

Rock & Gem

OCTOBER 2011

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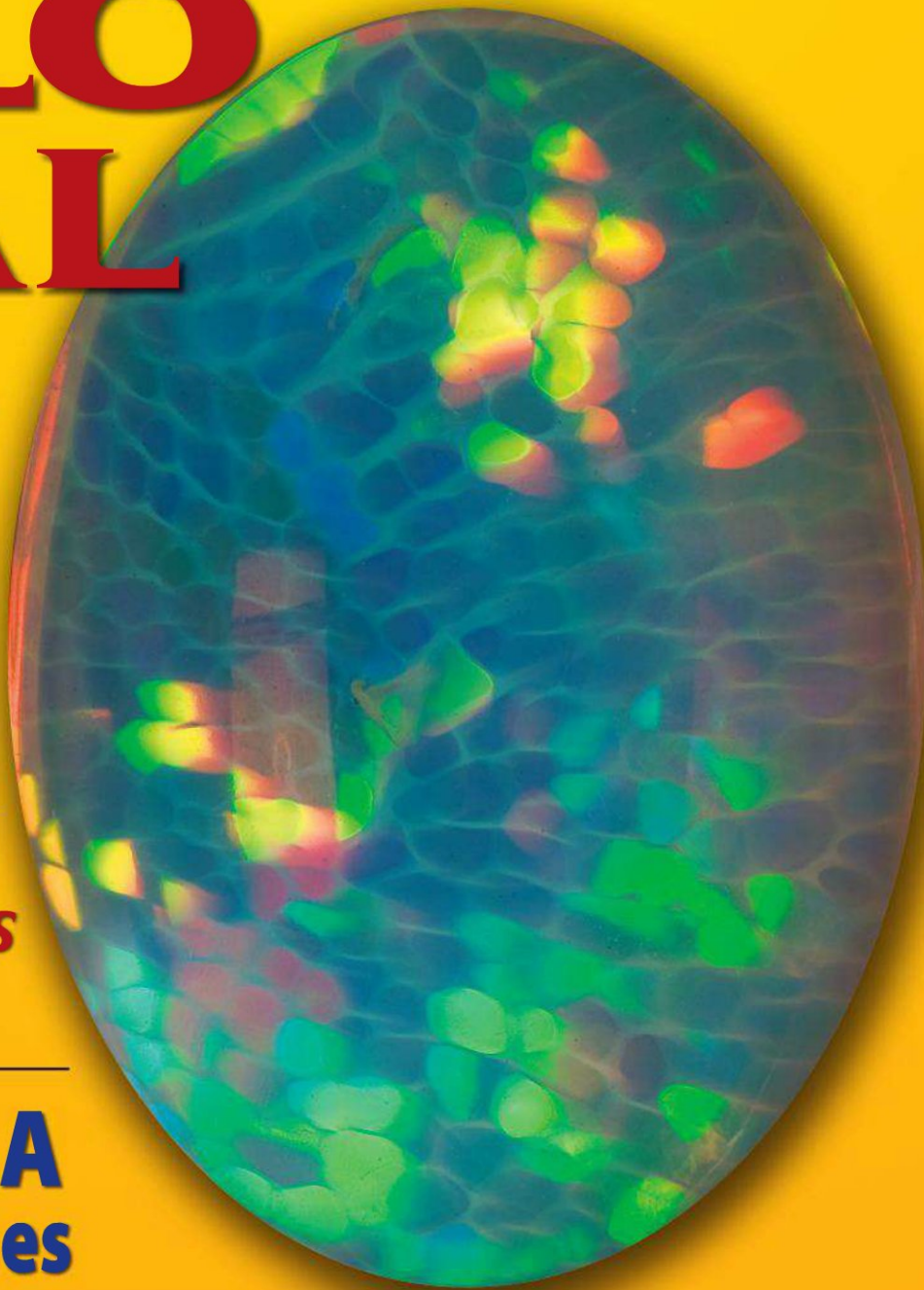
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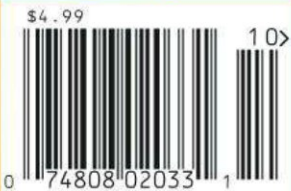
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OF COBALT**

**TOURING THE PALA
Tourmaline Mines**

**FIELD TRIP:
New Mexico Fluorite
and Feldspar**



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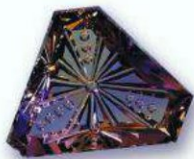


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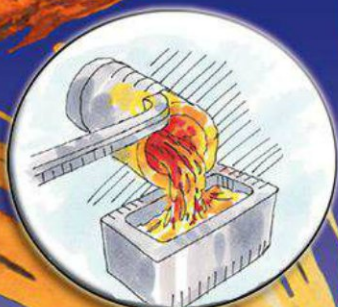




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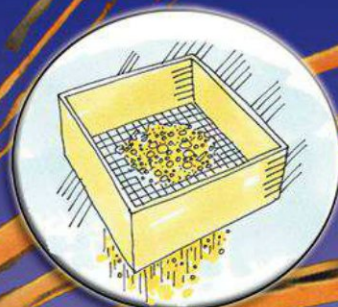
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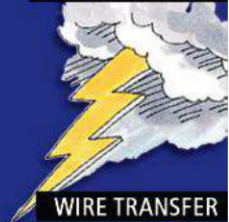
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Rock & Gem

Volume 41, Number 10

October 2011

ON THE COVER

Welo opal is a relatively new find from the Wegel Tena area of Ethiopia, where it forms in one layer of volcanic ash that is sandwiched between thick layers of volcanic rock. (Jeff Scovil photo/Opalinda specimen)

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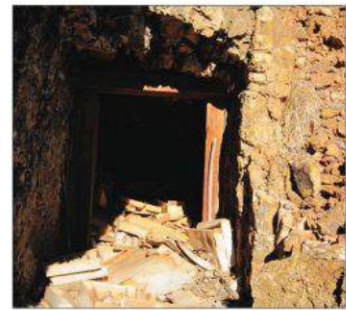
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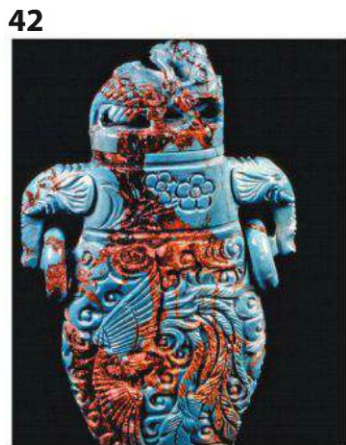
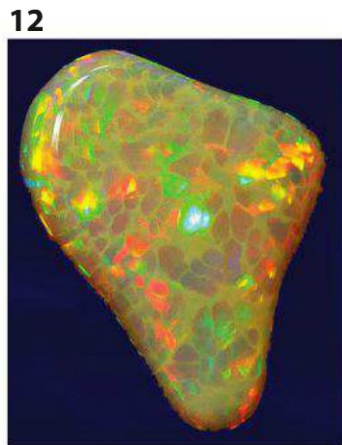
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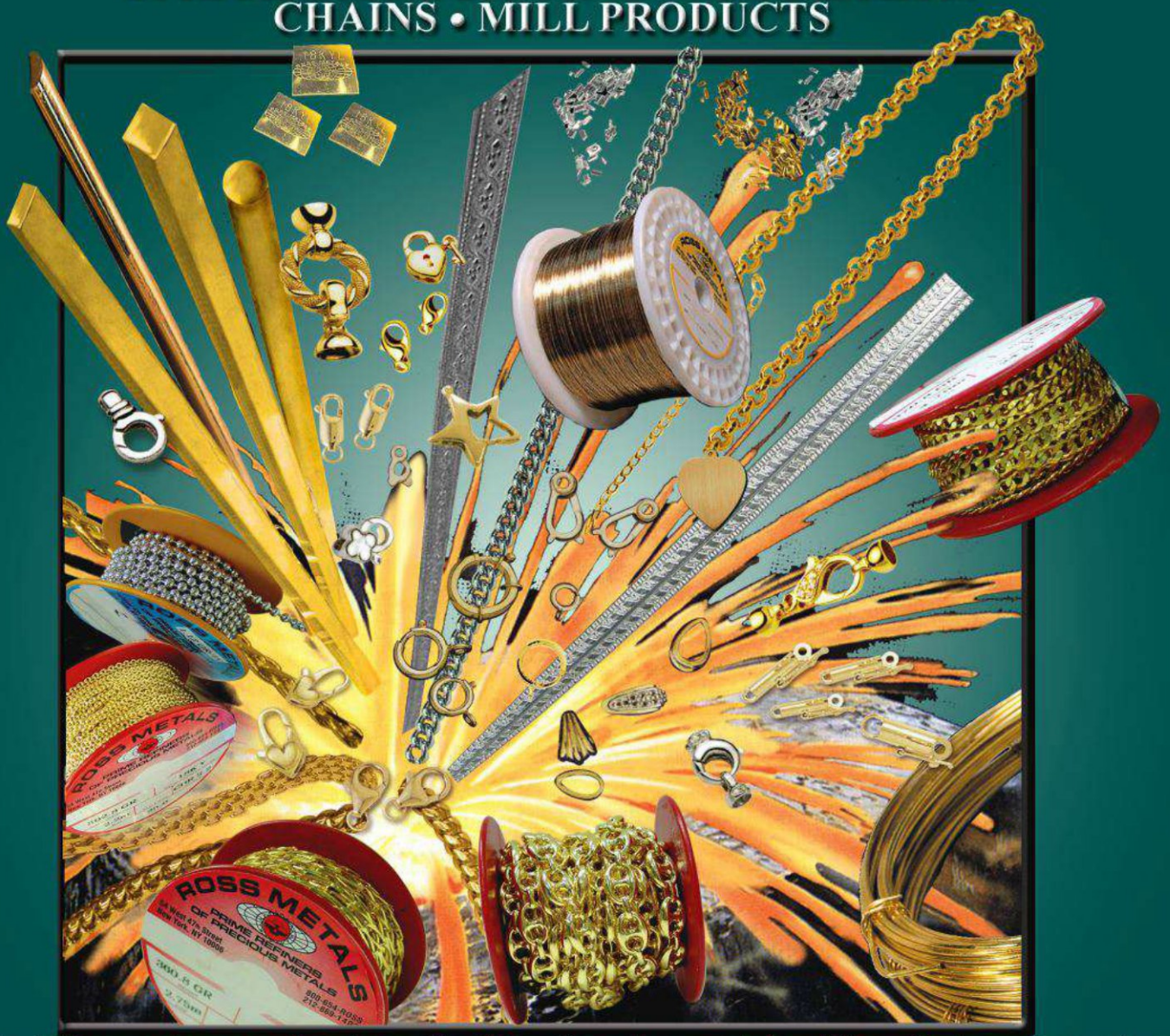
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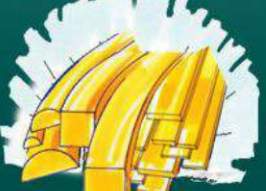
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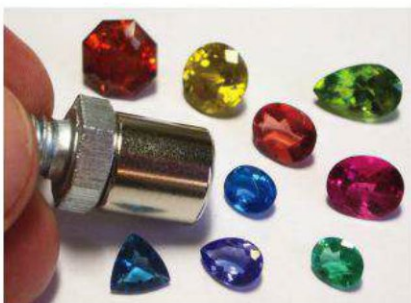
CATALOGS AVAILABLE

Magnetism in Gemstones Web Site

Gem collector and hobbyists Kirk Feral has made an extensive study of magnetism in gemstones and how this property can be used to identify colored stones and diamonds. His new Web site, <http://gemstonemagnetism.com>, gives an overview of magnetism in gemstones; explains how to use a magnet for gem identification; and supplies a complete index of magnetic responses for all the primary gemstones and a reference chart for use in separating look-alike gems.

Most gems show no response to the magnets that are commonly kept around the house, but powerful neodymium magnets are able to detect the very slight magnetism in gemstones. For example, a parcel of red gems such as rubies or red spinels, rough or faceted, can be quickly scanned for any red garnets that might be scattered within the parcel, as the garnets will be picked up by the magnet. Magnetic wands can also be used to distinguish natural gems, such as spinel, from synthetics and imitations.

A magnetic wand made with a neodymium magnet is one of the most useful, and least known, tools for basic gem identification. It can help separate and identify gems that look alike, such as aquamarine and blue topaz, by noting the different responses they show when a magnetic wand is held near them. Unlike many other gemology tools, magnets are affordable to everyone, and wands can be easily assembled for just a few dollars. Magnetic testing can serve as an important method to corroborate the test results of your other gemology tools.

