds, 2260 Jimmy Durante Blvd.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

30-2—ANCASTER, ONTARIO, CANADA: Annual show; Robert Hall Originals; Ancaster Fairgrounds, 630 Trinity Rd.; Fri. 9:30-6, Sat. 10-6, Sun. 10-5; adults \$6, children under 12 free; jewelry, crystals, fossils, rock specimens, more than 30 dealers, free seminars on rocks, fossils and crystals, jewelry class signups; contact Robert Parry, 138 Sugar Maple Rd., St. George, ONT N0E 1N0, (519) 448-1236; e-mail: robert@roberthalloriginals.com; Web site: www.roberthalloriginals.com

30-2—DALLAS, NORTH CAROLINA: Show; Gaston Gem, Mineral & Faceters Club; Gaston County Park (Biggerstaff Park), Hwy. 279; Fri. 9-6, Sat. 9-6, Sun. 9-5; free admission; raffles, grab bags, water sluice, mineral and fossil specimens, gemstones, beads, cutting material, wire wrapping, jewelry; contact Jackay McDaniel, (704) 865-6748; e-mail: jackaythegrizz@aol.com

OCTOBER 2011

1-2—JACKSONVILLE, ARKANSAS: 39th annual show; Central Arkansas Gem, Mineral & Geology Society; Jacksonville Civic Center, 5 Municipal Dr.; Sat. 9-5, Sun. 9-5; free admission; more than 20 dealers, demonstrations, exhibits, door prizes, Kids' Dig, geode cracking, Rock Spin, mineral identification, grand prize; contact Lenora Murray, 218 Old Hwy. 11S, Hazen, AR 72064, (870) 255-3679; e-mail: lenoramur@aol.com; Web site: centralarkrockhound.org

1-2—JEFFERSON, WISCONSIN: 39th annual show; Rock River Valley Geological Society; Jefferson County Fair Park, Jackson Rd. and Peurner Rd.; Sat. 10-5, Sun. 10-4; dealers, minerals, rocks, fossils, gems, jewelry, demonstrations, wire wrapping, faceting, cabochon cutting; contact Robert Schweitzer, (920) 674-2544

1-2—LEXINGTON, KENTUCKY: 21st annual show; Rockhounds of Central Kentucky (ROCK); Kentucky National Guard Armory, 4301 Airport Rd.; Sat. 10-6, Sun. 12-5; adults \$1, children 6-12 50 cents (\$3 per family), Scouts in uniform free; dealers, minerals, jewelry, equipment, club sales and exhibits, Kentucky agate, door prizes, kids' quarry, silent auctions, fluorescent display, grand prize; contact Allen Ferrell, (859) 277-2469; e-mail: kyrock2010kentucky@yahoo.com; Web site: www.lexingtonrockclub.com

1-2—OMAHA, NEBRASKA: 56th annual show; Nebraska Mineral & Gem Club; Westside Community Center, 108th and Grover St.; Sat. 9-6, Sun. 10-5; contact Tim Kautsch, (402) 397-9606; Web site: www.nerockgem.us

1-2—RALEIGH, NORTH CAROLINA: Show, Intergalactic Bead & Jewelry Shows; Lighthouse Convention Center-Auditorium, 326 Tryon Rd.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

1-2—ROSEVILLE, MINNESOTA: Show; Anoka County Gem & Mineral Club; Har Mar Mall, 2100 Snelling Ave.; Sat. 10-6, Sun. 12-5; free admission; gems, minerals, jewelry, fossils, agates, collectibles, contact Martha Miss, 8445 Grange Blvd., Cottage Grove, MN 55016; e-mail: rockbiz@cs.com

1-2—ROSWELL, NEW MEXICO: Annual show, "Gems from Heaven in 2011"; Chaparral Rockhounds; Roswell Convention & Civic Center, 912 N. Main St.; Sat. 9-5, Sun. 10-4; adults \$3, children under 12 free; contact Diane Weir, 2300 S. Union Ave., Roswell, NM 88203, (575) 622-5679; e-mail: doweir@dfn.com

1-2—STAFFORD, TEXAS: Wholesale and retail show; The Bead Market; Stafford Centre, 10505 Cash Rd.; Sat. 10-5, Sun. 10-4; free admission; dealers, glass beads, seed beads, gemstones, pearls, lampwork, PMC, Swarovski Elements, crystals, jewelry, vintage beads and buttons, books, tools; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

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Show Dates from page 47

OCTOBER 2011

1-2—WALNUT CREEK, CALIFORNIA: Show, "Contra Costa Crystal Fair"; Pacific Crystal Guild; Civic Park Community Center, 1375 Civic Dr.; Sat. 10-6, Sun. 10-4; adults \$6, ages 12 and under free; 30 dealers, minerals, gems, crystals, beads, metaphysical healing tools; contact Jerry Tomlinson, PO Box 1371, Sausalito, CA 94966, (415) 383-7837; e-mail: jerry@crystalfair.com; Web site: www.crystalfair.com

1-2—WAYNESBORO, VIRGINIA: Annual show; Shenandoah Valley Gem & Mineral Society; Kate Collins School, 1625 Ivy St.; Sat. 10-6, Sun. 12-5; adults \$1, children under 6 free; jewelry, amber, gemstones, cutting rough, slabs, cabs, crystals, display pieces, beading material; contact Roland Stetler, 73 Avalon Ln., Lexington, VA 24450, (540) 463-6098; e-mail: svgem-min-club@live.com

2—WEST HENRIETTA, NEW YORK: Show; Rings & Things; RIT Inn & Conference Center, 5257 W. Henrietta Rd.; Sun. 12-5; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobotson@rings-things.com; Web site: www.rings-things.com>Show/index.html

5—DENVER, COLORADO: Retail show; Rings & Things; Ramada Plaza Denver North, 10 E. 120th Ave.; Wed. 12-5; free admission; gemstones, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact David Robertson, PO Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobotson@rings-things.com; Web site: www.rings-things.com>Show/city.php?city=Den

7-9—INDIANAPOLIS, INDIANA: 13th annual show, "Fall Indianapolis Gem, Mineral & Jewelry Show"; Treasures Of The Earth Gem & Jewelry Shows; Indiana State Fairgrounds, Ag/Horticulture Bldg., 1202 E. 38th St.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$5 (3-day ticket), children under 16 free; jewelry makers, goldsmiths and silversmiths size, reconstruct, repair, design or make original jewelry from customer-selected gems, stones, opals and crystals, wire wrap, wire sculpture, stone beads, pearls, stone setting, dealers, amber, opal, fossils, minerals, door prizes, grand prize, 500 Earth Science Club display, silversmithing demonstrations and classes, lampwork bead demonstrations, wire wrapping classes; contact Van Wimmer Sr., 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

7-9—PLEASANTON, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Alameda County Fairgrounds, 4501 Pleasanton Ave.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

7-9—SEQUIM, WASHINGTON: Show, "Nature's Treasures"; Clallam County Gem & Mineral Association; Boys & Girls Club, 400 W. Fir St.; Fri. 10-5, Sat. 10-5, Sun. 10-2:30; contact Terry Stockman, PO Box 98, Sequim, WA 98382; e-mail: terlin@wavecable.com; or Foster Thompson; e-mail: fostert@olympen.com

7-10—MOAB, UTAH: Annual show; Moab Points & Pebbles Rock Club; Old Spanish Trail Arena, 3641 S. Hwy. 191; Fri. 10-7, Sat. 10-7, Sun. 10-4; free admission; dealers, field trips, spin wheel, door prizes, displays; contact Jerry Hansen, PO Box 186, Moab, UT 84532; e-mail: moabrockclub@live.com; Web site: www.moabrockclub.net

8-9—AUSTIN, TEXAS: Wholesale and retail show; The Bead Market; Travis County Expo Center, 7311 Decker Ln.; Sat. 10-5, Sun. 10-4; free admission; dealers, lampwork, glass beads, vintage beads and buttons, bone beads, PMC, silver, findings, books, tools, jewelry, Swarovski Elements, crystals, pearls; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

8-9—BILLINGS, MONTANA: Annual show; Billings Gem & Mineral Club; Billings Hotel & Convention Center, 1123 Mullowney Ln.; Sat. 10-5, Sun. 10-4; contact Lynn Edwards, (406) 855-3675; e-mail: bentlyn77@yahoo.com

8-9—FORT WORTH, TEXAS: Annual show; LMRA Stone Steppers; Lockheed Martin Recreation Association, 3400 Bryant Irvin Rd.; Sat. 9-6, Sun. 9-6; free admission; rocks, gems, minerals, flinters, prospecting equipment, GPAA, jewelry, pottery, stained glass, children's activities; contact Steve Shearin, 860 Stafford Station Dr., Saginaw, TX 76131, (817) 733-5368; e-mail: steve.l.shearin@lmco.com

8-9—MARYSVILLE, WASHINGTON: 37th annual show, "Rocktoberfest"; Marysville Rock & Gem Club; Totem Middle School Cafeteria, 7th St. and State Ave.; Sat. 10-5, Sun. 10-5; free admission; contact Bill Moser, (425) 238-8222; e-mail: bill-jj@comcast.net; or George Haage, (425) 339-2272; e-mail: haag@frontier.net

8-9—ORLANDO, FLORIDA: Annual show; Florida Fossil Hunters; Central Florida Fairgrounds, 4603 W. Colonial Dr.; Sat. 9-5, Sun. 10-4; adults \$4, children \$1; fossils, rocks, minerals, gems, artifacts, children's dig pit, educational exhibits, silent auctions, supplies; contact Valerie First, 223 Ringwood Dr., Winter Springs, FL 32708, (407) 699-9274; e-mail: vfirst@aol.com; Web site: www.floridafossilhunters.com

8-9—TEMPLE, TEXAS: Annual show; Tri-City Gem & Mineral Society; Mayborn Convention Center, 3303 N. 3rd St.; Sat. 9-6, Sun. 10-5; adults \$3; silent auctions, raffles, door prizes, grand prize, demonstrations, dealers, rough, slabs, cabs, faceted gems, equipment, finished jewelry; contact Chip Burnette, 2630 Polk St., Killeen, TX 76543, (254) 630-3573; e-mail: burnette@aceweb.com

8-9—TOPEKA, KANSAS: Annual show; Topeka Gem & Mineral Society; Kansas Expocentre AG Hall, 17th and Topeka Blvd.; Sat. 10-6, Sun. 10-5; adults \$3; silent auctions, raffles, door prizes, grand prize, demonstrations, dealers, rough, lapidary supplies, rough rock, beads, jewelry; contact M. Mowry, 1934 SW 30th St., Topeka, KS 66611, (785) 267-2849; e-mail: rock2plate@aol.com

8-9—TRONA, CALIFORNIA: 70th annual show, "Gem-O-Rama 2011"; Searles Lake Gem & Mineral Society; Lapidary and Show Bldg., 13337 Main St. (at Trona Rd.); Sat. 7:30-5, Sun. 7:30-4; free admission; more than 20 dealers, 50 exhibits, geode cutting and sales, demonstrations, gem dig, door prizes, field trips; contact Jim or Bonnie Fairchild, (760) 372-5356; Web site: www.iwvisp.com/tronagemclub/

8-9—VISTA, CALIFORNIA: Annual show; Vista Gem & Mineral Society; Antique Gas & Steam Engine Museum, 2040 N. Santa Fe Ave.; Sat. 10-5, Sun. 10-4; free admission; dealers, gems, minerals, jewelry, rough materials, books, handmade beads, carvings, faceted stones, tools, slabs; contact Ray Pearce, (760) 726-7570, or Lois Harr, (760) 724-0395

8-9—WORTHINGTON, PENNSYLVANIA: Show; Kit-Han-Ne Rock & Gem Club; West Franklin Fire Hall, Linton Alley and Cherry St.; Sat. 10-5, Sun. 10-5; donation requested for admission; six dealers, silent auction, displays, kids' gem mine, door prizes; contact Albert Zabinski, PO Box 456, East Vandergriff, PA 15629; e-mail: kithanne@facetersco-op.com; Web site: www.facetersco-op.com/zabinski/club.htm

8-10—ORLANDO, FLORIDA: Retail show; Florida Fossil Hunters; Central Florida Fairgrounds, 4603 W. Colonial Dr.; Sat. 9-5, Sun. 10-4; adults \$4, children \$1; fossils, rocks, minerals, gems, artifacts, supplies, books, children's dig pit, silent auctions, educational material; contact Valerie First, 223 Ringwood Dr., Winter Springs, Florida 32708, (407) 699-9274; e-mail: vfirst@aol.com; Web site: <http://Floridafossilhunters.com>

9—SPOKANE, WASHINGTON: Show; Rings & Things; Mirabeau Hotel Spokane Valley, 1100 N. Sullivan Rd.; Sun. 11-4; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobotson@rings-things.com; Web site: www.rings-things.com>Show/index.html

13-15—MOUNT IDA, ARKANSAS: 25th annual World Champion Quartz Crystal Digging Contest; Mount Ida Area Chamber of Commerce; Montgomery County Fairgrounds, Fairgrounds Rd.; Thu. 8-3, Fri. 9-3, Sat. 9-3; adults \$80 (\$95 after Oct. 1); dig quartz crystals, keep all you find, meet other miners, maybe win a prize; contact Maureen Walther, Mount Ida Area Chamber of Commerce, Mount Ida, AR 71957, (870) 867-2723; e-mail: director@mountidachamber.com; Web site: www.mountidachamber.com

13-16—FRANKLIN, NORTH CAROLINA: Annual show; South East Gems & More; Whistle Stop Mall Parking Lot, 1281 Georgia Rd. (Hwy. 441N); Thu. 9-6, Fri. 9-6, Sat. 9-6, Sun. 9-4; free admission; dealers, silver and goldsmithing, rough, slabs, fossils, minerals, metaphysical, findings, gemstones, custom jewelry and repairs; contact Mark or Patricia Smith, 751 Hutto Pond Rd., Aiken, SC 29805, (706) 490-4550; e-mail: segems@ymail.com

14-16—COSTA MESA, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; OC Fair & Event Center, 88 Fair Dr.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson,

(503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

14-16—FRANKLIN, NORTH CAROLINA: Retail show; Gem & Mineral Society of Franklin; Macon County Community Bldg., 1288 Georgia Rd.; Fri. 10-6, Sat. 10-6, Sun. 11-4; adults \$3, seniors and students \$2, children 12 and under free; minerals, beads, handcrafted jewelry, rough and cut stones, lapidary equipment, demonstrations, door prizes, gold and silver jewelry, findings, jewelry repairs; contact Linda Harbuck, 425 Porter St., Franklin, NC 28734, (800) 336-7829; e-mail: lindah@franklin-chamber.com

14-16—MOUNT IDA, ARKANSAS: Show, "Quartz, Quiltz and Craftz Festival"; Mount Ida Area Chamber of Commerce; Montgomery County Fairgrounds, Fairgrounds Rd.; Thu. 9-6, Fri. 9-6, Sat. 9-6, Sun. 10-4; free admission; dealers, minerals, jewelry, quartz crystals, quilts, crafts, children's digging contest Sat.; contact Maureen Walther, Mount Ida Area Chamber of Commerce, Mount Ida, AR 71957, (870) 867-2723; e-mail: director@mountidachamber.com; Web site: www.mountidachamber.com

14-16—WARREN, MICHIGAN: Annual show; Michigan Mineralogical Society; Macomb Community College Expo Center, South Campus, 14500 E. 12 Mile Rd., Bldg. P; Fri. 9-7, Sat. 10-7, Sun. 11-5; adults \$8 (3 days \$12), seniors (62+) \$5, children (5-17) \$4, Scouts in uniform \$3; Ice Age woolly rhino and giant ground sloth skeletons, school groups Fri., exhibits from Smithsonian Institute, Carnegie Museum, A.E. Seaman Museum, Lizzadro Museum, Royal Ontario Museum, Cincinnati Museum, University of Waterloo, Wayne State University, Cranbrook Institute of Science, lectures, dealer displays, free mineral identification; contact Carol Werner, 3401 Briarhill Rd., Hartland, MI 48353-2406, e-mail: briarhillwerner@comcast.net; Web site: http://michmin.org/

15—MOUNTAIN HOME, IDAHO: Show; Eureka Rock & Gem Club; Senior Citizen Center, 1000 N. 3rd E.; Sat. 9-4; contact Margaret Stallknecht, (208) 740-0937; e-mail: mestallknecht@yahoo.com

15—SEATTLE, WASHINGTON: Show; Rings & Things; Seattle Center Pavilion, 305 Harrison St.; Sat. 12-4; free admission; gemstones not available in our catalog or online store, bead strands, 15% off many gemstone and bead strands, findings and stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com/Show/index.html

15-16—BRISTOL, CONNECTICUT: Annual show; Bristol Gem & Mineral Club; Beals Community Center, 240 Stafford Ave.; Sat. 9:30-5, Sun. 10-4; adults \$5, seniors \$4, children under 12 free with adult; gems, jewelry, mineral specimens, crystals, hands-on educational exhibits, grand door prize, free children's games and activities; contact Dave Korzendorfer, 208 Westledge Rd., West Simsbury, CT 06092, (860) 651-9980; e-mail: Bristolgem@hotmail.com; Web site: www.bristolgem.org

15-16—CLIO, MICHIGAN: Annual show; Flint Rock & Gem Club; Carter Middle School, 300 Upland Dr., off Vienna Rd./M-57; Sat. 10-5, Sun. 10-5; adults \$3, children (6-18) \$1.50, Scouts in uniform free; displays, minerals, crafts, lapidary demonstrations, children's activities, dealers, jewelry, gems, minerals, rough specimens, door prizes, raffles; contact Mary Poma, 806 Homedale St., Saginaw, MI 48604; Web site: www.flintrockandgem.org

15-16—COTTAGE GROVE, MINNESOTA: Annual show, "Great Lakes, Great Rocks 2011"; Minnesota Mineral Club; National Guard Training and Community Center, 8180 Beldon Blvd.; Sat. 10-5, Sun. 10-4; adults \$2, children \$1; exhibits, tailgate sales, dealers, programs, kids' corner, demonstrations; contact Phil Gotsch, (763) 717-1641; e-mail: agatephil@earthlink.net; Web site: www.minnesotamineralclub.org

15-16—GRAND JUNCTION, COLORADO: 64th annual show; Grand Junction Gem & Mineral Club; Two Rivers Convention Center, 1st and Main; Sat. 9-6, Sun. 10-5; adults \$3, children 12 and under free with parent; dealers, demonstrations, children's corner, special attractions; contact Wayne McMackin, 191 Lumley, Grand Junction, CO 81503, (970) 640-9271; e-mail: wmcmackin@msn.com; Web site: www.grandjunctionrockclub.org

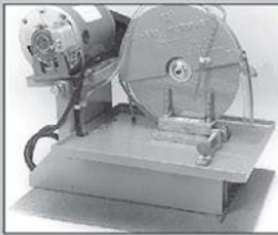
15-16—JOHNSTOWN, NEW YORK: Annual show; Fulton County Mineral Club; Johnstown Moose Lodge, Rte. 30A; Sat. 10-5, Sun. 10-5; adults \$3; contact Bob Hartig, (518) 842-5948; e-mail: rockbob@nycap.rr.com

15-16—LAKESIDE, CALIFORNIA: Annual show, "Rock and Gem Roundup"; El Cajon Valley Gem & Mineral Society; Lakeside Rodeo Grounds, 12584 Mapleview; Sat. 10-5, Sun. 10-5; free admission; rocks, minerals, gemstones, jewelry, fossils, beads, handcrafted items, demonstrators, displays,

continued on page 64

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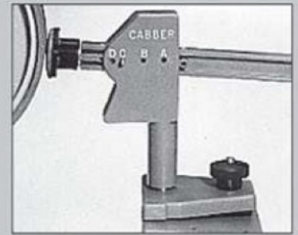
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Little HAMMER

A Grandfather's Gift Keeps on Giving

Story and Photos by John Galt

I still have my first rock hammer. It's the smallest one Estwing makes. My grandfather gave it to me before I was strong enough to even lift it. Some of my earliest and fondest memories are of clutching that uniquely blue handle while sitting next to my grandfather in his Blazer, bouncing up old mining roads. He's been gone for more than 20 years now, but I still have that hammer. I actually have five or six hammers, but whenever I reach for one, that little blue tool seems to be the one that gets picked.

Back when I was a mud logger, the guys would sometimes give me a hard time for using a kid's hammer. The kidding usually stopped after I told them why I used that one; sometimes there would even be a little bit of a sheen in the eyes of one of those tough roughnecks.



The choice to not use power equipment when reopening this mine limited the impact on the surrounding area.

That little hammer has been with me while panning for gold, prospecting for silver, digging sapphires, logging coal, and hunting pegmatite "smokies", but what I remember most about it is carrying it while picking rhodonite off mine dumps north of Silverton, Colorado, with my grandfather. I have over 300 pounds of rough

TOP: This seam of rhodonite, which is locally called "pink mag", was the reason I bought the property.

CENTER: I have prospected with this same hammer since it was given to me when I was a child.

BOTTOM: The original miners removed only the ore and left all the surrounding granite, which accounts for the lack of uniform walls in this drift.



rhodonite and rhodochrosite stored in milk crates to remind me of those times.

I moved to Montana with hopes of ranching and, of course, rockhounding. The little town I fell in love with had already been "discovered", so my dreams of owning sections of land to run cattle on never materialized. The acreage I could afford turned out to be some mining claims just outside of town. The first thing I spotted when I saw the claims was an old mine dump. I reached under the seat of my truck and pulled out that little hammer. As I approached the dump, I saw a jagged piece of ore that was black and pink. It was rhodonite, or "pink mag" as they call it up here. I felt like I was 8 years old again and my grandfather would be catching up with me any minute. I always did beat him to the good pickings. It was a sign I couldn't ignore. I wrote a check for those two claims just a few days later.



It took me almost three years to get our home on the claims completed enough to have time for other projects. There was a long depression in the hill behind that old dump. I knew there had to have been a drift there once. Explaining to my wife that a mine would be a perfect place to store the vegetables from our garden, I justified bumping it up the project list. I aired up the tire on my wheelbarrow, grabbed some shovels, and went off with my son to start digging. Several months later, water started seeping from our now 60-foot-long by 12-foot-deep trench. I used some PH strips to make sure it wasn't acidic; there was no way I wanted the EPA telling me I had to treat mine water for the rest of my life. The strips showed that the water was perfectly neutral, so we kept digging. A couple of feet further and we were at hard rock—or at least as hard as decomposing granite gets. What a crushing disappointment. In anger over the time we wasted, I kicked the base of our workings and something funny happened: my foot went into the sandy material all the way up to my shin. When I pulled it out, water started gushing. It ran and it ran and it ran some more. That's when I knew that we were going to have the biggest root cellar around.