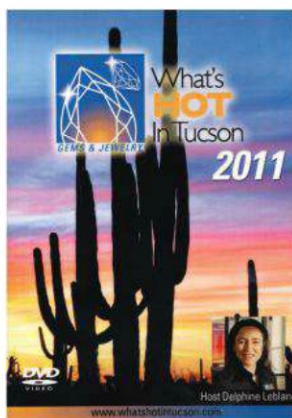


What's Hot in Tucson 2011: Gems & Jewelry Host Delphine Leblanc \$24.99

In the second DVD in this annual series, host Delphine Leblanc takes the viewer backstage at the American Gem Trade Association (AGTA) show. Representatives of 13 companies show off their most impressive offerings and share background on gemstone sources. You'll enjoy the privilege of viewing fabulous cut stones that are not on display to the general public. Good close-up videography provides a clear look at each gem so that its beauty can be appreciated.

Notable among the gemstones featured are natural pearls from the Tennessee River, the California and Northeastern coasts, and Vietnam, and jewelry designs that highlight the sculptural qualities of natural, uncut diamonds.

Contact information for each company is provided. While most viewers can only drool over the rare and extremely valuable gemstones on display, everyone can enjoy looking. (BlueCap Productions, 2011)



—Lynn Varon

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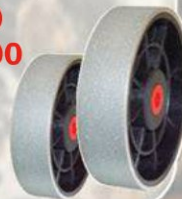
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CRAFTSMAN OF THE MONTH

I had become interested in scarabs," writes October Craftsman of the Month Caleb Harris, of Cottonwood, California, "so I decided to make one. As a member of the Shasta Gem & Mineral Society, through which I found out about *Rock & Gem*, I first ground and polished a 7-gram tiger's-eye cabochon. Then, using a Dremel, I carved grooves to create the head and abdomen design.

"Next, also using the Dremel, I drilled holes a quarter of the way down either side of a tumbled pebble of carnelian and one of rock crystal. The carnelian, representing the sun, would be on top, while the rock crystal, representing the moon, would be on the bottom of the finished piece.

"Then, using a length of copper wire (my fingers got black as I worked), I formed the shape of the legs and wings and glued it to the bottom of my tiger's-eye cabochon. Now, you wouldn't believe how hard it is to form thick copper wire with only your hands and some pliers! And I wish I had known what annealing was; it would have made it a lot easier.

"Anyway, I inserted the 'legs' into the holes I made in the carnelian and rock crystal pebbles and glued them firmly in place. Finally, I took a long strand of thin steel wire, painted green, and wrapped it around the copper wings, finishing it off with a drop of yellow paint on each wing. If this doesn't look too good, it's because I'm only 11 years old." 💎



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, 3585 Maple St., 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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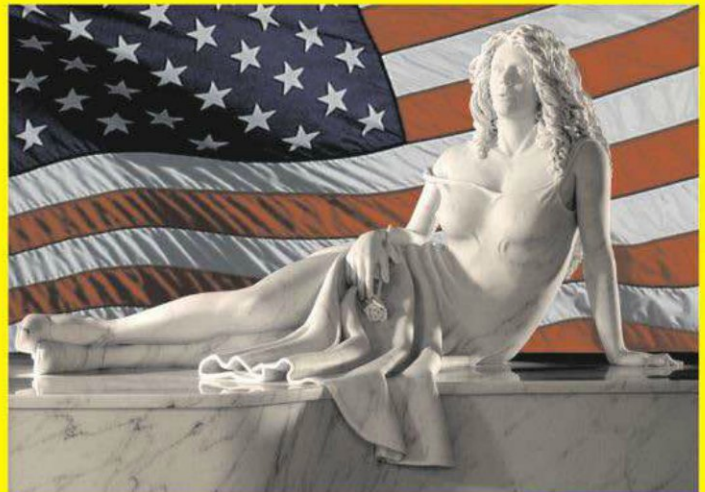
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Come see the east coast debut of the "American Woman" by Francisco Sotomayor. Featured in the Feb. 2010 issue of *Rock & Gem*, this 10' long sculpture was carved from a single 21-ton block of marble. Meet the artist too!



Our *Fine Mineral & Gem Gallery* for high-end mineral and gem dealers is a "show within a show" featuring plush seating, glistening showcases, wine bar, and a dedicated 24-hour police guard.

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2011

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Detroit, MI.....July 15-16-17
Franklin, NC.....July 28-29-30-31
Spruce Pine, NC...August 4-5-6-7
Tucson, AZ....September 8-9-10-11
Minneapolis, MN....September 25-26
Detroit, MI.....Sept. 30-Oct. 1-2
West Springfield, MA....October 7-8
Asheville, NC.....October 25-26
Orlando, FL.....October 28-29-30

2012

Orlando, FL.....January 6-7-8
Asheville, NC.....January 10-11
Tucson, AZ.....Jan. 28-Feb. 10

Tucson

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Gem Mall
January 28- February 10

Holiday Inn-Palo Verde/Holidome
February 3 - February 10

Minneapolis, MN.....March 25-26
Detroit, MI.....March 30-31 April 1
West Springfield, MA....April 13-14
Orlando, FL.....May 4-5-6
Franklin, NC.....May 11-12-13
Las Vegas, NV.....June 1-2-3

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DATES SUBJECT TO CHANGE

SHOW DATES

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Send show information at least four months in advance to *Rock & Gem Show Dates*, 3595 Maple St., Suite 232, Ventura, CA 93003-3517; e-mail: editor@rockngem.com; or use the electronic form at www.rockngem.com.

OCTOBER 2011

1-2—GREELEY, COLORADO: Annual show; Weld County Rock & Mineral Society; Greeley Senior Center, 1010 6th St.; Sat. 9-5, Sun. 10-3; free admission; raffle, door prizes, minerals, jewelry, rough and polished rocks, children's activities; contact Melanie DeHart, (970) 352-8149; e-mail: hamlet.house@yahoo.com

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—OROVILLE, CALIFORNIA: 4th annual show; Feather River Lapidary & Mineral Society; Oroville's Municipal Auditorium, 1200 Myers St.; Sat. 10-5, Sun. 10-4; adults \$2, children 12 and under free; dealers, exhibits, demonstrations, door prizes, silent auction, geode cutting, 3rd Annual World Rock Tumbling Championships; contact Tammy Scism, 675 Mitchell Ave., Apt. G4, Oroville, CA 95965, (530) 693-1304; e-mail: tammyscism@yahoo.com; Web site: www.oroVILLE.rocks.com

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: dcweir@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

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 Stetter, 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—BIG SUR CALIFORNIA: 20th annual show, "Big Sur Jade Festival"; South Coast Community Land Trust, Pacific Valley PTO; Pacific Valley School; Fri. 12-5, Sat. 10-5, Sun. 10-5; contact Kirk Brock, (831) 659-3857; Web site: www.bigsurjadefestival.com

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

18-19—MESA, ARIZONA: 46th annual show; Apache Junction Rock & Gem Club; Skyline High School, 845 S. Crismon Rd.; Sat. 9-5, Sun. 10-4; adults \$3, students (with ID) \$1, children (under 12) free; dealers, jewelry, gems, cabochons, beads, rock, specimens, slabs, fossils, lapidary equipment and supplies, silent auction, door prizes, grand raffle, gem tree-making activity, Wheel of Rocks; contact Kelly Iverson, (480) 325-2705; Web site: www.ajrockclub.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,

continued on page 34

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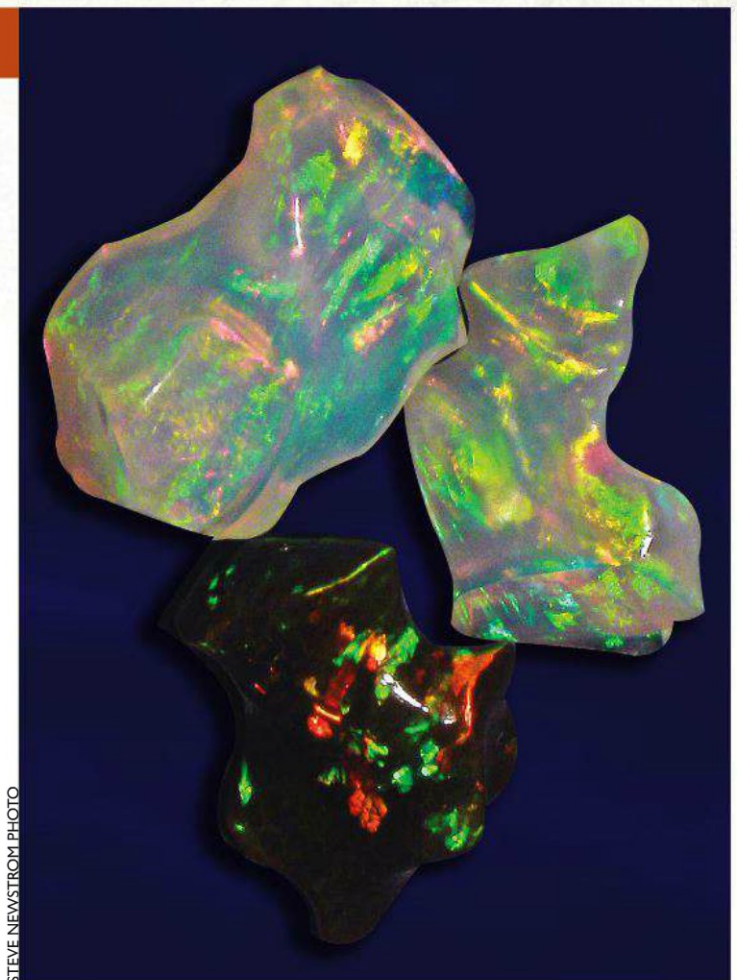
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ETHIOPIA'S Welo Opal

A Recent Find Thrills Opalholics

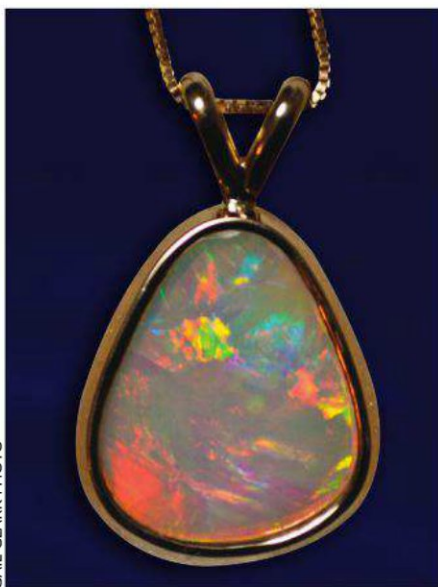
Story by Paul B. Downing

There is nothing more exciting to an opalholic than word of a new opal discovery. Where is it? What kind of opal is found there? Can I get some to cut? In May 2008, precious opal was discovered in the Wegel Tena area of Ethiopia, north of the capital, Addis Ababa. The Gemological Institute of America (GIA) and others reported the discovery in 2009, and the word has been spreading rapidly since. While this new opal has been identified by many different names, mostly in reference to the general location of the mines, the most common name among opalholics is “Welo opal”.



STEVE NEWSTROM PHOTO

Carving is another great way to bring out the best in Welo opal; note both dark brown and crystal base colors.



GAIL CLARK PHOTO

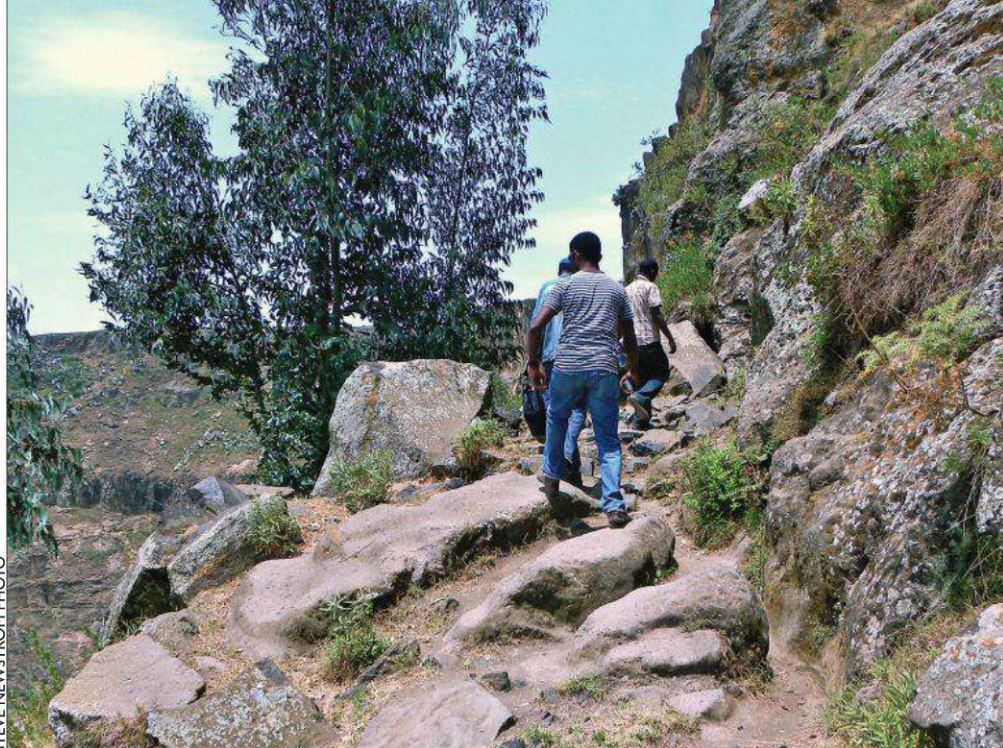
This pendant made from Welo crystal opal gives the viewer an impression of simple elegance.