After lowering our trench almost 3 feet, we had a pretty good view into the mine. It was evident that I would have to shore and brace quite a bit before I could really start using the drift and it was getting close to fall. Meat had to be hunted and firewood cut, so the mine project got pushed back down the list, but I could still hear it calling to me. What was in there? Ore that would assay at hundreds of ounces a ton? Were there skeletons of long-forgotten miners? Could it possibly connect to the huge abandoned workings not far from us? Were there miles and miles of mine for me and only me to prospect? I pictured huge crystal-filled galleries. Could there be carts, drills, and other tools just left there like they had been in a mine not far from here? Sacks of gold and silver coins from a bank heist in a nearby city almost a hundred years ago?

These thoughts preyed on my mind and one night after a few beers, I grew courageous—or perhaps foolhardy—enough to pull on my irrigation boots, grab a light and that little rock hammer, and set off exploring. I didn't care if the rocks came crashing down on me, I had to know.

The water I was sloshing through was less than ankle deep. The walls were close—less than 3 feet apart—and covered with black slime. My breath was visible in the cold, damp air. The air was heavy with that unique mine smell that seems to stick to your tongue: part blasting powder, part rotting wood, part oxidizing minerals. Every now and then, a white fungus or alga would reflect my light back to me like a lone star in the night sky. The walls would occasionally open up a little and I could see where the long-forgotten miners had followed a branch of the main seam a little ways, then abandoned it.

How far back was I, 300 feet? Slosh, slosh, slosh. Must be 400 feet now. And then the drift just ended. There was a rotting plank on the floor covered in slime, and that was it. I let out my breath for what felt like the first time since I entered the mine. I shone my light around me and I caught a glimpse of pink. There was a small cavity covered in a coating of rhodonite. I had collected some fine rhodochrosite crystals in my lifetime, but those opaque little crystals looked like diamonds to me right then. I pried loose a piece about the size of a half-dollar, catching it in palm of the hand that held the little hammer. I felt a stirring in the air around me and I heard, "Pretty low-grade stuff there. That's not rhodonite, it's leaverite ... leave 'er right there," and then a deep laugh that I hadn't heard in more than two decades. It might have been the beer or the adrenaline playing tricks on my mind, but then again, maybe not. 💎

TOP: All the collapsed subsoil was removed back to hard rock to reopen this drift.

CENTER: The drift was mostly flooded when it was opened for the third time. Fortunately, the water was nonacidic.

BOTTOM: The seam of silver ore for which the original miners dug in the 1880s varies in width, but averages only 6 inches.



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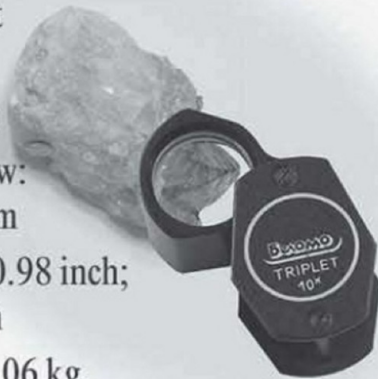
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by Jim Perkins

OFF THE DOP

Cubic Zirconia

Cubic zirconia (CZ) is not like diamond optically; chemically or physically speaking, therefore, it is a diamond imitation rather than a synthetic. However, this manufactured gem is significant to the jewelry industry. It is popular due to its low price and it is the best diamond imitation available to faceters.

Diamond has a refractive index of 2.42 and critical angle of approximately 24.4°. Theoretically, diamond is pure carbon, but stones often contain inclusions that cause color or identifying fingerprints.

CZ is manufactured by the skull melt process. Melting zirconium oxide, along with other chemicals, in a furnace forms large crystal clusters, which accounts for the irregular pieces we often see for sale at gem dealers' tables. The refractive index of CZ is approximately 2.16 with a critical angle of approximately 27.6°, and its Mohs hardness is approximately 8.5. Retail prices for CZ are in the range of 5 cents to 16 cents per carat. Some consumers are of the opinion that cubic zirconia is "cheap and worthless", but my opinion is somewhat different. CZ certainly isn't rare, but like any synthetic gem or simulant, it permits people of all economic levels to possess a precious gem that is very close in looks to a natural gem they couldn't possibly afford to own.

One example is collectors of historic diamonds like the Hope or Regent diamonds. These types of diamonds are the rarest of the rare, so they are owned by museums or very wealthy private collectors. CZ will cut into a good replica that pleases the most discerning collector of modest means. Therefore, it may be found in jewelry costing a dollar or collector replicas selling for \$1,500 or more.

Faceters find CZ fascinating to cut, as it gives them the ability to see what their designs might look like if they were cut in diamond. Diamond cutting requires different skills and different types of machinery than faceting, not to mention expensive rough, so it is not an option for most faceters. Those who are interested in learning to cut diamonds can attend courses at the American Institute of Diamond Cutting (www.diamondschool.com). Complete classes run approximately nine months and cost about \$16,800, plus living expenses. Faceting, on the other hand, can be taught in approximately five days and costs a few hundred dollars or more, depending on the type of class and the number of students.



Cutting CZ is relatively easy, as it has no cleavage planes, is singly refractive, and is not color zoned. However, CZ can present difficulty in polishing. I cut with nothing coarser than 360 diamond lap to prevent subsurface damage, followed by 600 and 1200 diamond laps. I pre-polish using 8,000 diamond and oil on a Batt Lap™, then do an initial polish with 100,000 diamond powder on a separate Batt Lap with oil, cleaning the machine and stone and washing my hands in between to prevent contamination.

After inspecting the stone with a 10X loupe and a 60-watt clear lamp, I decide whether scratching is an issue. When necessary, I clean everything again and use the Darkside™ lap with a watery slurry of aluminum oxide and do a second polishing of the facets. Aluminum oxide has a hardness of Mohs 9, so it is harder than most CZ. I rotate the wheel away from me rather than toward me so I don't spray myself with slurry.

Bruce Harding, a mathematician and amateur gemologist who is recognized world wide as an expert on gem optics, recently produced a chart for me showing Zone A, Zone B, and Zone C angles for CZ. He said, "historically 'best' cuts are at the upper edge of the upper dark zone (lower edge of Zone A). You might even [say] that this adds best contrast within the stone because of partial viewer obstruction." Angles 41 and 35 are in this area and therefore should produce an excellent stone. ♦

Send your comments and questions about any of my columns to Off the Dop, P.O. Box 1041, Medina, OH 44258, or e-mail me at jimperkins@zoominternet.net.



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Chasing SAMUELSON

On the Trail of a Legendary New Hampshire Rockhound

Story and Photos by Scott Maier

The name Peter Samuelson will raise eyebrows and extract stifled smirks only in the mineral-collecting world of New England. Not because this rockhound's accomplishments are small by any means, but because of his devotion to the relatively small mineralogical trove of central and northern New England and the way it has sheltered the true extent of his accomplishments to within the walls of New Hampshire's White Mountains.



ABOVE: Mike and Jane gave John and me each a large smoky quartz crystal from somewhere up on the twin Percy peaks even though, after five years combing the two mountains, they had not found much more than a few of Samuelson's leftovers.

LEFT: This show of color at Christine Lake was an ironic reminder that we had not found anything by following Samuelson's diary, appropriately titled "Chasing Rainbows".



There are plenty of people who have heard his name or seen his specimens in the mineral world. Mostly, if you knew him, you had dug with him, as was the case for Bob Whitmore, Louis Dondero, and Bob Ross, to name just a few. Whitmore became a legendary name in New England, Dondero set up shop in North Conway, New Hampshire, to sell minerals, and Ross passed on invaluable information to Samuelson from the preceding generation, referred to both lovingly and in frustration as “the old-timers”. But Samuelson’s prime mover, his acute influence, was John B. Oliver. Oliver was a quiet, unassuming man in his late 50s when Samuelson first became interested in minerals, which was in no small way due to Oliver’s exploits as a prospector. Oliver would be the most lasting influence in Samuelson’s life, which is evident in his writing even decades after Oliver’s unfortunate passing on Mar. 27, 1980.

But to truly understand Samuelson, you have to know the landscape he called home, the lengths he went to prospect open rock, and what regional history he managed to leave in the wake of his near-obsessed woodsmanship.

The allure of this man’s legacy drew me in after only a few pages of his simply worded, but exhaustive, self-published diary called “Chasing Rainbows”. Each entry is only a few sentences long, sometimes shorter, but taken as a whole they provide context, landmarks, and physical descriptions of the locations of some of the most predominant New England specimen legends, including a 0.5-kg golden topaz crystal, a 228-pound, 2-foot-tall cluster of lustrous, dark smoky quartz crystals, and an 82-pound amethyst crystal the size of a bowling ball from the slopes of Long Mountain.

The sheer volume and quality of his collected specimens are enough to entice any rockhound into considering a venture in the rolling White Mountains, part of the northernmost segment of the Appalachian Trail. Carrying that impulse out is another thing altogether. With the idealized fervor of a professional dreamer, I latched onto the possibility of chasing down Samuelson’s trail, which my friend John had suggested over a year earlier. Like adding fuel to a fire, he handed me a signed copy of Samuelson’s diary and I was in.

SUNDAY

John and I drove from Rhode Island to Fryeburg, Maine, and stopped in at the small homestead property of a friend of John’s named Derek. They had met in spring while mining in Oxford County, Maine. We met his wife and son, then walked down to his greenhouse and met Derek. Also present was Derek’s longtime friend and digging partner Jody, a physically intimidating but



This crescent-shaped dugout is the mark left after John and I spent a day digging out handfuls of water-clear quartz crystals from between the roots of the large trees on the side of Crystal Hill in Vermont.

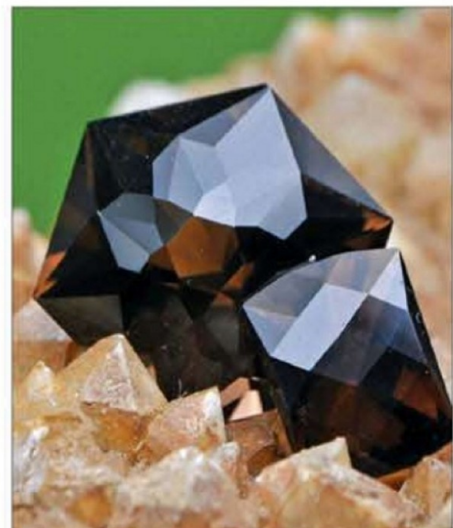
affable hippie in his late 30s. Derek showed us the quartz plates he had dug less than a mile away, and then the large, complex aquamarine mantelpiece he had pulled from a hillside on his other property across town. This certainly was a mineralogically rich valley. We all got to talking rocks, and eventually we laid out our plan to tack up Long Mountain. An hour later, John and I headed across town to our friend Tripp’s house. Tripp would be the third member of our expedition.