Welo opal is formed in one layer of volcanic ash that is approximately 3 feet thick and sandwiched between thick layers of volcanic rock consisting of various forms of basalt, including rhyolite. The layer is located high up on the side of a steep cliff. The path to the mines covers the face of this steep bluff and is not for the faint of heart. Miners dig into the opal-bearing layer with primitive mining tools to uncover the opal. Many of the miners, who were farmers before the find, use wooden axes and pry bars. They burrow into the opal layer no more than a few feet and run the risk of the tunnel roof collapsing on them. These mines are tough to get to and dangerous to mine. More than 20 miners have lost their lives in accidents, most involving tunnel collapse, while mining this opal.

All the miners are from the local towns of Delanta, Wegel Tena, and Tsehay Mewcha. Workers from each village mine different areas of the seam, with each area producing somewhat different looking opal. Some opal was found in the float below the cliff, but this may have been mined out by now. The miners operate under cooperatives that distribute the opal through licensed exporters in Addis Ababa. Production continues to grow as this opal becomes better known. For a fascinating firsthand report of a trip to the mine, see Steve and Darlene Newstrom's Web site at www.villagesmithyopals.com. Steve and Darlene own The Village Smithy Opals Inc.

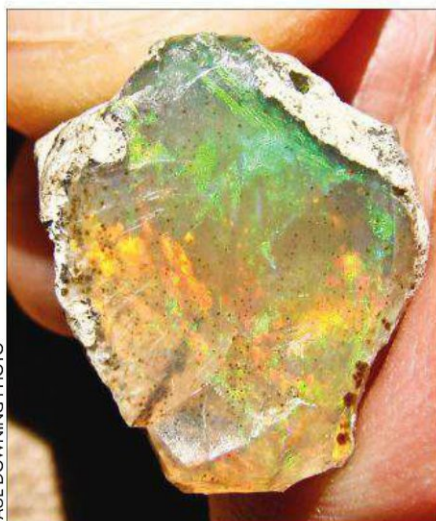
WELO OPAL CHARACTERISTICS

Welo opal is found mostly in nodules that formed in the volcanic ash. The rough usually has a small amount of the soft matrix attached to it. It does not have the hard rhyolite skin found in the Yita Ridge deposit, which was discovered almost 20 years earlier, and is much more stable than the material from that source. Welo opal is



STEVE NEWSTROM PHOTO

The rough trail to the mines crosses the face of the bluff where the opal is found and is not for the faint of heart.



PAUL DOWNING PHOTO

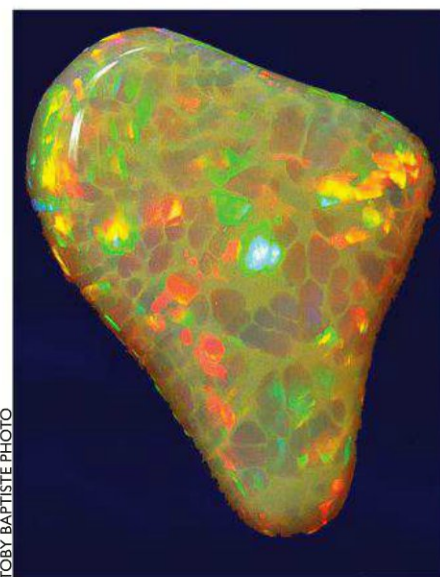
This rough nodule shows a wonderful big flash fire pattern and some small inclusions that will not be visible in the finished stone.

mostly hydrophane. Base colors range from water clear to translucent white to yellow and rarely to dark brown. The play of color floats through the whole opal much like the best Mexican opal. It is usually multicolored, with no one color dominating, but individual specimens can have any play of color. I have one nodule that has only green fire in a blue crystal base color. As in most opal, patterns are varied. Small to large flash fire is the most common pattern. In this pattern, the fire often rolls through the stone in spectacular fashion. I have seen a ribbon pattern in one stone, and other patterns reported include harlequin, although I have not seen a stone I would classify as harlequin. The brightness of the fire also varies in each stone, from dull to very bright. In addition to brightness of the fire, pay attention to the density of the fire in the stone. The fire can be bright, but without density

it will get lost in the stone. It is almost as if the fire is deep in the stone trying to get out, but with limited success.

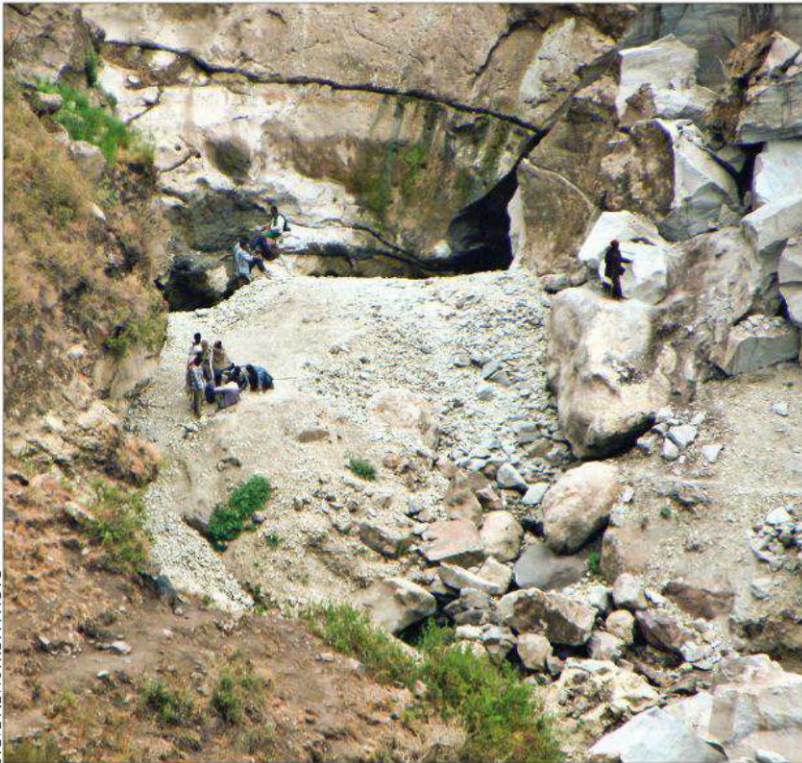
As you would expect, the quality of the opal varies from very poor to top quality gems. Most exporters grade the opal rough into three qualities: A, B and C. They further divide it into three sizes: small, medium and large. Medium sizes are 3 to 10 grams, which is about right for most lapidary applications. A parcel of large, grade A Welo opal will cost several times the price of smaller, lower quality stones. Retail dealers will re-grade the opal and may use different terms. Talk to the dealer to understand how he classifies his opal so you get what you want.

I have found that all crystal opal rough with a surrounding matrix looks brighter in the rough than it will after the matrix is removed. This is true of Mexican, Australian and Bra-



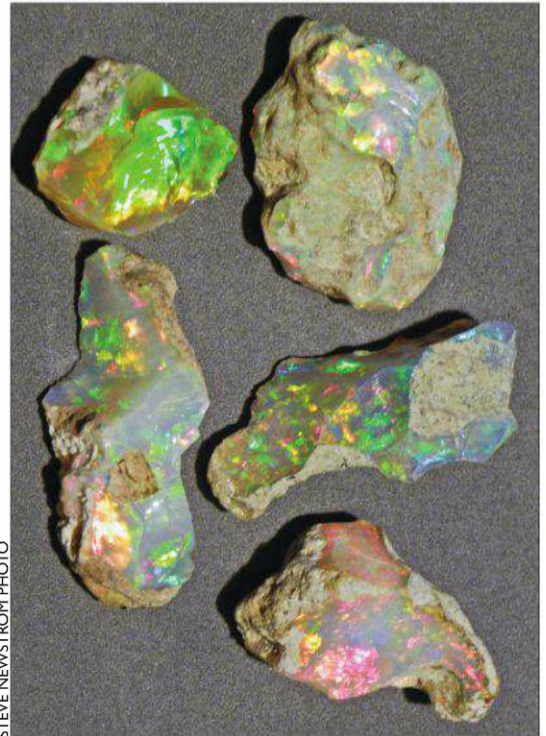
TOBY BAPTISTE PHOTO

This gem has some interesting separations between the color patches.



STEVE NEWSTROM PHOTO

Miners risk life and limb to pry the opal from mines like this, which carry the risk of tunnel collapse.



STEVE NEWSTROM PHOTO

The rough Welo opal is found mostly in nodules that formed in a volcanic ash and have a small amount of matrix attached.

zilian opal, and it is true for Welo opal. The reason for this is that the matrix provides a darker contrast for the play of color. Most of the Welo crystal rough you will see has some matrix on it, so it will look brighter in the rough than it will as a finished stone.

There are three characteristics of this opal that deserve special emphasis. Although beautiful, opals from the Yita location, the other well known source in Ethiopia, have often cracked or crazed after being cut. Welo opal is far more stable.

A percentage—small or large, depending on who you ask—of the Welo opal is Contra Luz. This means the play of color is seen only or primarily when light is passed through the stone from the back. Such opal can look fantastic when faceted. The light reflected from the bottom facets passes through the stone, bringing out the play of color. Fortunately, Contra Luz opal is easy to detect, so you will know whether or not a stone exhibits this phenomenon before cutting it.

Much of the Welo opal is hydrophane. This means that it has a high affinity for water and soaks it up when it can. Hydrophane opal is easily detected. Wet a finger and touch the opal. If it is hydrophane, you will feel the opal absorbing the water; your finger may actually stick to the surface of the stone. Many of us opalholics use our tongues for this test. When I did this on my first Welo opal, sent to me to play with by Toby Baptiste (www.tabopals.com), I had a bit of difficulty getting the opal off my tongue. I don't recommend the tongue

test. Some reports say that all Welo opal is hydrophane, while Steve says the number is between 70% and 90%. Whatever the percentage, it seems to be a majority.

The hydrophane characteristic of Welo opal has caused me a bit of concern. Will the opal hold up when worn? The opal will grab water during use, and much Welo opal loses some or all of its play of color when wet. It may also absorb oil from the skin. So the question is, will this opal lose color or discolor after extensive wear? There is not enough data yet to determine whether this will be a problem, but Steve reports that he has had no complaints from any of his customers. I hope that this will continue to be the case, as I would hate to see this wonderful opal shunned.

CUTTING WELO OPAL

Welo opal is easy to cut in some ways and hard to cut in others. The opal is easy to orient. Just hold the nodule under a 100-watt bulb and roll it in your fingers. It will become apparent which orientation shows the best play of color. This color will mark the top of the stone—unless the stone is thin from this orientation. If you find such a stone, you must make a choice. Do you want a bigger stone with duller and less attractive play of color or do you want the best color, even though you'll get a smaller stone? This is a judgment call, one that will differ with each stone. Such judgments are one of the reasons I find cutting opal so much fun.

The more challenging cutting issue is the fact that much of the Welo opal will lose some or all of its play of color when wet. Steve has experimented with cutting it dry to keep the play of color evident, but he has abandoned this practice because of the dust it makes. Silica dust can be a health hazard, so I do not recommend cutting this opal dry. Instead, I recommend the following procedure.

First, place the stones in a pan of water. Toby tells me that a few stones crack when first placed in water. It is better to soak the stone first to find out whether it will crack than to have the stone crack during the cutting process.

Using a wet grinding wheel, grind enough of the matrix from the stone so that you can see into it from all sides. Do this carefully, so that you remove just enough of the matrix to see into the stone, but not so much that you take away usable opal. A quick pass with your coarse sanding wheel will make the surface of the stone more transparent when dry. This makes it easier to examine in the next step.