Tripp lived up a steep gravel driveway in a log cabin with huge windows across the bottom floor. There wasn’t much heat, and 12 car batteries were juicing a low-wattage yellow light bulb. Meg and Ari, his wife and son, were sleeping on sleeping bags on the living room floor. We helped him pack up his warm clothes, food, and mining gear. I went to bed on the couch and listened to the sounds of nylon gear and plastic food packaging being ruffled, packed, rearranged and re-packed. These are the sounds of adventure as far as I’m concerned, and they only helped to pinpoint my acute excitement to stumble into a topaz cavity or carefully extract a cluster of smoky quartz. Samuelson’s legacy was palpable now, an almost auditory electric crackle that fueled my dreams that night.

MONDAY

It had gotten to be 1 a.m. before we knew it, and we struggled to wake up just a few hours later. John took me with him to Derek’s aquamarine pit across town and showed me black tourmaline poking out of the outcrop that Derek had discovered mostly by accident a few months back. We grabbed rope and an astronomically large tarp that had the square footage of a small house, and picked up Tripp back at his place on our way west towards the Granite State.

The thrill of setting out kept us awake for the hour-long drive north better than any coffee could have; we were silent, but energized, in the cold dark. All three of us were willing to try to follow the descriptions and refer-



These flawless 32-carat and an 8-carat gems were cut from a smoky quartz crystal found near an emptied Samuelson pocket on South Percy Peak.

ences placed throughout Samuelson’s manuscript, which ambiguously infer the locations of some of his successes. John had wanted to do this for a long time and had planned the most promising trip he could think of, taking into consideration the remoteness of the range, the number of references to prospecting there, and the type of specimens that could be found. He had established that, because of its steep, rugged terrain, the proximity of prolific diggings, and the nature of the possible treasures, Long Mountain was probably the most promising area in which to conduct a search. Samuelson—and Ross before him—had been on Long Mountain extracting massive amethyst crystals, and it was our aim to scout these places.

We came in from the northernmost flank of Long Mountain. Initial progress was difficult; it was the thickest, most unpassable thatched spruce I’ve ever been through. It took us nearly eight hours of exhaustively crashing through thickets of densely woven pine, birch, beech and blow-downs to travel three and a half miles up the north-facing slope, and for almost three hours I never

saw my legs or feet. The young, low-lying spruce growth and dead-fallen trees allowed no more than a meter or so of visibility. We followed the streambed as long as it was recognizable, leaving it at about 2,500 feet and headed southeast toward the pond in the saddle of two of Long Mountain's highest points.

We finally crashed through to the edge of the pond and sat down in the sun, thoroughly spent. We figured to stay at a clearing toward the opposite side of the pond where the stream pulled itself off the southern side like a languid slick on the low slope. John got us water and I looked for a flat place for shelter just into the woods: nothing, no space whatsoever. It didn't matter, though, because as it turns out we couldn't stay by the pond either. Moose bones, bear scat, and deer tracks were all over the area, and we picked back up and moved off again, already well past our limits. The southern drop was steep, but we couldn't turn back. The brush was just as thick as before, but now the boulders were closer to the surface and the ground covering became a deceptively sturdy-looking drapery of moss, log rot, and decaying leaves. Every step was either well considered or well regretted, with slight variations on each. We camped the night on a ledge of tightly grouped boulders, which sported sufficient debris to form three person-shaped crevices with a bit of moss padding.

TUESDAY

In the morning, the rising sun lit the mountain on fire with the brightest orange and pink, and the fresh-pressed air had a fortunately crisp absence of dew. We headed down the ledges and crashed through false bottoms and rotten trunks. We reached a massive overhanging boulder covering a pile of loose rocks and rubble just as the sky darkened and promised to deliver the rain predicted for that day. We decided to set up a base camp there early; it was only 10 a.m., but we'd avoid the rain and have a base of operations from which to explore the exposed ledge above us and try to find the larger one about a half mile away. John built beds out of sawn spruce, padded with pine shoots, I tied the novelty-size tarp monster over the boulder, and Tripp sawed logs. Soon we had a wide, spacious shelter with a fire pit at one end and a water source 20m above us, running off the corner of a the ledge's mouth.

That day we collected firewood, explored the exposed sections of boulders, and prospected two impossibly sheer Conway granite ledges that all but forbade thorough exploration. We found only a few feldspar veins and one quartz vein with tiny



The reward for a week's hard work chasing Samuelson was a treasure of purple and green fluorite.

crystals peppered throughout. Later in the day, John cut a trail about 50m down the mountain toward a flatter mass of rock and plant life. He figured that, at 4 o'clock the next morning, we would need all the help we could get. It never did rain.

Luck wasn't swinging our way, and Samuelson thus far had let us down. By the end of the day, we were beginning to consider that the frustrating lack of success was possibly an intentional misdirection on his part. In all likelihood, however, Samuelson probably had never bothered to penetrate this far into Long Mountain, having had plenty of success over the next ridge of Long Mountain's U-shaped sprawl, closer to Christine Lake and the access road and trails there.

WEDNESDAY

The rain we had aimed to miss by camping under the boulder all day started as mist, then became a cloud, and then a full-on saturation. It was still dark and remained so for at least an hour. With headlamps, we awkwardly struggled down the inside bowl of Long Mountain's 270° wraparound. John fell in a hole up to his neck and was luckily caught by his pack. Tripp couldn't get past the thickets of spruce he was getting stuck in, and I was taking digger after digger in little holes or on tree trunks.

The riverbed became more prominent as we descended, and eventually it made for a much smoother bushwhack than the rest of the forest. We bottomed out in a marshy peat forest with animal prints running everywhere, and we followed a faint deer trail to a small, open water source. Around the other side, we found an even fainter people trail. We followed it because it led the direction we needed to go—southeast—and we entered the main path from a relatively obscure tributary pathway in an arboreal delta that, 9km later, led to paved roads.

Tripp's wife, Meg, met us at the end of Bell Hill Road, about eight hours and 12km from where we had started, back on the steepest ridge of Long Mountain. I was so happy to see the van. Tripp was deeply and genuinely overjoyed to see his family again.

They dropped us off at John's truck, where we parted ways. What we found there was a little surprising, but very encouraging: A car was parked next to John's truck, and its owners had left a very nice and clear amethyst crystal on his windshield. It was weighing down a note that said, "up on South [Percy Peak], want to trade info", with a phone number scrawled underneath. This promising sign got John and me excited again, but Tripp was done and wanted nothing more than to return with his family.

We hadn't found a damn thing except a quartz vein with miniature faces all over it. Brush, moss, and absence of ledge were the downfall of our expedition. There may have even been something right under our noses, but we weren't prepared for the impediments we experienced, and only managed a weak once-over of the landscape. We also found a convenient base-camping site if we should ever return. Anyway, Tripp and his family headed back east to Maine as John and I went west to Lancaster, New Hampshire, a hokey border town near Vermont, and pulled into an appropriately hokey hotel.

We ate at the only open restaurant in town, a "stake house" under new management with a new menu that offered no steaks. Our waitress looked like she had been up for three days. She took our drink order and talked with us for about another minute. We asked about travel time to a town near Lyndonville, Vermont, and talked with some old-timers at the bar. It was late by the time we passed out, jaded from creaky knees to cricked neck, and cynical in spades about Samuelson.



The excavator bucket lowers Dennis and his equipment into the old Intergalactic pit on Deer Hill.



Gary Howard, Chief Operator at Deer Hill, prepares to blast into the floor of the old Intergalactic pit.



Dennis' jackhammer rests in its borehole while he takes a break from its harsh reverberations.

THURSDAY

Slightly discouraged but rested, we decided to deviate from Samuelson's trail in order to gain some perspective. Having been skunked in our first bid after such anticipation was quite frustrating. It would be good for our egos to find some minerals for our trouble. We debated between South Baldface near the Maine border, the Percy Peaks near Stark, or an obscure quartz dig in Vermont. Because of our proximity to Vermont, and the unlikelihood of our being able to visit there in the near future, we chose the latter. Samuelson be damned today.

Up in Vermont, we got to John's old-time spot around 11 in the morning, after a two-hour drive. Our late start was a welcome surprise after the still-dark mornings of the previous three days. We combed the side of Crystal Hill for an hour before John came across what looked like the best spot. He had kicked up a water-clear crystal an inch long and uncovered rubble rock that was littered with fused or morphed crystal faces. We stayed there for three or more hours and found some very interesting and uncommonly clear quartz.

After a stop for the best pizza I've ever had, we headed back to the Percy Peak trailhead with renewed spirits, and John decided to go up it, even though the sun was already beginning to set. I opted to build a small camp at the bottom. My back was hurting and I just couldn't keep up. I found myself with newfound respect for Samuelson's vast exploration despite his chronic and severe back problems. He carried hundreds of pounds of crystals at a time over terrain just like we had been over in the last few days, with only fleeting time for rest or recuperation.

I built up some tarp roofing and flooring right next to the river and set to cleaning off my filthy quartz from Vermont with cool river water. About half of it I tossed into the river, most of the rest was broken or slightly cloudy, and the small handful of quartz that was left was bright, clear and complete.

Shortly after the fall of dark, John returned and radioed me to come over and meet a couple named Mike and Jane. This turned out to be the couple who had left us the encouraging note, and they were dedicated rockhounds with a lot of useful information to relate. They had come back to their vehicle about the same time John got back and they were talking rocks and talking Samuelson.

Jane and Mike were after the same man we were. Samuelson had been all over the Percys, all over Long Mountain, Bald Mountain, Victor's Head Mountain, and every hill around this area. Mike and Jane had been combing South Percy for over two years and had been skunked at every stop. Every pocket they found was emptied, every crystal broken. And there was a reason for this: Samuelson had not been the first prospector in this area north of Stark. He had only been the most thorough. The "old-timers" had discovered topaz, amethyst, smoky quartz, arfvedsonite and microcline all over the place. Samuelson had simply followed their successes methodically and extended the pock-marking of the landscape. Mike and Jane had found dozens of these pocks, but each one had been emptied of all worth. The leftovers scattered down the hill at these places were peppered with hints of the contents, such as smoky quartz shards, which they gave us a few of, or cracked-up, crusty feldspar.

As Samuelson's collection of specimens grew, he needed less and less material, the couple told us. Soon he was only after the gem-quality sections of smoky quartz, which hid in a few of the many crystals he found. If the crystal wasn't perfect, he would smash it to determine its worth in faceting terms. Learning this from the couple pissed John off a great deal, because he had studied Samuelson's clues and endeared himself to the accomplishments of this New Hampshire woodsman, only to learn that, in truth, he had somewhat recklessly destroyed what John considered to be the holiest part of prospecting.

Mike and Jane departed after we agreed to meet them early the next morning to attack the area where Diamond Ledge was supposed to be, along the southernmost elevations of Long Mountain's east-facing horseshoe shape. John cleaned his quartz by the camp and I tried to build up a fire from the soggy surroundings, soaked by rains from two days before. Despite two hours of effort, the damn thing would not light. We gave up and just went to sleep. About five minutes into a comfortable rest, John sat halfway up, alert, scared.

"Do you hear that?" he asked.

"Hear what?" I thought. I stayed still.

"Do you hear that?"