At this point, the opal will have absorbed water and may have lost some play of color. The water in the stone may also disguise cracks that have been uncovered in clearing the matrix. It will be necessary to dry the opal again before proceeding. If you live in a dry climate like I do, the opal will dry overnight and return to its original color. Steve reports that some cutters living in humid areas like Florida have had problems drying the opal. Some have placed the opal under a 100-watt

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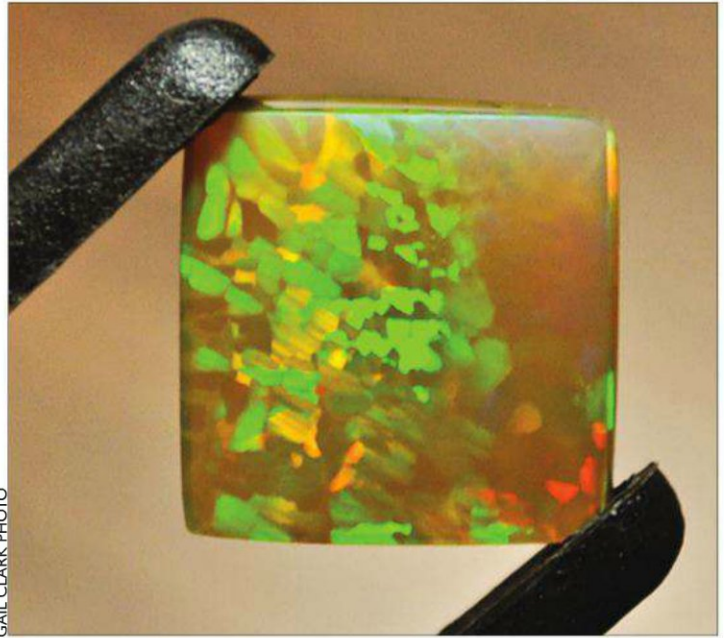
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STEVE NEWSTROM PHOTO

These Welo cabs show great play of color and the three main base colors of this opal: crystal, semi-crystal and orange.



GAIL CLARK PHOTO

The unique feel of this gem is produced by patches of green fire that overlay orange and red fire found deeper in the stone.

light to dry it. Steve has experimented with a silica gel for drying with some success.

Once the opal is dry, it is time for a careful inspection. Locate all cracks. Check the orientation. Then plan your approach to cutting the stone. Keep the orientation firmly set in your mind. You will have to remember the orientation in those stones that lose play of color when wet.

It is now time to dop the stone. Prepare the base of the stone with your 220 grinding wheel. Grinding will make the stone wet again. Steve tells me that he has had some of his stones crack between the hot dop wax and the surface of the stone when the stone is wet. To prevent this, he dops the stone with Elmer's® glue, then coats the glue, which is water soluble, with fingernail polish before cutting. Others have molded some dop wax to the base of the stone, popped the dop off the stone, and glued the stone to the dop using Elmer's. Don't use superglue, as it will be absorbed into the stone. The stone could discolor or the base could crack as you remove the dop stick. It's better to be safe than sorry, so dop carefully.

Cut the stone to the desired shape and sand and polish it. For most stones, especially the crystal ones, a high dome shape is best. The thicker the stone, the more fire will play through it. This is especially true of the low fire-density stones. Do not use colored diamond paste, as the color can penetrate the stone and discolor it, perhaps permanently. I use Diamond Pacific Nova Wheels, as they will not discolor the stone. For a polish, I use 50,000 grit spray diamond on a white Poly Pad. After polishing the top of the stone, finish the bottom to an equally high polish. The stone will need to be dried again before you

dop the top to finish the bottom. Careful cutting will produce a sparkling opal.

All this orienting and drying may make you think that this opal is too difficult to cut. Do not be discouraged; the opal is very forgiving. A slight difference in orientation will have a limited effect on your final result. It is easy to see what you are doing. The best color is not hidden deep in an opaque stone, as it often is in Australian material, but is right there for you to see. Just treat it with respect and patience, and you will have great results.

There are a couple of experiments I would like to perform in cutting these stones. The crystal stones should look great as doublets. The top should be thick to maximize the play of color, but not so thick that the black background is lost when viewing the stone from the side. The density of the fire in most of the Welo opal is insufficient to make triplets.

I would also like to experiment with dyeing the stones. Their porous hydrophane nature should allow black dye to enter the stone, giving it a dark base color for the fire to play off. Discussions of dyeing on the Internet suggest that the Australian method (depositing carbon from sugar into the stone using sulfuric acid) does not penetrate far enough into the stone. The results are reported to be less than satisfactory. Experiments with liquid dyes are reported to have produced nice-looking black stones. The problem has been that the dye slowly seeps out of the stone, so this method does not seem to be permanent. Apparently, further experimentation is needed. However, most Welo opal is spectacular as it is, so dyeing may not be necessary.

AVAILABILITY OF WELO ROUGH

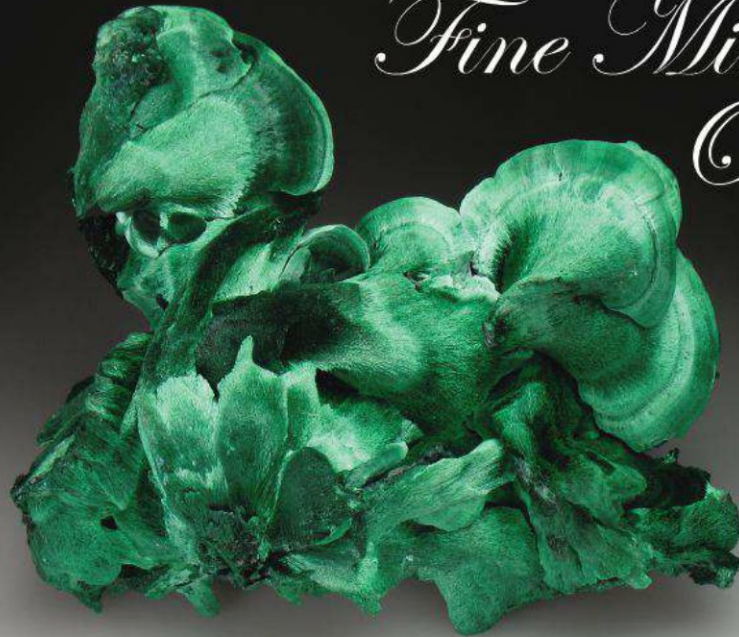
In the past, I have recommended only buying rough opal at a show or rock shop so that you see what you are getting before you buy. However, I am beginning to change my mind about that. The Internet offers pages of dealers who sell Welo rough. Many of them show photos of the rough. Not all the photos are good and some may be enhanced to make the rough look better than it is, so you must select carefully.

The best thing about the Internet is that it offers you many choices in rough, far more than you will find at any show. The search is fun, but it may be frustrating. It is important when buying rough online that you have the option to return a parcel for a full refund if you are not pleased. Steve and Toby are two dealers that offer good opal at fair prices, and they helped me with this article.

Welo opal is easy and fun to cut and is far less expensive than comparable Australian opal. Less money and great-looking opals—what more could you ask for? To see more examples of the range of colors and patterns found in this magnificent opal go to YouTube and search for "Welo opal". You will find many videos of different stones. I was mesmerized by the flashing play of color. If those videos do not get your heart racing, you are not a true opaholic. 💎

Paul B. Downing, a rockhound and Lapidary Hall of Fame inductee, is the author of Opal & Gemstone Jewelry and Opal Identification & Value. For more information, visit www.paulbdowning.com.

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Beads and beading have been around for about a bazillion years or so, I guess, but for most of my life, beads just barely existed on the outer fringe of my consciousness. As far as I can remember, I never talked to anyone about beads, never read anything about them, never owned any. In fact, beads were sort of like \$1,000 bills; I knew they existed, but I never thought about them.

Never, that is, until years ago at a gem show when I saw a lady demonstrating enamel bead making with a propane torch. Now here was something I could relate to. Making things is what I did (and still do). I watched and asked questions until my wife, Cora, finally dragged me away. Somewhere along the line, I acquired a basic instruction sheet and a source of supply for enamel. After a few false starts, I got reasonably good at it and soon had a pile of enamel beads. I really had nothing to do with that pile, so I moved on to other things armed with the knowledge that if anyone needed enamel beads in a hurry, I would be able to save the day.

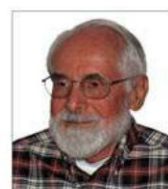
Time went by, and one day, for no apparent reason, I started thinking about making gemstone beads. I could handle making the beads just fine, but I truly hate to drill stones, so I started thinking about how I could make beads without having to drill them. Obviously, the beads could not be in one piece. The most straightforward method would be to use two pieces of stone with a half groove in each. The two would then be cemented together and the resulting blank shaped to taste.

This idea was perfectly reasonable, but I didn't like the line where the two pieces were joined. An alternative could have been to make the two halves out of contrasting colors. There would be a line, but it would seem more natural. Finally, for my initial attempt, I decided to make the two halves of the same material with a thin piece of contrasting material in the center. This method also eliminated the need to cut a groove in the half pieces. The thin center piece was cut in half and glued so that the gap between the two pieces would be equal to the thickness of the piece, thus creating a square hole through the center of the bead.

After the success of my first bead, I tried a whole range of patterns, sizes and shapes. This kind of thing was really a lot of fun, since there were no specifications to meet—the size, shape and design were up for grabs. It is impossible to make a mistake, since there are no rules. Whoopee!

The grinding sanding and polishing steps are the same as those for a cab. Unfortunately, without a dop stick, it is a little tricky to go through all the steps without losing a little skin on the knuckles and maybe a bit of fingernail. Anyone who makes a bunch of these would probably be well advised to finish them in a tumbler. 💎

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 quappelle@cox.net.



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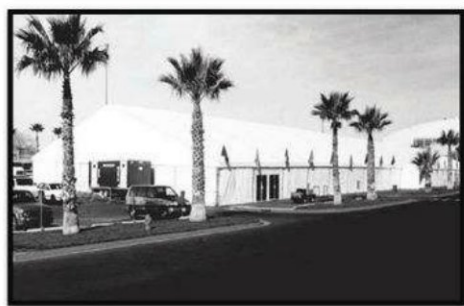
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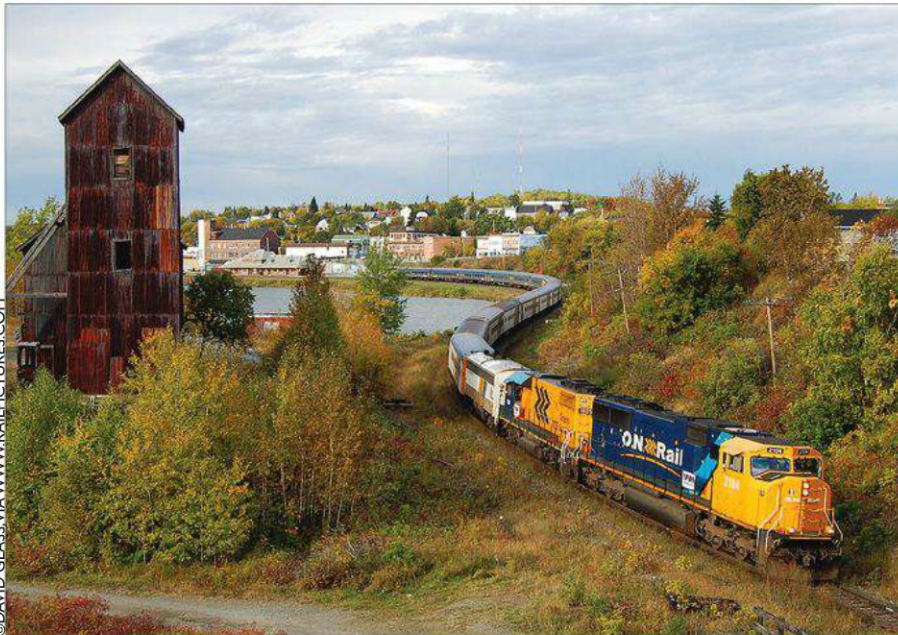
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The Mines of COBALT, ONTARIO

Rich in Silver, But Not in Specimens

Story by Bob Jones



©DAVID GLASS VIA WWW.RAILPICTURES.COM

The first people to break into the silver-bearing veins around the mining camp of Cobalt, Ontario, ignored them because they were too busy building a railroad!



BOB JONES PHOTO

By etching away the enclosing calcite, fine arborescent silver was sometimes revealed. This specimen is from the Langis Silver mine at New Liskeard, near Cobalt.