"No, I don't hear a damn thing," I thought. I rolled over grouchily and John lifted the beam of his headlamp onto an 11-foot hulking moose with a massive rack on his head about 25 feet away. John's "scare the bears" turned midstream into his "holy hell a moose" yell. I was dumbfounded, but so was the moose, which bucked a bit deciding whether to turn and run up the hill from which he'd come or come straight at us as an escape. It chose

the former, thank god. I rolled over to my original position in disbelief and relief, and John thought I was nuts. If only our moose had kicked up the entrance to a pocket of crystals, as the moose in Samuelson's journals had done decades ago.

John was already up and packing like mad. We were out of there; I just didn't know it yet. I got up, grouchy but laughing, and we just threw everything in the bed of John's red truck and left. I was exhausted and delirious and my body needed a break. We went pretty far before we found a motel that would answer the door, but 50 bucks later we had a roof and four walls, and were not sleeping next to a water source for the wildlife. I crashed on the floor in a twisted knot of discomfort for the four hours we had before we met up with our new friends.

FRIDAY

We waited at the end of Bell Hill Road in the dark with our headlamps on, and they showed up in their Honda 10 minutes later. We drove around to the front of the range, which includes Long Mountain, Bald Mountain, and the Percy Peaks. At the end of a road by Christine Lake, John, Mike and Jane headed up the trail to search for Diamond Ledge, the abundant and remote amethyst prospect discovered by Ross, and worked subsequently by the increasingly elusive Samuelson. Amethyst crystals over 80 pounds had been extracted from this Atlantis of the mountains over 30 years ago. The promise of Diamond Ledge is that it remains a dense thicket of underbrush. It literally is a forgotten diamond in the rough.

I stayed below at the lake with my camera and a bad back. I skirted the lake twice, napped in the back of the truck, and took long-range photos of all of the south-facing ledges on all the mountains at the north edge of the lake. Samuelson had named the book of his diaries "Chasing Rainbows", and as I saw an early-morning rainbow descend over the lake, I wondered whether the title referred to the process of finding a cavity full of crystals or the wild goose chase the book had seemingly sent us on. I pondered this until the three came off the mountain having had no luck, when I became convinced that the title's origins were rooted in Samuelson's devilish "pen-in-cheek" protection of his treasures. Were we chasing a man, a myth, or a legend? What was at the end of the rainbow: buried treasure or exhausted failure?

For an answer to these questions, we headed off Samuelson's trail for the rest of the day and made our way back into Maine to meet with Gary Howard and friends Dennis and Scott over at the Deer Hill amethyst locality. Just before we left



This large amethyst crystal, several 5-gallon buckets of crystals and matrix, and a 350-pound matrix piece with purple golf balls all over it were the result of a successful day of drilling and blasting at Deer Hill in early fall 2009.

the lake, we traded Mike and Jane information on our beryl prospect in Rhode Island for a loose set of directions to a purported Samuelson mine in Conway, New Hampshire. For the first time in our trip, we had some concrete chances of getting back on Samuelson's trail. Not only was the site abandoned, but for all intents and purposes it had been forgotten by all but a handful of diggers. Samuelson and his cohorts had abandoned it, and as the flow of time elapsed, they had grown too old to return. Mike and Jane had been given vague directions from an old-timer associated with Samuelson and had paid their dues, scouring four mountains over the course of a week in order to find it. Also for the first time, we had concrete directions to a location that Samuelson himself references frequently in his journal: The Middle Mountain fluorite spot. Now we could see the magnitude and importance of the types of key information missing in Samuelson's descriptions of his locations.

It was a welcome detour to be at Deer Hill, where large-scale blasting, excavation and prospecting had taken place. Only a year earlier, I had found a large, deep-purple amethyst crystal the size of a golf ball there. There were dumps everywhere, and the operators had plans to blast the next day. Even though we'd had no solid success in chasing Samuelson thus far, we were glad to be invited up for a full day of legitimate mining operations in a familiar and friendly setting.

SATURDAY

We got up before Dennis, Gary and Scott and went to Melby's Market and Eatery for breakfast. When we got back to the cabin, the guys were gone, back up on Deer Hill. We put away the mattress and our sleeping bags and headed up after them.

A lot had changed since the last time I was here. Whole sections of wall were missing, pits were bigger, and the excavator had inched its way clear to the top of the hill. The guys, over the last 10 months, had exhausted every potential site in the working area of the hill, an area of about 2 acres. The last promising spot was the focus of the current operations; the Intergalactic pit was blasted, extracted and covered decades ago, but now it was the last possibility on a disappointing list of failed possibilities. There were screed dumps of blasted rubble with specks of purple at the edges of the complex, and there were deeply carved gouges of kaolin feldspar masses that had been tested and abandoned on most of the blasted walls. Gary had the orange excavator perched on top of a mound just in front of the pit with its treads hanging over the edge. The bucket lowered Dennis and a few jackhammers and air hoses 15 feet to the bottom where they had left off the day before. All day they tested and drilled, reading the rock and debating the best angle of entry for blasting a certain section off. I could only imagine the amount of materiel Samuelson or any of the old-timers could have found if the scale of their operations matched that of Deer Hill. Dennis drilled five holes before noon, and then John and I took off to continue our pursuit of Samuelson without waiting to see the blast itself.

We headed for Conway in an attempt to access what was presented to us as an easy stroll into the tailings of an unfinished and largely productive fluorite deposit that Samuelson had picked up years earlier from the old-timers circle and then left undisturbed for years. Mike and Jane estimated it hadn't been touched by anyone besides them in almost a decade. In other words, it had been forgotten about by anyone who could have known about it except those who knew but were physically unable to return. A man just



Twelve gems, ranging from 3 to 46 carats each, were cut from a single palm-size smoky quartz crystal.

like this, a friend of Samuelson's, had vaguely described its location to Mike and Jane. They in turn related its exact location to us in a rare act of prospecting candor. Their directions, unfortunately, included no street names, trail names, or maps, and only landmarks that were well into the woods. After two hours of second guessing and watching the sun approach the western horizon, we resigned our efforts for the day.

Robbed of our delusions of an easy score, we drove back to Gary's and checked the trailer. Nothing. It was 6:30, mostly dark, and they hadn't returned. We figured the guys must have had extra work to do up at the pit and headed back up Deer Hill to find the last of the days light striking a new mound of dirt fresh out of the blast, and peppered with unusually large and well formed pieces of quartz, both amethyst and smoky. They'd had a solid hit. The blast had popped the top of the pocket off like a lid and left four 5-gallon buckets worth of crystals, shards and clusters for the guys to gather before dark. As dusk turned to dark, Gary roped up a 350-pound matrix piece with several dozen golf ball-size amethyst crystals and hoisted it into Scott's truck with the eye-loop on the excavator. I moved the dynamite and ammonium nitrate out of the way of the process and lugged them down the hill to the reinforced steel magazine used for storage. They loaded the buckets and hopped in the truck and followed our walking pace down the tricky four-wheel-drive road. We celebrated with a meal at Melby's and marveled at the pick of the litter at the table while the almost-closed kitchen's staff gawked. We spent one more night at the trailer.

SUNDAY

We thanked Gary for graciously putting us up in his cabin out of the rain and headed back to Conway for one last crack at Samuelson. All that possibly could have deterred us—the pouring rain, exhaustion, unclear directions—didn't. We were once again lost from the beginning. We got turned around bushwhacking in the woods, and when we

finally came out into a gravel quarry, we went south instead of north and had to backtrack. After an hour-long compass-aided correction, we came to a marked trailhead, indicating for the first time in eight days that we were on the right track.

We reached our divergence from the trail at a brook, at which point our route climbed skyward in the wet, mossy trough of a gully. The directions said to follow the gully past where it gets steep and continue through when it levels out. From there, the mine would be up on a knoll to the left, nestled somewhere between Peaked and Middle mountains. This sounded rather straightforward, but as we neared the end of the list of instructions, we realized that the acreage this left us to sort through was sprawling, steep and overgrown. Now it was our task to navigate the range in search of a 35-foot quartz- and fluorite-filled scree spread. Discouragement set in after hour two, and since we had split up at hour one, it was regrettable that we had forgotten the walkie-talkies. There were plates of quartz crystals exposed on a few ledges and boulders, but no tailings, no trail, no tools, equipment, or trash, and no luck.

From time to time we yelled back and forth to avoid doubling up in a certain area or to keep our bearings. Finally, John called out that he had found it. I heard this from close to a third of a mile away and made slow progress skirting a ledge and some felled trees. He was standing by an inconspicuous boulder with quartz on the ground around it, and we decided that we were near, but not quite there yet.

The next search was short lived; the clear and obvious mine location was 50 yards south of that boulder and was quite a find. The first obvious blasting location was the start of a 10-foot-wide gap in the rusty brown rock about 5 feet deep and set into the hill at a 55° angle. Milky quartz plates as large as a watermelon were strewn among the drift and the hill slipped down to a small, level plateau before dropping into a newer and less developed pit, which had obviously been blasted far less than it had been worked by hand. What had been cleared from the walls of the two blasted areas lay in pieces along the whole slope of the area. Green flashed in the rain-soaked gravel alongside bright-white quartz crystals, and purple lumps hid in the muddy sludge. The rain had done a wonderful job of bringing out the shape and color of much of the material, and a surface scan yielded dozens of sizeable fluorites of many shades of green and purple. Cubes of fluorite perched on quartz crystal matrices and vibrantly colored shards filled our pockets and bags. We had caught up with Samuelson. 💎

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kids' activity area; contact Patrick Smock, 10852 S. Samuel Rd., Hereford, AZ 85615, (619) 719-3444; e-mail: cprpsm@yahoo.com; Web site: www.ecvgms.com

15-16—LEWISTON, IDAHO: Annual show; Hells Canyon Gem Club; Nez Perce County fair Bldg., 1229 Burrell Ave.; Sat. 10-6, Sun. 10-5; adults \$2, students free with ID, children under 12 free; contact Rick Westerholm, (208) 746-2101; Web site: hellscanyonclub.com

15-16—NASHVILLE, TENNESSEE: Show; Intergalactic Bead & Jewelry Shows; Al Menah Shrine Temple, 1354 Brick Church Pike; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

15-16—PLACERVILLE, CALIFORNIA: Annual show; El Dorado County Mineral & Gem Society; El Dorado County Fairgrounds, 100 Placerville Dr.; Sat. 10-5, Sun. 10-5; adults \$4, children 12 and under free; dealers, displays, minerals, gems, jewelry, beads, fossils, petrified wood, amber, opals, meteorites, geodes, carvings, tools, books, lapidary and jewelry-making demonstrations, amber exhibit and presentations, free rocks and activities for kids; contact Karen Newlin, (530) 676-2472; e-mail: info@rockandgemshow.org; Web site: www.rockandgemshow.org

15-16—SOUTH CHARLESTON, WEST VIRGINIA: Annual show; Kanawha Rock & Gem Club, South Charleston Lions Club; South Charleston Community Center, 601 Jefferson Rd.; Sat. 9-6, Sun. 10-5; adults \$3.50, children 12 and under free with parent; dealers, gems, minerals, fossils, rocks, beads, jewelry, demonstrations, kids' corner, displays; contact Kanawha Rock & Gem Club, PO Box 252, Farmington, WV 26571, (304) 657-7089; e-mail: frankoz@juno.com

15-16—WHITTIER, CALIFORNIA: Annual show; Whittier Gem & Mineral Society; Whittier Community Center, 7630 Washington Blvd.; Sat. 10-5, Sun. 10-5; free admission; dealers, minerals, jewelry, gems, collectibles, lapidary demonstrations; contact Marcia Goetz, 755 W. Dike St., Glendora, CA 91740, (626) 260-7239; e-mail: joenmar1@verizon.net

21-23—AUSTIN, TEXAS: Annual show, "Gold"; Austin Gem & Mineral Society; Palmer Events Center, 900 Barton Springs Rd.; Fri. 9-5, Sat. 10-6, Sun. 10-5; adults \$5, seniors (60 and over) \$4, students (13-18) \$1, children (6-12) 50 cents; more than 30 dealers, jewelry, beads, gemstones, mineral specimens, crystals, fossils, spheres, lapidary equipment, exhibits, "Rock Food" table, touch table, fluorescent minerals, member collections, silent auction, demonstrations, faceting, cabbing, fossil cleaning, polymer clay, "Youth Education Day" Fri., Gem Mine, Wheel of Fortune, Jewelry Making, door prizes, grand prize; contact Susan Postlethwait, 6719 Burnet Ln., Austin, TX 78757, (512) 458-9546; e-mail: showchairman@austingemandmineral.org; Web site: www.gemcapers.com

21-23—FORT WAYNE, INDIANA: Annual show; Three Rivers Gem & Mineral Society; Allen County Fairgrounds in 4-H & Home Loan Bank Bldgs., 2726 Carroll Rd.; Fri. 10-7, Sat. 10-7, Sun. 11-5; adults \$3, seniors \$2, students \$1, children free; Golden Show anniversary, dealers, demonstrators, kids' games, silent auction, touch 'n' feel table, door prizes, fluorescence room, speakers, displays; contact Michele Yamanaka, 4336 Charter Lane, Fort Wayne, IN 46815

21-23—HARRISONBURG, VIRGINIA: 9th annual show, "Harrisonburg Bead, Gem, Mineral & Jewelry Show"; Treasures Of The Earth Gem & Jewelry Shows; Rockingham County Fairgrounds, Commercial Exhibits Bldg., 4808 S. Valley Pike (between I-81 exits 240 and 243); Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$3 (3-day ticket), children under 16 free; jewelry makers, goldsmiths and silversmiths, repairs while you wait, gem trees, wire wrap, wire sculpture, pearls, stone beads, stone setting, amber, opal, mineral and fossil dealers, door prizes, grand prize; contact Van Wimmer Sr., 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

21-23—INDIANAPOLIS, INDIANA: Show; Indiana State Museum, 650 W. Washington St.; Fri. 9-5, Sat. 9-5, Sun. 11-4; adults \$7, seniors \$6.50, children \$4; dealers, regional clubs, adult and kids' activities; contact Peggy Fisherkeller, Indiana State Museum, 650 W. Washington St., Indianapolis, IN 46204, (317) 232-7172; e-mail: pfisherkeller@dnr.in.gov; Web site: www.indianamuseum.org

21-23—SACRAMENTO, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Scottish Rite Center, 6151 H St.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, chil-

dren 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

22-23—BELLEVUE, WASHINGTON: Show; Bellevue Rock Club; Vasa Park, 3560 W. Lake Sammamish Blvd. SE, 190 Exit 13, 1 mile north; Sat. 10-5, Sun. 10-5; contact Bruce Himko, PO Box 1851, Bellevue, WA 98009-1851; e-mail: Bellevuerockclub@comcast.net; Web site: www.belleverockclub.org

22-23—CANBY, OREGON: Show, "Rock & Gem Heaven in 2011"; Clackamette Mineral & Gem Club; Clackamas County Fairgrounds, 694 NE 4th Ave.; Sat. 9-6, Sun. 10-5; free admission; dealers, demonstrations, raffle, silent auction, Kids' Korner, door prizes, fluorescent show, displays, slabs; contact Rick Mauer, (503) 691-6395; e-mail: tallerricardo@juno.com; or Bea Settle, (503) 631-3128; e-mail: rockhound@clackamettegem.org

22-23—GURNEE, ILLINOIS: Annual show; Wrap-N-Rock Gems; Key Lime Cove, 1700 Nations Dr.; Sat. 10-6, Sun. 10-4; free admission; door prizes, dealers, jewelry, opals, gemstones, wire-wrapped jewelry demonstrations, geode cutting, amber, fossils, minerals, quartz crystals, faceted stones, custom jewelry and cabochons; contact Gere Bunnell, PO Box 7584, Gurnee, IL 60031; (847) 336-1270; e-mail: gerezwb@gmail.com; Web site: www.lakecountrygemshow.com

22-23—JACKSONVILLE, TEXAS: Wholesale and retail show; The Bead Market; Jacksonville Community Center, 5 Municipal Dr.; Sat. 10-5, Sun. 10-4; free admission; Swarovski Elements, crystals, silver, glass beads, bone beads, seed beads, lampwork, pearls, gemstones, jewelry, PMC, books, tools; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

22-23—PLANT CITY, FLORIDA: Show and sale; Tampa Bay Mineral & Science Club; Florida Strawberry Festival Expo Bldg., 2301 W. Oak Ave.; Sat. 10-6, Sun. 10-5; adults \$5, students \$4, children under 12 free; crystals, minerals, fossils, gems, beads, unique and custom-made jewelry, lapidary supplies, lapidary and jewelry making demonstrations, children's Touch Table and Sand Mine, door prizes; contact Carolee Boyles, (813) 831-1944; e-mail: clubpresident@tampabayrockclub.com; Web site: www.tampabayrockclub.com

22-23—PLYMOUTH MEETING, PENNSYLVANIA: Show; Intergalactic Bead & Jewelry Show; Lu Lu Shriners, 5140 Butler Pike; Sat. 10-5, Sun. 10-5; dealers, precious and semi-precious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

22-23—WARWICK, RHODE ISLAND: Show and sale; Rhode Island Mineral Hunters; CCRI Knight Campus, 400 East Ave. Rte. 113; Sat. 10-5, Sun. 10-5; adults \$56, seniors and children under 10 \$5; contact Robert Sproule, 40 Paultette Terrace, Plymouth, MA 02360; e-mail: jsproule@comcast.net

28-30—SANTA ROSA, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Sonoma County Fairgrounds, 1350 Bennett Valley Rd.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

29—FAIRLESS HILLS, PENNSYLVANIA: Annual show, "Ultraviolation"; Rock & Mineral Club of Lower Bucks County; First United Methodist Church, 840 Trenton Rd.; Sat. 9-5; adults \$2, children 12 and under free; all-fluorescent mineral show; contact Chuck O'Loughlin, 130 Maple Terrace, Merchantville, NJ 08109, (856) 663-1383; e-mail: ultraviolation@yahoo.com

29-30—DULUTH, GEORGIA: Show; Intergalactic Bead & Jewelry Shows; Gwinnett Center-Hall C, 6400 Sugarloaf Pkwy.; Sat. 10-5, Sun. 10-5; dealers, precious and semi-precious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

29-30—EVANSVILLE, INDIANA: 45th annual show; Evansville Lapidary Society; Washington Square Mall, Green River Rd. and Washington Ave.; Sat. 10-9, Sun. 12-5; free admission; gems, jewelry, minerals, fossils, geodes, silent auction; contact Ruth Reisinger, (812) 424-7618

continued on page 71

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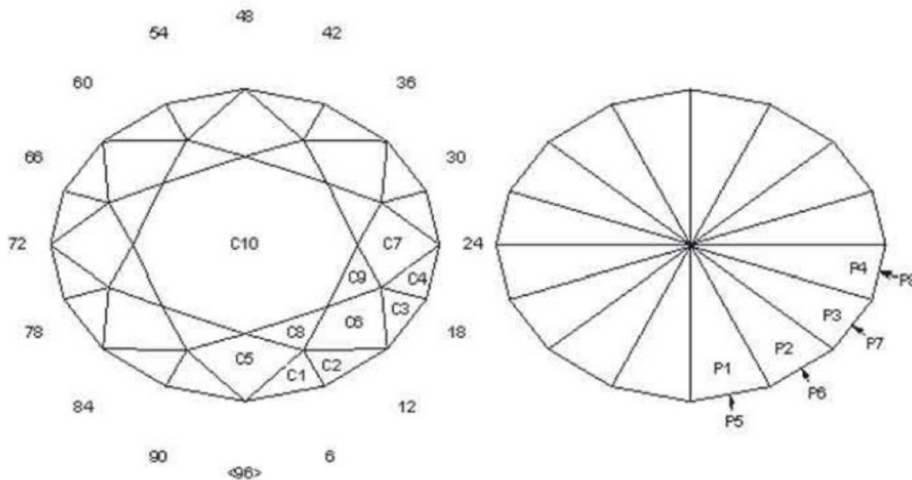
by Guest Faceters

Faceters are welcome to submit their original designs for publication. Mail materials to Many Facets Submissions, *Rock & Gem* magazine, 290 Maple Ct., Ste. 232, Ventura, CA 93003.

Friendship Brilliant is another good design for faceters who have never attempted cutting an oval before. It has a single cut pavilion and a brilliant crown; however, like all ovals and other fancy cuts, it takes longer to cut than a round brilliant due to its symmetry. You should cut each tier of facets as pairs on each side of the stone. Patience is required to get the center point of the pavilion exactly right, but perseverance will almost guarantee success with this design.

This is a design for refractive index 1.7+ and is not a good choice for lower refractive index material, as the sides will become too steep and you will create a bowtie effect. I cut my stone in synthetic blue sapphire and it turned out beautifully. Don't underestimate single cut pavilions for optical performance, as they are sometimes more exciting to look at than double cut pavilions. This design almost produces the appearance of an OMF faceted stone.

—Jim Perkins



10 X 8 FRIENDSHIP BRILLIANT

CAD by Jim Perkins, jimperkins@zoom internet.net

© February 2011

for R.I. 1.7+ not good for lower R.I. material.