In 1903, there was a huge silver rush in the mining camp of Cobalt, Ontario. The rush didn't start immediately after the initial discovery of silver-bearing veins. In fact, the first people to break into the metallic veins ignored them because they were busy building a railroad! The silver veins the railroad men cut across were instantly obvious, as exposed rock had sheets and flakes of the metal sticking out of them. The ground was apparently littered with silver chunks that were later described as being as big as stove lids!

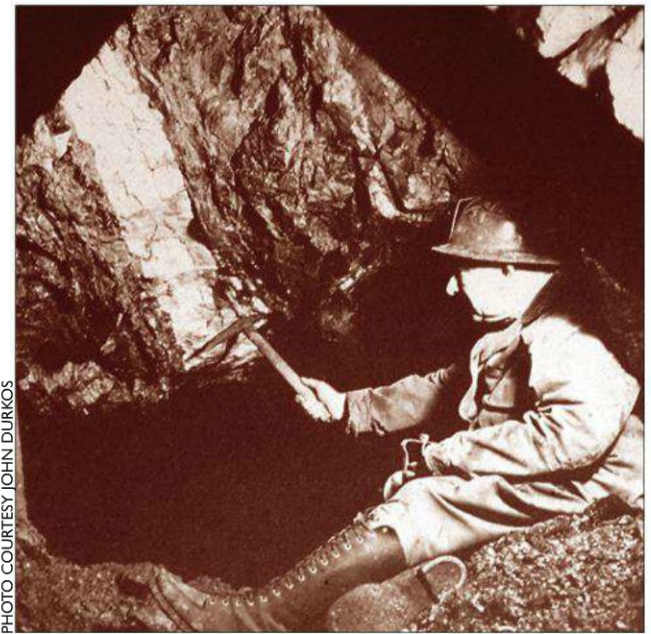
It was **Cobalt's discovery** that gave *real impetus* to prospecting and investing on a *scale never before seen* in Canada.



This Cobalt specimen was sawn flat and polished to highlight the dendritic silver crystals in the translucent quartz matrix.



This uncommon silver horn from the Little Nipissing mine in Cobalt stands 2 inches high.



This miner is working the #2 silver vein in the Keely mine at Cobalt.

Fortunately, these shiny flakes aroused the curiosity of two railroad workers, J.H. McKinley and Ernest Darragh. Their job was to cut trees and shape them into wooden ties for the railroad. They knew that metallic particles visible in the exposed rock deserved investigation, so they gathered some pieces and sent them to a chemist in Montreal. Much to their surprise, the assay results that came back showed the rock ran 4,000 ounces of silver per ton! The McKinley-Darragh mine was staked and the real rush began.

As rich as the Cobalt deposits were, they yielded only a limited number of collectible specimens. They produced 600 million ounces of silver, plus millions of ounces of other metals, but the remarkable result of this discovery of silver was not collector specimens; the discovery and development of the deposit made a huge impact on the growth of mining and business in Canada.

Cobalt was not the first major metal strike to be made in Canada, though it was the first mining area to experience a huge influx of "get rich quick" prospectors and in-



Fragments of diabase rock are held together by sheet silver and cobalt sulfide in this Gioux mine specimen.

vestors, who used the new railroad to reach central Cobalt and the silver-rich ground. The huge metal deposits at Sudbury, Ontario, had been discovered previously, and by odd coincidence, they were also revealed during railroad construction. As rich in metal as Sudbury was—and continues to be—the deposit's copper, nickel ores were an enigma because the nickel inhibited the smelting of the copper ores. Therefore, Sudbury did not excite the prospecting and investing communities as much as Cobalt did! For this reason, even though Cobalt is played out today, it is known as the cradle of Canada's mining industry!

The original reason for the railroad that exposed the silver veins of Cobalt was to provide farmers north of the area with a means to get supplies and send their goods to market. No one expected metal riches to result from this quite ordinary endeavor. Once the discovery was made, the town of Cobalt blossomed and mines rose like so many corn stalks! For the next 60-plus years, the mines of Cobalt produced hundreds of millions of ounces of silver, plus millions of dollars in metal including cobalt, nickel, copper, and a host of lesser metal elements in the form of mineral compounds. The pity is, in spite of the broad range of metal elements and their compounds found in these deposits, few specimens are available today. The frenzy to extract every silver dime of riches from Cobalt's grounds overrode what had to have been a treasure in mineral specimens.

Unlike Kongsberg, Norway, the lack of a quantity of spectacular specimens from the Cobalt area causes collectors to overlook the significance of the deposit's riches. Compared to the great Yukon gold rush, which we consider to have been pretty rich, Cobalt produced gold—a minor value compared to silver—that exceeded all of the Yukon's output by \$100 million! Not bad for a byproduct.

As rich as Cobalt's silver ores were, there was a problem not unlike that at Sudbury. The silver was "poisoned", not by nickel, but by cobalt and, to a lesser extent, other metals. This made some of the silver ore a real challenge to smelt. Smelters, however, like nothing better than a challenge, and silver ore containing metals like cobalt, arsenic and nickel was soon brought under control.

In the early days, cobalt was considered a waste rock, so it was tossed aside. At times, some silver ore was considered too tough to smelt and was bypassed in



BOB JONES PHOTO

This lovely wire silver was revealed after calcite was soaked off a rock from the dump of the Glen Lake mine in Cobalt.

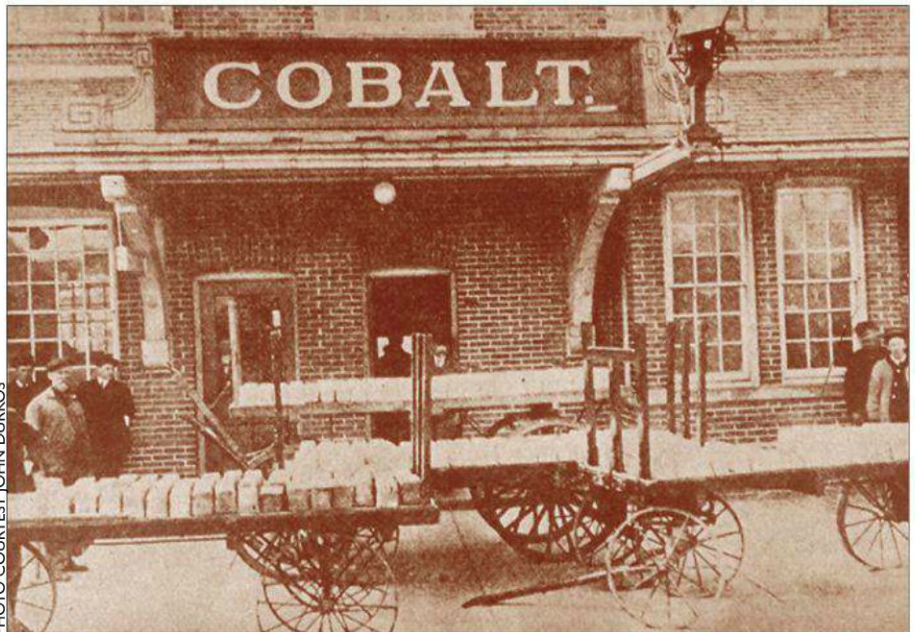


PHOTO COURTESY JOHN DURKOS

The silver ingots produced at Cobalt was always shipped via rail from the Cobalt Station, as the area's roads were very poorly developed dirt roads.



BOB JONES PHOTO

This piece of silver vein rock from the Deer Horn mine has been cut and polished to reveal the fine arborescent silver inside. This rock assayed at 11,000 ounces per ton!



BOB JONES PHOTO

Some specimens from Cobalt contained as much as 90% silver and were collected by mine employees.

favor of more easily processed ore. Eventually, cobalt became a very important industrial metal and its status changed from waste rock to valuable ore metal. Today, we use it in jet engines, in the hardening of steel, and a host of other industrial applications.

The rocks of the Cobalt area are Precambrian—hundreds of millions of years old—and consist mainly of diabase and greenstone. The region is, in fact, in what we now call the Canadian Shield, the exposed core of the North American continent. Later, two major faults, the Valley Fault and the larger Cobalt Lake Fault, and a series of smaller, related faults opened these ancient rocks to hydrothermal solution invasion. The initial silver discoveries were exposed at the southeast end of Long Lake, which was later renamed Cobalt Lake.

The original silver discoveries were clearly accidental and not the result of prospector efforts. Another accidental find actually resulted in the discovery of what many consider the largest single mass of silver ever found on earth! This happened when the local blacksmith, Alfred LaRose, who was working for the railroad, was being annoyed by a fox that kept lurking about his workshop. In desperation, the blacksmith threw one of his big hammers at the animal. He missed the fox, but struck a rock outcrop, revealing a silver vein! LaRose sent specimens to Arthur Ferland, who ran a hotel. He, in turn, showed the rock to the director of the Bureau of Mines, T. W. Gibson, who judged that the rock was full of niccolite, a nickel mineral. Finally, A.G. Burrows, an assayer, correctly identified the rock as silver-rich ore. I doubt LaRose did much blacksmith-

ing except to sharpen his mining tools after he staked the LaRose mine.

When prospectors reached the Cobalt area, they soon realized that one of the easier ways to find silver was to remove the thick layer of dirt, rotting vegetation, and fallen trees to expose the bedrock. A crude form of hydraulicking was employed in some places to wash the detritus off the hillsides, exposing the surface rocks and, hopefully, one or more veins of silver. These surface veins were apparently common in the initial phases of mining.

One vein, the LaRose discovery, was exceptional in size—perhaps the largest such vein ever found. It measured a meter wide and ran some 100 meters long. That's longer than a football field! It was later shown to extend about 60 meters into the ground. This is thought to be the largest single mass of silver ever found. Since this vein was actually exposed along the surface, it was immediately named "the Silver Sidewalk"! Imagine being able to walk along the top of an exposed silver vein that ran thousands of ounces per ton. Estimates put the overall size of the mass at about 1,259 cubic meters in volume. The silver content has been estimated at anywhere from 40% to 75% silver—a remarkably rich find.

You'd think that LaRose would begin mining this rich lode immediately. He did not. There were some disagreements over ownership and mining rights of this huge vein, since it ran so far across the surface. Finally, in about 1915, the Silver Sidewalk felt the miner's drill and was mined out. Luckily, a few pieces of this phenomenal occurrence were put aside and ended up in museums. Even more important, a significant chunk of this rich mass was preserved intact. The chunk was shipped to Toronto and put on display in the Parliament building—all 1,640 pounds of it! Assays tell us that the chunk ran a cool 40% silver, equal to 9,715 ounces of the white metal in just that one piece! When I checked on the status of the Parliament building silver, it was nowhere to be found! Its whereabouts are currently unknown.

The exposed silver veins at Cobalt were soon penetrated by mine shafts. Where the veins ran under Lake Tamiskaming, the lake was drained and the Canadian government took claim of the veins and sold silver mining claims to anyone who could afford them. Naturally, you'd think there would be an abundance of specimens from such a rich silver deposit on the market. Actually, there are not! In the early days of Cobalt

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BOB IONES PHOTO

This leaf silver in diabase from the Rix Athabaska mine is typical of the specimens that survived mining in Cobalt.

silver mining, people were too busy gouging out the veins of silver and shipping the metal off to the smelter to save specimens. Some specimens were saved, of course. For example, on special occasions, the mayor of Cobalt wears a chain made of natural silver plates and chunks that had been brought directly from underground as a symbol of his office.

During mining, it was not unusual to encounter rich sections of vein that were nearly solid silver. Some were so large they could not be hoisted to grass through the existing shafts. One mass weighed in at over 2,500 pounds. In some cases, the silver was enclosed in calcite, which was a boon to collectors, as the calcite could later be etched away to reveal lovely wires of silver that were sometimes coated with dark silver sulfides.

The boom years of Cobalt persisted for a few decades. Eventually, as the Great Depression took hold, production slumped and mining tailed off. In the 1950s, cobalt gained much greater importance as jet-engine planes emerged as the most important form of air travel and the mineral was needed to make high-temperature super alloys. Cobalt proved very important in other industrial uses, which breathed new life into Cobalt's mining industry. The rise in silver prices also encouraged mining here. During this decade, some American mineral collectors began to visit the Cobalt area, working the dumps and making contact with old-timers and mine workers. Mineral specimens began to emerge from desk

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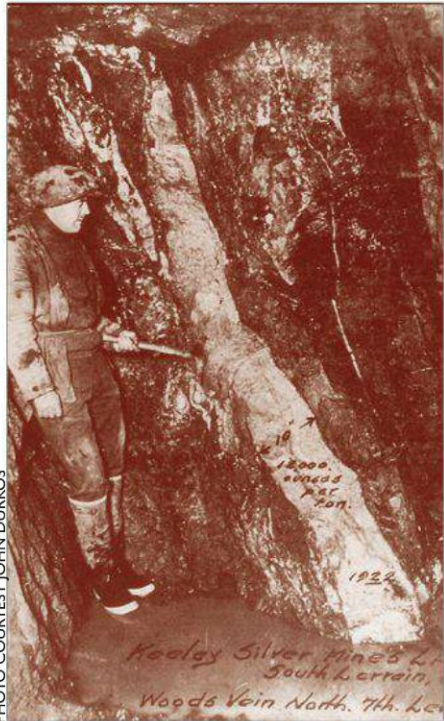


PHOTO COURTESY JOHN DURKOS

A photo taken underground shows a wide silver vein that assayed at 12,000 ounces per ton!

drawers, trades were made, and collecting the dumps proved fruitful. Collectors quickly learned that a little acid dissolved the calcite that enclosed the silver, and thin sheets and small wire silvers were the result. Other specimens found on the dumps showed sheet silver jutting from the host rock. These proved to be nice examples of the original ore. Chunks of rock could be sliced to reveal arborescent silver wires, many of them outlined with a black silver sulfide mineral. A little polishing produced a specimen with a lovely pattern of bright, shiny silver embedded in the white calcite.

One of the better assemblages of these "dump" specimens can be seen in the Sterling Hill Mining Museum in Ogdensburg, New Jersey. The display holds huge masses of gray rock shot through with native silver and silver-bearing species, all collected by Bob and Dick Hauck from the dumps of mines in Cobalt. Dump collecting is now a thing of the past. When the price of silver skyrocketed, the old dumps were scooped up, milled and smelted.

In spite of the richness of the silver ores in the Cobalt region, today's specimen market seldom boasts a good example of silver specimens from here. The methods of mining in those early days, plus the apparent tightness of the silver veins, which lacked significant vugs, simply did not produce a plethora of fine specimens. If you have a chance to pick up any silver specimens from the Cobalt mines, do it. You've got a treasure that represents the birth of metal mining in Canada! ♥

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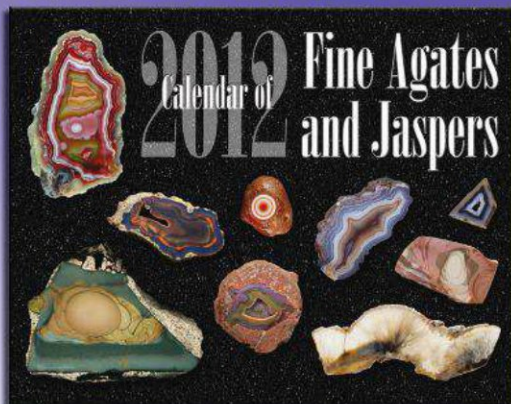
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ROCK SCIENCE

by Steve Voynick

Staurolite: The Myth and the Mineral

Staurolite is familiar to mineral collectors for its distinctive, cross-shaped crystal twins. The rich lore and mythology surrounding these unusual twins have long overshadowed their mineralogy.

Staurolite forms penetration-type twins in which one prism appears to penetrate another. The three basic types of staurolite twins are the St. Andrew's cross, the Maltese cross, and the Roman cross. The most common is the St. Andrew's cross, in which two crystals of similar size and shape penetrate each other at their midpoints to form two opposing, acute angles of 60° and two opposing, obtuse angles of 120°. In Maltese crosses, two stubby crystals penetrate each other at their midpoints at an angle of nearly 90°. Roman crosses are similar to Maltese crosses, but have longer prisms that make the twinned crystals resemble the cross of the crucifixion.

Twinned staurolite crystals, both loose and in matrix, have been collected for display, talismanic value, and jewelry use since before the time of Christ. After the cross emerged as the symbol of Christianity around the third century CE, twinned staurolite crystals gained great popularity as "natural crucifixes" that were worn as pendants or strung on rosaries. According to one of many legends, upon hearing of the crucifixion, angels shed teardrops that fell to earth as staurolite twins.

By medieval times, twinned staurolite crystals had also gained widespread secular recognition as "good luck" charms. Even today, distinctive twinned staurolite crystals remain highly collectible minerals.

Staurolite is a basic iron magnesium zinc oxyaluminosilicate that crystallizes in the monoclinic system. Its hardness is Mohs 7-7.5 (greater than that of quartz) and its specific gravity is relatively high at 3.7-3.8. Staurolite colors range from yellowish brown and reddish brown to brownish black.

Although staurolite usually occurs as single crystals, twinned crystals are so common as to be diagnostic. About 35% of all staurolite crystals are twinned as the result of errors or interruptions in the normal sequence of crystal growth. This unusual frequency of twinning is caused by complex chemistry, the variable composition of several of the mineral's essential elements, and significant amounts of impurities, all of which can disrupt the normal growth of the staurolite crystal lattice.



Staurolite is a metamorphic mineral that forms from the high-grade metamorphism of shale. Its primary host rock is schist, a medium- to coarse-grained, silvery gray-brown metamorphic rock with prominent, parallel mineral orientation. Staurolite is usually associated with kyanite, sillimanite and andalusite, the polymorphic forms of aluminum silicate. High density enables staurolites that weather out of their host rock to concentrate gravitationally in alluvial deposits.

Staurolite does have scientific and industrial uses. In the 1880s, it figured into the new theories of metamorphism being proposed by Scottish geologist George Barrow. While studying schist formations, Barrow observed that certain zones that had been subjected to sequential degrees of metamorphism were characterized by the presence of specific minerals. In his list of "index" minerals that represented progressive zones, Barrow noted that such constituent minerals as almandine, staurolite, kyanite and sillimanite formed at specific temperatures and pressures—a key to understanding metamorphic processes.

Staurolite is sometimes recovered by hydraulic-gravitational separation as a byproduct of mining titanium-bearing sands. Finely ground staurolite is used as a sandblasting medium when an abrasive slightly harder than quartz is required.

While staurolite will always be best known for its twinned crystals and the myths and lore surrounding them, it also has an interesting mineralogical side. ♦

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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TOURING THE PALA Tourmaline Mines

A Rare Look Underground and a Fee-Dig Opportunity

Story and Photos by Helen Serras-Herman

The tourmaline mines of the Pala gem mining district in Southern California have produced some incredible mineral specimens that take center stage at Natural History Museums across the country. They are part of America's history and are still very active today. My husband, Andrew Herman, and I recently had a rare two-fold opportunity to visit some of these mines. One was with a group field trip organized by the Gemological Institute of America (GIA), which visited three underground mines, and the second was a fee-dig day at one of the mines.

SYMPOSIUM FIELD TRIP

The 5th International GIA Symposium was a fabulous event held at the organization's World Headquarters in Carlsbad, California, in May 2011. It was full of incredible lectures by renowned speakers, fantastic exhibits, and once-in-a-lifetime field trips. Andrew and I attended the symposium as Poster Session presenters and participated in one of the optional pre-symposium events held on Saturday, May 28: a trip to three pegmatite mines in the Pala gem mining district, located near the town of Pala in San Diego County.

The tour group met in front of the GIA building to sign liability release forms for the mines. One more form had to be signed on location at one of the mines. We listened to a brief introduction about the field trip and picked up hard hats, which were necessary for the underground mine visits. We had brought flashlights with us. We were also given a Field Trip Guidebook, a beautiful, brief color publication by the GIA about the Pala pegmatite district and the tourmaline mines that was printed especially for this event. It includes a comprehensive list of articles published about the area mines.

The tour was limited to 50 participants, who were split into two groups. We boarded vans that drove us out to the mines. Brendan Laurs, the Interim Editor-in-Chief of *Gems & Gemology*, was our guide. It was great to tap into Brendan's great knowledge of that area, as he has visited the mines several times and has written about them in *Gems & Gemology*. The other group was headed by Dr. James Shigley, a GIA Distinguished Research Fellow.



Pink tourmaline is one of the prime minerals found in the Pala gem mining district. This specimen from the Queen mine is at the Fallbrook Gem & Mineral Museum.

TOP: Fee diggers at the Oceanview mine must shovel tailings into their buckets, carry them 40 or 50 feet back to the screening area, run the material through two screens, and then start all over.

CENTER: This great tourmaline-on-quartz specimen is on display in the "All that Glitters" exhibit at the San Diego Natural History Museum. Similar specimens were elusive during our dig!

BOTTOM: This almost 8-inch-tall specimen, with three aquamarine crystals and two smoky quartz crystals, is from the 49er pocket. It was sitting all dusty on a shelf at the gift shop, so it had to become part of our collection!



The 45-minute drive to the Pala gem mining district passed by the serene San Antonio de Pala Mission, which was founded in 1816. The area is famous for its pegmatite minerals: quartz, feldspar, mica, lepidolite, beryl, aquamarine, tourmaline, kunzite, and other, rarer minerals. The mines have been worked since the second half of the 19th century, when the lithium-bearing lepidolite was the main target for mining. Then pink tourmaline was found at the Himalaya mine and the Stewart mine in 1898. Some of this material is clean enough for faceting, but most of it is great for beautiful cabs and carvings. Its beauty attracted a faraway royal, the Empress Dowager Tzu-Hsi (pronounced "Tsoo Shee") of China, to become a patron. She purchased most of the pink tourmaline production, which was shipped to China for carving, until the beginning of the Chinese revolution and the abdication of her son, Emperor Puyi, in 1912. The mines went dormant and saw a couple resurgences during the 1950s and '70s, but probably the best revival is taking place right now.

First, we headed to the Pala Chief mine. Current mine owner Bob Dawson and his wife, Jane, guided us to a display of some magnificent tourmaline specimens, aquamarine and morganite crystals, kunzite specimens, and some fantastic crystals of quartz with black tourmaline needles, all of which came from the Pala Chief mine. Most of the kunzite mined in the early 20th century was purchased by George Kunz and Tiffany & Co. to be used in jewelry.

Then, Bob led us underground into the mine, where he pointed out the three layers on the wall: the bottom one is the Fort Wall, which bears no gems and is where they place the explosives; the middle one, which he called the Pastry, is where all the gems form; and the top one is the Hanging Wall. He gave details of how the miners follow the black tourmalines and the lithium-bearing lepidolite to the small pockets, which will hopefully lead them to the large ones. He said, "Some holes are dug out for information, and some holes, all they give is information!"

Our next stop on the tour was literally next door at the Oceanview mine. Besides its normal daily mine operations and pursuit of great minerals, it is open to the public for fee digging. It is currently the only mine to allow this on the premises. The current mine owner since 2000, Jeff Swanger, and his team operate under the name Oceanview Gem Mine, LLC. They bring out the gem-bearing material and mud blasted inside the mine and deposit it on a pile in the center of a cleared-out area. All around the pile are tables with water tubs and screens, and people can screen for gems. They recover mostly kunzite and quartz, and some tourmaline specimens. We did not have the opportunity to screen for gems on that day, but we had just visited the mine two days earlier, on their regularly scheduled mine dig.

Due to problems with liability, the mine itself is now closed to the public, but on the GIA tour we had the rare opportunity to enter it, led by Mark Mauthner, a past curator at the GIA Museum, author, and current volunteer miner at the Oceanview mine. Mark showed us the Core Zone (or Pastry Zone), in which the gem pockets form, next to the "cuneiform writing" of black tourmaline crystals. Mark took us deep into the mine and showed us where the now-famous "49er pocket" was discovered on Jeff's 49th birthday in 2007. The pocket was full of spectacular specimens of quartz, aquamarine, morganite, and other minerals, coated in mud. The name also refers to the early gold rush miners of 1849, who prospected in Pala after the easily accessible gold ran out in Northern California in 1851.

The spectacular kunzite crystal on display at the Fallbrook (California) Gem & Mineral Museum was found in the Big Kahuna pocket in 2000, and during the following six years, nothing else major was found. That was hard, but they kept digging. The fee-digging operation has helped sustain the mine over the lean years. Currently, the mine has six large pockets ready to open, along with lots of smaller pockets, and mining looks very promising! They have also been faceting some of the great





TOP: The Core Zone (or Pastry Zone), in which the gem pockets form, is next to the “cuneiform writing” of black tourmaline needles.

CENTER: A great kunzite crystal is visible in one of the six large pockets that are ready to be explored at the Oceanview mine.

BOTTOM: These beautiful specimens of quartz with fine black tourmaline needles and pink tourmaline crystal are all from the Pala Chief mine.