Angles for R.I. = 1.770

49 + 16 girdles = 65 facets

2-fold, mirror-image symmetry

96 index

L/W = 1.250 T/W = 0.717 U/W = 0.568

P/W = 0.455 C/W = 0.160

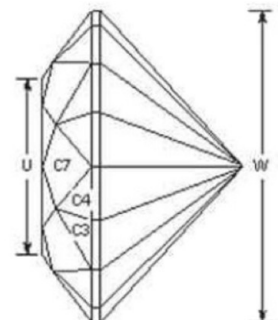
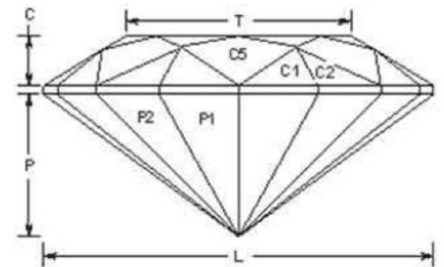
Vol./W³ = 0.269

PAVILION

P1	42.85°	03-45-51-93	Create a center point.
P2	41.40°	08-40-56-88	MP @ center point.
P3	38.90°	14-34-62-82	MP @ center point.
P4	37.00°	20-28-68-76	MP @ center point.
P5	90.00°	03-45-51-93	Set size; polish girdle.
P6	90.00°	08-40-56-88	MP @ P1 - P5
P7	90.00°	14-34-62-82	MP @ P2 - P6
P8	90.00°	20-28-68-76	MP @ P3 - P7

CROWN

C1	44.20°	03-45-51-93	Set girdle depth.
C2	42.70°	08-40-56-88	Set girdle.
C3	39.60°	14-34-62-82	Set girdle.
C4	37.50°	20-28-68-76	Set girdle.
C5	36.50°	96-48	GMP
C6	34.80°	11-37-59-85	GMP
C7	31.00°	24-72	GMP
C8	19.20°	05-43-53-91	MP @ C1 - C2
C9	20.00°	17-31-65-79	MP @ C3 - C4
C10	0.00°	Table	MP @ C5 - C6 - C7





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(Agate Researcher, Gemologist, Paleontologist, Author, Rock Hound)

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August 13th and 14th, 2011

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Show Dates from page 65

29-30—FREEPORT, NEW YORK: Show and sale; Kaleidoscope Gem Shows; Freeport Recreation Center, 130 E. Merrick Rd.; Sat. 10-5, Sun. 10-5; adults \$5.50 (\$5 with this ad), children 12 and under free with adult; dealers, gems, minerals, beads, meteorites, fossils, handcrafted jewelry; contact Ralph Gose, P.O. Box 1418, Melville, NY 11474, (631) 271-8411; e-mail: ralph_gose@kaleidoscopegemshows.com; Web site: kaleidoscopegemshows.com

29-30—STUART, FLORIDA: Annual show; St. Lucie County Rock & Gem Club; Martin County Fairgrounds, 2616 SE Dixie Hwy. (A1A); Sat. 10-5, Sun. 10-5; adults \$3, children under 12 free with adult, coupon on Web site; demonstrations, displays, silent auction, raffle, about 24 dealers; contact Norman Holbert, 455 SW Balfour Ave., Port St. Lucie, FL 34953 (772) 873-0787; e-mail: normholbert@bellsouth.net; Web site: slrockandgem.org

NOVEMBER 2011

4-6—EUGENE, OREGON: Wholesale and retail show; Gem Faire Inc.; Lane County Events Center, 796 W. 13th Ave.; Fri. 12-6, Sat. 10-6, Sun. 10-5; adults \$7 weekend pass, children 11 and under free; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

4-6—BLACK CANYON CITY, ARIZONA: Annual show, "Rock-A-Rama"; Braggin Rock Club; High Desert Park, 19001 E. Jacie Ln.; free admission; gems, rough, slabs, minerals, crystals, jewelry, equipment; contact Don, (623) 374-0202, or Braggin Rock Club, PO Box 308, Black Canyon City, AZ 85324

4-6—GOLDEN, COLORADO: 5th annual show; Denver Area Mineral Dealers; Jefferson County Fairgrounds, 15200 W. 6th Ave.; Fri. 10-5, Sat. 10-6, Sun. 11-4; free admission; annual show and sale: 18 dealers, minerals, fossils, gems, jewelry; contact Pat Tucci, (303) 279-5504; e-mail: ptucci@sprintmail.com; Web site: geodysey-rocks.com

5—TUCSON, ARIZONA: 10th annual silent auction; Old Pueblo Lapidary Club; 3118 N. Dale; Sat. 9-2; free admission; contact Danny Harmsen, (520) 323-9154

5-6—BREWER, MAINE: Annual show; Penobscot Mineral & Lapidary Club; Brewer Auditorium, Wilson St.; Sat. 10-5, Sun. 10-4; adults \$1, children under 12 free; silent auctions, door prizes, demonstrations, children's activities; contact Lance Shope, 38 Sunset Strip, Brewer, ME 04412, (207) 989-3342; e-mail: lshope67@yahoo.com; Web site: penobscotmineralapidaryclub.com

5-6—CINCINNATI, OHIO: Show; Intergalactic Bead & Jewelry Shows; Sharonville Convention Center-West Hall, 11355 Chester Rd.; Sat. 10-5, Sun. 10-5; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass beads, vintage beads, crystals, demonstrations, jewelry classes; contact Angela, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

5-6—LANCASTER, CALIFORNIA: 10th annual show; Palmdale Gem & Mineral Club; Antelope Valley Fairgrounds, Van Dam Pavilion, 2551 W. Ave. H; Sat. 9-5, Sun. 9-5; free admission; gemstones, minerals, beads, lapidary, jewelry, display supplies, dinosaur program with Richard Wade, petrified wood programs with Walton Wright, kids' scavenger hunt, silent auction, demonstrations, raffle; contact Cheri George, 2255 W. Avenue O, Palmdale, CA 93551, (562) 243-8470; e-mail: lizardwoman3@yahoo.com; Web site: www.palmdalegemandmineral.com

5-6—MELBOURNE, FLORIDA: 37th annual show, "Parade of Gems"; Canaveral Mineral & Gem Society; Melbourne Auditorium, 625 E. Hibiscus Blvd.; Sat. 10-5, Sun. 10-5; adults \$4; displays, demonstrations, door prizes, children's corner, "Rock Food" display, dealers, minerals, fossils, gems, beads, cabbing and faceting rough, finished jewelry, books, tools; contact Dave Wayment, (772) 532-6432; e-mail: cmgs.show@att.net

5-6—MIDLAND, MICHIGAN: 17th annual show; Mid-Michigan Rock Club; Midland Resort Hotel Convention Center, 1500 W. Wackerly; Sat. 10-6, Sun. 10-4; free admission; rocks, minerals, jewelry, fossils, Kids' Korner, fossil dig; contact Deborah Acord, (989) 430-4471; e-mail: jackdanred2@aol.com; Web site: www.midlandrockclub.com

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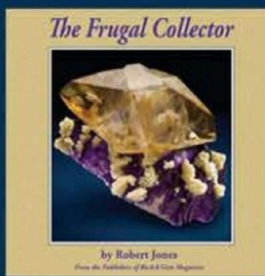
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O N THE ROCKS

Million-Dollar Gold

Have you ever held \$1 million in your hands? It's certainly possible if you have the right gem or group of gems. There are other items you can hold in your hand that are worth that much—certain stamps, the odd coin, and perhaps, the way things are going in our hobby, a mineral specimen! I've not been that lucky! In fact, the average rockhound probably will never enjoy the thrill of having \$1 million in hand. Thanks to my son Bill, however, I had the unique pleasure of holding a "brick" of gold in my hands that was worth just about that amount! Currently, Bill works at one of the largest gold mines in the Northwest, and that is where I had a chance to handle that gold brick.

The story of the million bucks goes back a few years—about 35, in fact. When Bill graduated from college, he was determined to stay in Colorado, the land he learned to love from his Grandfather Abbott.

Morris Abbott had spent much of his youth on Pikes Peak in the early 1900s. The Abbott family had a summer cabin along the tracks of the then-steam-operated Cog Railway. In fact, in later life Morris authored *The Pike's Peak Cog Road* (Golden West Books, 1972), an excellent book on the history of the railway that is still available.

It was only natural that Grandfather Abbott fell in love with steam trains, a love he passed on to Bill. That's one reason Bill was determined to stay in Colorado, where narrow gauge railroads had ruled! To do so, he got a rather lowly job as a sample bucket at the Standard Metals Co. gold mill in Silverton.

A sample bucket's job is to grind up the rock samples gathered by geologists for testing. It's a dirty, noisy job in which you never get to see gold. Gradually, Bill earned his stripes and learned gold fire assaying, a dying art these days.

Eventually, Bill bought Root-Norton, an assay lab that had started in the San Juan Mountains of Colorado in 1903. He operated that lab for decades, doing the majority of gold assaying in the San Juan area and



Positioning the mold to receive the molten gold and the slag will flow onto the cone under the mold is very important.

eventually earning one of the toughest assayer's licenses you can have.

As mining in Colorado slowed and eventually ceased, Bill did such things as soil and water analysis to supplement the gold work in his lab, but he was finally forced to close. Fortune smiled, however, when he was offered the chief assayer's job at the Kinross Mill in Republic, Washington. At the time Bill was hired, Kinross was just developing the Buckhorn Mountain deposit, which is probably the richest gold deposit in that state.

The processes used to recover the Buckhorn Mountain gold are beyond my knowledge, but suffice to say that, in what is called the Secure Room, nearly pure liquid gold periodically issues forth from a furnace to be cast in iron molds.

This end product of a very complex process is not pure gold but what is referred to as doré gold. Doré gold is generally around 90% or more pure, with the rest of the metal bar consisting of small percentages of other metals like silver and copper. These doré bars are later smelted and treated to remove the unwanted metals, which themselves have value. The final product is 0.999 fine gold, as pure as can normally be produced.

My chance to hold a doré bar came when Bill received permission for me to enter the Secure Room at the Kinross Mill so I could watch and photograph the gold-pouring process! First, I had to watch a safety video, answer a list of questions,

and then don all sorts of safety gear: earplugs, glasses, boots, luminescent vest, hard hat, etc.

The Secure Room is a carefully controlled area into which only a select number of visitors are allowed. And any one who enters does so only with special permission!

No one can enter the Secure Room without a security guard in tow. As Bill, the guard, and I walked into the room through two special doors, we were able to watch two skilled workers preparing to pour molten metal from a large, seething cauldron whose fiery contents lit up the entire room.

These fellows had to be protected from the high heat and any potential molten "splash", so they wore special full-length coats and pants. They wore special boots, as well as hard hats with face plates and heat-resistant gloves while they performed the dangerous task of pouring molten metal into a cast iron mold.

What impressed me most was the teamwork demonstrated by these fellows. Once the "pour" was ready, a cast-iron mold was wheeled into position below the open maw of the furnace. One worker jockeyed the heavy cast-iron receptacle and mold into position and held it there while the second fellow watched and worked from behind a glass partition. His job was to slowly tip the furnace by turning a geared wheel so that the molten material, but not the gold, trickled forth.

When partially refined gold ore is melted, ingredients are added to form a slag, which helps remove impurities. Slag has a lower density than gold so, when it is molten, it tends to float on the surface of the heavier molten gold. The slow pour of the molten metal was designed to decant, if you will, the molten slag, primarily a silica mix.

As the slag poured out it was actually allowed to fill the brick-shaped mold completely. The slag even spilled over the sides of the iron mold, dripping into a cone-shaped receptacle upon which the mold rested. I assumed the slag would be carted away, making ready for the gold pour. Not so!

What I realized during the entire process is that the molten slag and molten gold do pour slightly differently, so an experienced operator can tell when the slag has flowed off and the gold is starting to pour.

As the fiery liquid poured forth, the tenor and color of the melt changed. The slag was out and gold began to issue forth in one continuous pour! The liquid gold poured directly into the cast-iron mold, which was still filled with slag. That seemed weird to me, but these fellows know their business. They knew the density of the gold was much greater than that of the slag and that it would displace the slag in the mold. As the red-hot precious metal flowed out of the furnace, it simply poured right down through the slag, which simply spilled off into the catch basin. With a practiced eye, the operator knew exactly when to stop the pour so that gold filled the cast iron mold, but did not spill off into the slag-filled receptacle.

Once the mold was full of gold, the pour was stopped. One worker immediately started using a scraper to push off whatever slag might remain on the surface of the still-molten gold.