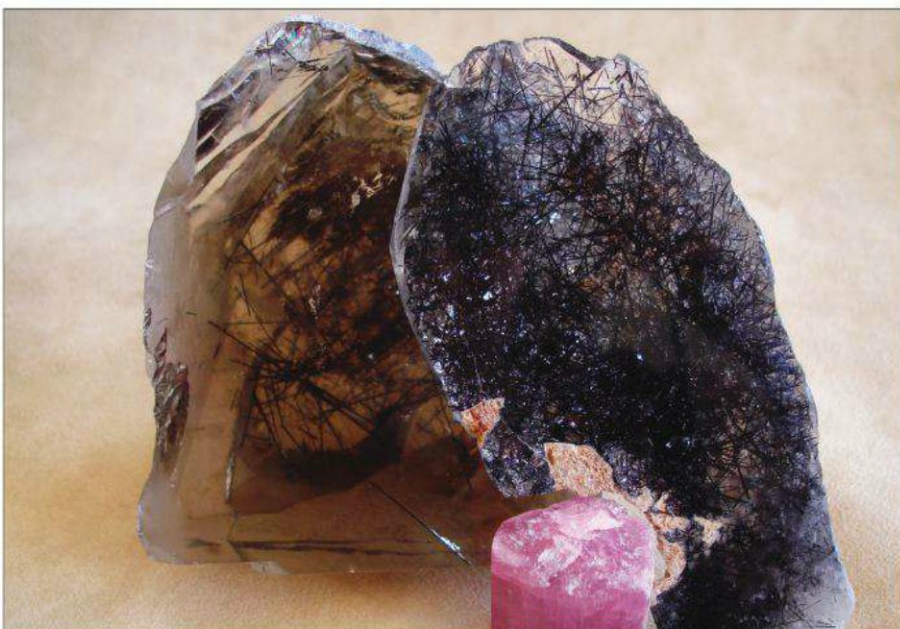
specimens. Mark pulled out of his pocket two extraordinary faceted kunzite gems that had been cut recently, as Jeff had done a couple days earlier. The color was very deep and rich!

The last stop on our great GIA mine tour was the Stewart Lithia mine. First, we made a rather quick stop at the shop Gems of Pala, operated by mine owner J. Blue Sheppard. The shop is filled with beautiful tourmaline specimens from the mine, both rough and cut, and it has an outdoor area where people can screen buckets of mine dirt for gems. The store is open on weekends, but reservations for buckets must be made about one week in advance by telephone.

The mine is famous for its “hot pink” tourmaline, blue cap tourmaline crystals, and lithium-bearing purple lepidolite, which gave the mine its name. Blue told us the story of the Stewart Lithia mine, and how it employed 128 people in the 1890s, including more than 80 Chinese miners, all digging for the rich ore containing 5% lithium and the pink tourmaline that was shipped to China.

Blue talked to us about his “slow” method of mining and his unconventional use of an endoscope to look into the walls. He talked about the thickness of the pegmatite vein, stating that “while an average pegmatite vein runs 6 to 12 feet, at the Stewart mine the vein is 182 feet”, and that is why they have to do a careful study of where to drill. He also explained how they drill with water and watch what comes out of the drilling. He also talked about how “you don’t dig out a pocket, but rather you disassemble a pocket”. A fine pocket can yield 67% facet-grade material and specimens.

We walked about a quarter-mile up a steep cliff and reached a big hole where they are finding a lot of excellent grade lepidolite, which can hopefully lead to some good tourmaline, before coming back down to enter the underground mine. Blue had to unlock a huge steel door, which was installed due to problems with theft at the mine. He made sure that we all had our hard hats and flashlights, and gave us each a number before we entered the mine. On the way out, he called all the numbers in sequence, and for a moment we thought that one person got left



TOP: Top-grade purple lepidolite that was found inside the Oceanview mine is piled up by the entrance.

CENTER: During its daily operations, the Oceanview mine is an active mine in pursuit of great minerals. A large ventilation tube delivers quality air to the inside of the mine.

BOTTOM: We entered the Stewart Lithia mine via a huge steel door, which was installed due to problems with theft at the mine.

behind, but he had actually come out ahead of the count. Blue gave a sigh of relief, as the mine is a labyrinth of several miles of underground tunnels!

Blue had so many stories and so much information to share we could have easily been there all day. Sometimes, inside the mine, it was really hard standing at an angle on uneven ground trying to listen. But we were rewarded with great views of the mine and discussions about the origin of the pegmatites. At the end of our tour, we were all given a "VIP package", including a copy of the article "Petrogenesis of Li-Bearing Stewart Pegmatite, Pala, California", presented at the GIA Symposium Poster Session, a brief history of the Stewart Lithia mine, and a wonderful DVD about the mine.

We left the mine to head back to Carlsbad 45 minutes later than scheduled, but we were all in very high spirits and enriched by this fabulous event!

OCEANVIEW MINE FEE DIGGING

The Oceanview mine sits on Chief Mountain in the picturesque foothills of Palomar Mountain, near the town of Pala. Driving north from San Diego on Interstate 15, take state Route 76 approximately four miles into Pala, and from there it is only a short drive. The road is paved to the mine entrance, and the rest of it is a short stretch of dirt road in good condition. Parking is plentiful and is located only a few feet away from the working area.

The fee-digging operation is usually open on Thursdays and Sundays, although they held an extra dig on Saturday while we were visiting with the GIA tour. Since we knew in advance that we would not have any time to dig during our GIA field trip, we arranged to be at the Oceanview mine the Thursday before the symposium started. Information about the mine and the fee-digging dates and details are available on the mine's most informative Web site, www.digforgems.com. As space is limited, you are not allowed to simply show up and dig without a reservation. You have to make the reservation through the Web site and wait for a confirmation e-mail and follow-up phone call during the week of your dig with the instructions and the password



needed to download the map with directions to the mine. You must also bring along the completed liability form to be allowed to drive up to the mine.

An important question that we ask at all fee-digging mine operations across the country is, Where does the material come from? Some mines sell buckets of all-natural material. Some sell "enhanced" material with gemstones from all over the world added to it, and these are usually clearly marked. At the Oceanview mine, the fee-dig material is all natural and local. It is the gem-bearing material, muck and mud that results from blasting inside the mine as they try to find the gem-filled pockets. The material is deposited on a pile in the center of a screening area. Most of the gems and minerals are removed from the pockets by hand very carefully, but during blasting some specimens fall on the floor, are picked up by the bulldozer, and land on the pile, so there are some chances of finding something big. Remember that you are there for the fun and the experience and, hopefully, to get some good specimens, but as Jeff put it, "the best specimen may be found by you, your neighbor, or by the next guy tomorrow".

The minerals found at the Oceanview mine are relatively large crystals of rock crystal quartz, smoky quartz, garnets, mica, clevelandite, kunzite, aquamarine, morganite, purple lepidolite, and tourmaline.

The per-day fee for digging is \$60 for adults and \$50 for children, and it includes unlimited buckets of screening material. You must arrive at the mine by 10:30 a.m. and you will have a short time to look around until everyone gets there. There were about a dozen people the day we were there, and the mine can accommodate a few more. Digging for gems is an exciting activity for the entire family. There is a covered patio with benches where you can sit and have lunch or a drink or simply get out of the hot sun for a while.

The dig starts with a brief demonstration by Jeff. He has some definite dos and don'ts of screening, and he wants you to follow his advice for the best results. Jeff worked in the Stewart Lithia mine and other tourmaline mines and had a lot of experience before he purchased the Oceanview mine. Peter Renwick, another member of the mining team and the one who replied to our reservation, was present during the entire dig to help everyone. As Peter said, "It is a numbers game", so you have to screen as many buckets as you can, all the while trying not to miss some small crystals that may fall through the screen mesh. By the end of the day, around 3 p.m., you will have a hard time filling one more bucket and screening it! It is hard work under the hot sun. You shovel tailings into your bucket (filled buckets probably weigh over 20 pounds each),

carry it 40 to 50 feet to the screening area, run the material through two screens, and then start all over.

There are two sizes of mesh screens, and you place the one with the widest openings on top of the other, then shake the finer material onto the lower screen. With a small garden shovel, you rake through the material looking for any big crystals. Then you shake the screen well, allowing the dust and mud to fall off. Repeat these steps for both sizes of screen. Then you can dunk the finer-mesh screen into the tub of water that is fitted into the tables and wash the material. Next, you pull the screen out of the water and place it across the tub, allowing the fine stuff to drop into the tub, and then look for goodies. The last step is

CONTACT INFORMATION

Chief Pala mine
Dawson Minerals & Mining
Bob Dawson
(760) 742-1356

Oceanview Gem Mine, LLC
Jeff Swanger
(760) 415-9143
www.digforgems.com

Stewart Lithia mine/Gems of Pala
J. Blue Sheppard
(760) 742-1356



to scoop any muck out of the tub, mainly to keep the tub clean and hopefully to find some fine crystals that fell through.

My first bucket produced a fine small bi-color tourmaline and Andy's held a fine, small kunzite. As we went through several buckets, we yelled a couple of times, "Oh, look what I found!" and we thought that the day looked promising. Although we did find some small kunzite crystals and some large quartz crystals, we were not lucky enough to find any major tourmaline or kunzite specimens.

Around 2 p.m., just as we were getting really hot and tired, and in need of a break, Jeff took us on a surface tour of the mines on a four-wheel-drive open jeep, giving us a little more of the history of the mine and information about the current status of the operations. We passed by the Oceanview mine entrance and the access door to the Elizabeth R mine.

The average results may not be good enough to please the avid collector, but most participants there were thrilled to find quartz crystals and small kunzite crystals, that were the most common minerals. We may have had, according to Jeff, a "below-average day" specimen-wise, but according to us we had a "way above-average day" experience-wise. It

was a well worthwhile event, and if we lived closer to the mine, we could even get the fever and become "regulars"!

OTHER OPPORTUNITIES

Unfortunately, we did not know about the Himalaya tourmaline mine's fee-digging operation in advance of our trip. We picked up a flier while in the area, but we did not have time to visit, as the days of operation overlapped the symposium dates. According to the flier and their Web site, it is a fee-digging operation; however the dig is not held on the property of the Himalaya mine, but at the scenic Lake Henshaw Resort in Santa Ysabel, 20 miles east of Pala. They bring the gem-bearing dirt there and you dig and screen for tourmalines and other pegmatite minerals. For more information, visit www.highdesertgemsandminerals.com.

The Fallbrook Gem & Mineral Museum is sponsored by the Fallbrook Gem & Mineral Society, a nonprofit educational organization founded in 1957. Like any other gem and mineral society nationwide, they offer great member benefits, monthly meetings with speakers, field trips, auctions, and community events, but it's their fantastic little museum that puts them on the map. It is filled with great exhibits of minerals and fossils, an ultraviolet display of fluorescent minerals, and two cases devoted to the San Diego County minerals. Fabulous tourmalines, aquamarines and kunzites, just to name a few, fill those local cases. A small gift shop offers books, small minerals and fossils, and gemstone jewelry hand crafted by society members. All proceeds from the gift shop support the museum. It's a definite "must" stop on your travel itinerary!

The museum is located at 123 W. Alvarado St., #B, Fallbrook, CA 92028 and it is open Thursday, Friday and Saturday from 11 a.m. to 3 p.m. Admission is free, but donations are gratefully accepted. Visit www.FGMS.org or call (760) 728-1130 for more information.

Another great stop is the fine jewelry retail store The Collector, located at 912 S. Live Oak Park Rd., in Fallbrook, just a few miles away from the Fallbrook Gem & Mineral Museum. It is a beautifully decorated shop with high-end jewelry and minerals specimens from the area and around the world. Visit www.collectorfinejewelry.com for more information. 💎

Helen Serras-Herman is an acclaimed gem sculptor with over 28 years of experience in unique gem sculpture and jewelry art. She was inducted into the National Lapidary Hall of Fame in 2003.