Once the pour was done and the gold was given a brief chance to cool, one operator took a glass rod and thrust it into the molten gold. I assumed the glass would melt, but it must be able to withstand the heat. When it was pulled out, the glass rod was filled with bright yellow gold! Then the rod was broken and the wire-shaped gold retrieved. That bit of yellow metal wire would be taken to the assay lab to be tested for gold content. This would give the company a percentage figure to compare with the results of the refinery, which would purify the final cast.

Once the loaf was dumped on the steel plate, the men used a shovel to tip the loaf up, grasped it with tongs, and carried it to a tank of water for a brief cooling. From there, they lifted the gold to a cart so it could be moved. The gold was then transferred into a hooded unit, where it was quickly wire brushed to clean it a bit. I think this last step was done for our benefit so the bar would at least look something like gold and not a block of dirty black metal.



Once the gold is poured, the red-hot gold brick is dumped out onto the steel floor.

The final gold bar was about the size of a loaf of bread. I asked the weight and was told it was around 80 pounds. I failed to ask whether that was troy pounds or avoirdupois pounds. Either way, it was one heck of a hunk of gold.

Naturally, we all had to have our pictures taken hefting the bar, which was still plenty warm. Admittedly, it was a real kick to do something few people ever have a chance to do—hold a million bucks in raw gold in one's hands, even briefly!



The gold brick, weighing about 80 pounds, sits on the cart, ready for us to hold.

My thanks to Bill and the management of Kinross for allowing me to not only watch the gold pouring operation, but photograph it and write about it. I hope our readers enjoyed a vicarious kick by reading about the experience, as few ever even read about the process of turning molten gold into a huge valuable yellow "brick".

MALACHITE PSEUDOS

In recent issues, I've often touted the lovely malachite pseudomorphs and exceptionally fine azurites that have come from

the copper mine at Milpillas (Sonora), Mexico. That mine continues to produce fine specimens of these minerals and is gradually adding other species to its list of collector minerals.

The mineral plancheite has been found there in small amounts, often associated with azurite. Plancheite is a delicate blue mineral, usually seen as velvety crusts on matrix. It contrasts nicely with the darker blue of the azurite crystals.

The copper mines of central Africa have also been a good source of plancheite in recent years. The Milpillas specimens

do not rival the African specimens, but it is always refreshing to have another source for an uncommon mineral.

The newest mineral to reach the surface at Milpillas is brochantite. Normally, this copper sulfate hydrate is found as velvety crusts and, in some localities, is closely associated with cyanotrichite, an equally lovely velvety green mineral.

Brochantite was first found in the copper ores coming from Sverlovsk, Russia, near Ekaterinburg in the Ural Mountains.

It has been found in many of the arid-region copper deposits, particularly in Chile and the American Southwest, so it comes as no surprise that the mineral is now being found at Milpillas, about 30 miles south of Bisbee, Arizona, in the Sonoran Desert.

The Milpillas mine brochantites have an exceptionally rich green color, but what makes them of particular interest to collectors is that, in addition to velvety crusts, some Milpillas specimens have free-standing thin blades of brochantite measuring 1 inch and sometimes 2 inches long! These rank among the finest brochantites

ever found. For that reason alone, I'll have an article about Milpillas mine brochantite in a future issue of *Rock & Gem*. 💎

Bob Jones holds the Carnegie Mineralogical Award, is a member of the Rockhound Hall of Fame, and has been writing for *Rock & Gem* since its inception. He lectures about minerals, and has written several books and video scripts.



Field Notes submissions are subject to editing. Address questions to "Editor" for a private response or to "Readers" and provide the contact information you'd like published. Send to Field Notes, *Rock & Gem* magazine, 290 Maple Ct., Ste. 232, Ventura, CA 93003.



Most Interesting Man

There currently is a beer commercial where a classy looking bearded gentleman endorses the brand. He is referred to as the "most interesting man" in the world.

I nominate Bob Jones as the most interesting man in the mineral world! His scientific and historical knowledge coupled with his wide-ranging travel make for great reading for this retired science and nature store owner.

—Rick Cohen
Ransom Canyon, TX

Aw, Rick. You're making Bob blush.

—Editor

Polishing Problem

I read Jim Perkins' article on polishing (May 2011 Off the Dop). It was good, but I could not understand it. I have only been faceting for a little over a year. I just started with CZ and can't get a polish on it. I did what I read, and in one hour I didn't get one facet done. Can you walk me through how to polish? My last cut was at 14000. What do I do from there? What equipment do I need? I have a new Corian lap that was given to me. Can I use that? I spent three weeks in Quartzsite and learned how to facet there, but all they did was soft material. That was good to start, but now I want to do CZ.

—George
via e-mail

Well, you've picked the most difficult of all materials to polish. You didn't say what machine you have, so I'll have to assume you have a modern machine that is built for working with hard materials. Some of the old machines simply didn't have enough torque or speed to cut CZ.

When I cut CZ, I use nothing coarser than a 360 as a rule. Then I use 600 and 1200 bonded diamond laps. I then use a Batt™

lap charged with either 3,000 or 8,000 diamond powder and lamp oil. *I don't recommend diamond sprays.* Then I use a second Batt lap charged with 50,000 or 100,000 diamond powder and oil. That should do the trick.

If you still have fine scratches, use a Corian lap and aluminum oxide with water, which should remove any fine scratches. Many places offer faceting classes; however, most I know of do not allow you to cut and polish CZ because 1) it is a problem material to work with and 2) they don't like students using diamond powder on machines because it will accelerate machine wear.

—Jim Perkins
Off the Dop columnist



Rockhounding and Skygazing

One of your magazines within the past year mentioned a location in southwestern New Mexico that offered rock hunting during the day and astronomy during the evenings. This covers both my husband's and my interests and we would really like to look into visiting and staying at the place for a few days. Can you tell me where to find the article?

—Nina N.
via e-mail

I believe you're referring to a Picks & Pans item in the October 2010 issue titled "New Mineral Museum" (p. 42). It's about the John H. Eicher Mineral Museum and the Arizona Sky Village and Rancho Hidalgo skygazer communities. Find more information at www.granitegap.com.

—Editor

Wax Laps

I am a member of the Intermountain Faceters Guild, and prior to his death, Cliff Jackson and I were the closest of friends. In regard to his wax laps, I have the three different ones (dark green, green and blue). The dark-green lap is used for the exceptionally soft stones. On one side, Cliff and I used 3,000 diamond and 8,000 diamond on the other side with a fairly high RPM and plenty of soapy water (non-sudsy). I use the lighter blue and the green with cerium oxide and polish stones up to 7.5 hardness.

Cliff and I were used to others saying that it would not work, but many faceters did not try to understand how or why you should use them. One of the giant stones faceted by the Dare Devil Faceters was polished with the green lap and is an outstanding show piece.

As to the formula for mixing the wax, Cliff died with the formula locked in his memory bank. Richard "Dick" Glissman from Ogden, Utah, picked up the wax from Clifford's wife, but he never put a formula together to make them. I did send Dick the formula that I had, but Dick passed away before making any laps. As for the wax, carving, and carnuba wax, I have no idea where it ended up, [but] it was in Ogden when Dick passed away.

I use one of these laps almost every day that I cut a stone that fits within the polishing requirements of a wax lap. The laps work best if they have been scored using a knurling tool or about a 60 grit floor sanding paper (dry) to score the lap. Cliff used this material on all of the laps he sold.

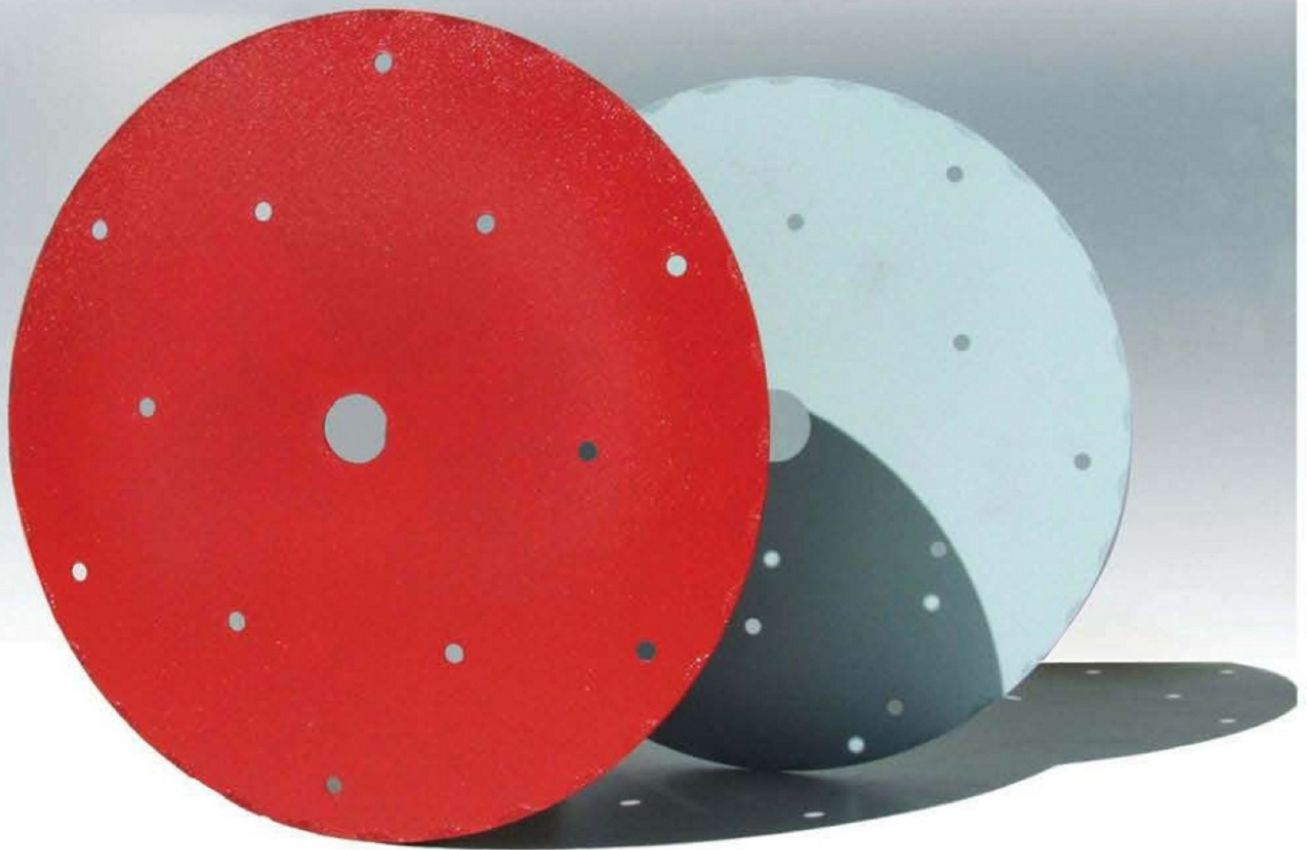
As for the May Off the Dop column on polishing problems, yes it is the same for me as it is for others; however, I seem to always have the right combination of tools to override the problem. If I had 100 of Cliff's laps, I could sell them in about one week's time.

—Frank Markham
Mountain Home, ID

This story simply illustrates to me that too many faceters with valuable knowledge pass away without leaving the information behind.

—Jim Perkins
Off the Dop columnist

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