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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 Muldowney 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-ij@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: vjfirst@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 \$4, ages 13-17 \$1, under 13 free with adult; demonstrators, displays, dealers, 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 Vandergrift, 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: vjfirst@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: drobertson@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@gmail.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—HUNTSVILLE, ALABAMA: 43rd annual show; Huntsville Gem & Mineral Society; Von Braun Center, 700 Monroe St., South Hall; Fri. 10-6, Sat. 10-6, Sun. 12-5; admission \$2, children under 5 free; contact Tony Smith, 3624 Grizzard Rd. NW, Huntsville, AL 35810, (256) 603-3095; e-mail: tsmith@erc-incorporated.com; Web site: www.huntsvillegms.org

14-16—MOUNT IDA, ARKANSAS: Show, "Quartz, Quartz and Craft 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, 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—WEST HILLS, CALIFORNIA: Annual show; Woodland Hills Rock Chippers; First United Methodist Church, 22700 Sherman Way; Sat. 10-5; free admission; gems, minerals, rocks, fossils, displays, dealers, silent auctions, demonstrations, hands-on activities; contact Mary Beth Pio, (818) 349-9163; e-mail: info@rockchippers.org; Web site: www.rockchippers.org

15-16—ANDERSON, CALIFORNIA: Annual show; Shasta Gem & Mineral Society, Shasta District Fair Grounds, 1890 Briggs St.; Sat. 9-5, Sun. 10-4; free admission; silent auction, door prizes, demonstrations, kids' activities, Geode cutting,

dealers, gems, fossils, beads, finished jewelry, equipment; contact: Sara Fenske, 2040 Gentry Way , Red Bluff, CA 96080, (530) 528-2651; e-mail: sarafenske@yahoo.com

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—CAYUCOS, CALIFORNIA: Annual show; San Luis Obispo Gem & Mineral Club, Cayucos Vets Hall, 10 Cayucos Dr.; Sat. 9-5, Sun. 9-5; free admission; lapidary materials, rocks, rough, jade, slabs, fossils, crystals, gemstones, beads, custom wire wrapping and jewelry, lapidary equipment, jewelry-making items, rock carvings, minerals, free raffle; contact: Mike Lyons, (805) 610-0757; e-mail: jadestar@charter.net

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—DAHLONEGA, GEORGIA: Retail show; Committee for the Restoration of the McDonald House; Historic Smith House on the Square, 84 S. Chestatee St.; Sat. 9-6, Sun. 9-5; free admission; cut stones, cabs, slabs, specimens, jewelry; contact Tommy Folger, PO Box 216, Dahlonega, GA 30533, (706) 973-0003; e-mail: tfolger@windstream.net; Web site: www.dahlonega.org

15-16—DES MOINES, IOWA: Annual show; Des Moines Lapidary Society; Paul R. Knapp Animal Learning Center, Iowa State Fairgrounds, E. University Ave. Gate; Sat. 10-5, Sun. 10-4; adults \$5, children 12 and under free; dealers, minerals, fossils, gems, crystals, beads, jewelry, books, tools, equipment, lapidary supplies, silent auction, demonstrations, displays, door prizes, children's activities; contact Steven Cunningham, 6752 SE 32nd Ave., Pleasant Hill, IA 50327, (515) 262-4578; e-mail: stevrv@mchsi.com; Web site: www.dmlapidary.org/cms/

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, 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: hellscanyongemclub.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

continued on page 46

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Tilt Limits for Windowing

Tips for Making Informed Decisions

Story by Jim Perkins, with Bruce Harding

I am often asked how to choose good angles for faceting. Some of the answers were published in 1975 in the article "Faceting Limits", by Bruce L. Harding (*Gems & Gemology* magazine, Fall 1975, GIA) and are now available online at www.gia.edu/research-resources/gems-gemology/issues/issues_1934-80/fall_1975.pdf.

One topic the article addresses is "windowing", which is when light passes directly through the gem without internal reflections, generally when the table is tilted from a "normal" (perpendicular) position to a line from the viewer's eye.

"Faceting Limits" provides charts for common materials (see Range of Reflections Through Table, related figures 7A and 7B on p. 82, and charts on p. 86). Each of these charts lists pavilion slopes across the bottom, and the maximum angle of tilt without windowing across the top. Since nothing else matters in the subject of windowing, these data can be listed simply, as in the chart below.

Note that quartz with 43° pavilion mains can be tilted up to 4.3° without resulting in windowing, but with 41° pavilion mains, it can only be tilted 1.2°. The following rules can be observed:

1. As the R.I. of the material increases, so does the maximum angle of tilt without windowing.

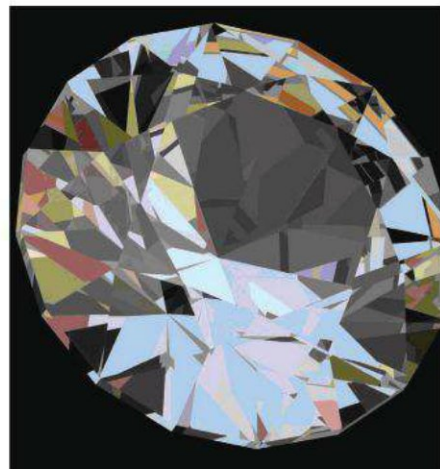
2. As the slope of the pavilion mains increases, so does the maximum angle of tilt.

Therefore, it is always preferable to cut a high pavilion main slope into material with a high R.I. Diamond can be tilted 43° with its typical pavilion main slope of 40.75° because of its high R.I.

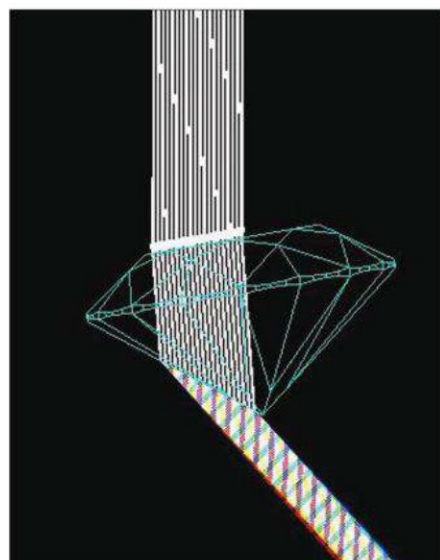
Although tilt limits for windowing are not dependent on crown main angle or table size, it is wise to use crown angles from the charts found in "Faceting Limits", which will work in conjunction with the pavilion angles we choose.

We must be prepared to make some compromises when choosing our main angles; while maximum tilt angle windowing can be achieved using angles in Zone A of "Faceting Limits", we could be limited by the physical restrictions of our rough or by color factors. Also, for material with an R.I. of 1.6-1.7, the preferred angles are in Zone B.

While "Faceting Limits" does help us make better informed decisions regarding facet angles, it is still up to the cutter to make choices based on each particular piece of rough. 💎



This is a view of a corundum with 38° pavilion mains and tilted about 10° using the pyramid environment provided in Facet Designer software and a black background. The black areas are "obstructions" of light by the viewer's head. The dark area in the far side of the table is the black background viewed through the pavilion; the faint pattern you see there is only secondary reflections of light from the crown via other facets.



This illustration is from DiamCalc software. It shows the path of light coming from the viewer's eye (above) and passing through the pavilion. Actually, light flows the other way; this light, if coming from below the gem, would be mostly reflected off the pavilion. Only a small percentage would pass into the gem and to the viewer's eye, so he would see almost nothing from this source. This principle is known as Fresnel's Law.

R.I.	1.55 Quartz	1.58 Beryl	1.62 Topaz Tourmaline	1.67 Peridot Spodumene	1.72 Spinel	1.76 Corundum (garnet)	1.85 Zircon YAG	2.42 Diamond
Pavilion main slope	Maximum tilt angle without windowing*							
43°	4.4°	5.9°	7.9°	10.4°	12.9°	14.9°	19.3°	50.5°
42°	2.8°	4.3°	6.3°	8.7°	11.1°	13.1°	17.4°	47.0°
41°	1.3°	2.7°	4.7°	7.1°	9.4°	11.3°	15.5°	43.7°
40°		1.1°	3.0°	5.4°	7.7°	9.5°	13.6°	40.6°
39°			1.4°	3.7°	5.9°	7.7°	11.7°	37.6°
38°				2.0°	4.2°	5.9°	9.8°	34.7°
37°				0.4°	2.5°	4.2°	7.9°	31.8°
36°		below critical angle			0.8°	2.4°	6.1°	29.1°
35°						0.7°	4.2°	26.4°

*Some of these values differ slightly from those published in 1975.

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Meteorites & Tektites

Some people call it a shooting star, but that streak of light in the sky is actually a **meteor**. Meteors are space rocks that enter the Earth's atmosphere and begin to vaporize. Most of the meteors we see are tiny particles that completely burn up from friction. If they're large enough to pass through our atmosphere and land on earth, they're called **meteorites**.

The study of meteorites has advanced greatly over the years, and there's a large classification system that can be confusing. For a beginner, it's enough to know the three traditional categories of meteorites: irons (90% nickel-iron), stony-irons (50% nickel-iron), and stones (23% nickel-iron). One theory holds that some planets broke up as our solar system formed, and that iron meteorites may represent their cores, stony-irons their mantles, and stony meteorites their crusts.

A few rare meteorites represent pieces of our nearest neighbors. The planets, moons and asteroids closest to our sun have distinct chemical "signatures". Scientists use those signatures to determine the origin of some meteorites, and have discovered pieces of rock that have been blasted from the surfaces of the moon, Mars, and the asteroid Vesta.



Meteorite fragment

Tektite

A huge meteorite that passes through the atmosphere, traveling at 7 to 42 miles per second, and hits the earth leaves an impression called a **crater**. Meteor Crater, in Winslow, Arizona, is one of the most famous impact craters in the world and is thought to be 30,000 years old. It was created by the Canyon Diablo meteorite, which blew to pieces upon impact. Hundreds of pieces of this iron-type meteorite have been collected in the area surrounding the crater.

If you begin to collect meteorites, you'll probably hear of **tektites**. Tektites are glassy rocks formed by meteorite impacts. The heat and pressure produced by a large impact is enough to melt rocks in the earth's crust and fling them toward space. Upon falling back to earth, they cool into glassy rocks that are often pitted and rounded from hurling through the air.

Meteorites are rarely found, though collectors remain hopeful. One meteorite researcher has been contacted by 2,100 people who thought they had found meteorites, but only seven had truly found one. Your best bet for adding one to your collection is to go hunting among reputable dealers at a gem show.

—Jim Brace-Thompson

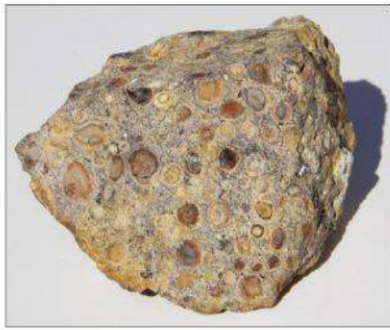
THE QUIZ

The Quiz is open to U.S. residents 17 and younger. Mail your answers to **October Quiz, Rock & Gem magazine, P.O. Box 6925, Ventura, CA 93006-9899**. Five winners will be drawn from the valid entries received by **Oct. 31, 2011**. Valid entries must include the correct answers, the entrant's name, age and address, and the signature of a parent or guardian. Winners will receive a surprise gift.



1. The three traditional categories of meteorites are based on ____ content.
2. Chemical ____ help scientists determine the origin of some meteorites.
3. Arkansas diamonds occur in a ____ ____ .
4. Bauxite is an ore of ____ .
5. Amethyst, milky and rose are all types of ____ .

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



Bauxite



Rock crystal quartz

Arkansas' State Rockhound Symbols

Arkansas has three state rockhound symbols, all of which were designated in 1967, and each of which is more valuable than the next. **Diamond** is the state gem. Diamonds are rare in most of the United States, but Arkansas is an exception. The discovery of diamonds near Murfreesboro led to commercial mining efforts, which failed. Success came when the area was made a tourist attraction. In 1972, the property became Crater of Diamonds State Park. It has attracted 2.5 million visitors who have registered 25,000 diamond finds. The "crater" in which the diamonds occur is a volcanic pipe. Its eroded surface is plowed to reveal the diamonds. Those gems are elusive, so most visitors hunt the gift shop, too!

Arkansas' state rock is **bauxite**. A mix of hydrated aluminum oxides and other minerals, bauxite is the primary ore of aluminum, which is used in cans, foil, siding, and other products. Bauxite consists of a matrix mottled with pisolitic (pea-shaped) concretions. It developed when Paleocene-age syenite minerals (feldspar and nepheline) weathered into aluminum-rich soil in a tropical climate. Further weathering washed away the silica and concentrated the aluminum oxides and hydroxides in the soil.

The Arkansas bauxite region, which was discovered in 1887, is extensive. Mining began in 1895 and intensified during World War II to produce aluminum for aircraft when foreign supplies were cut off by German submarines. Bauxite became an economic mainstay for Arkansas, furnishing 98% of America's supply, but companies ceased mining by 1991. Most bauxite now comes from overseas.

Arkansas is famous for its state mineral, brilliantly clear rock crystal **quartz**, which tumbles in abundance out of the red clay of the Ouachita Mountains. Arkansas quartz has been used for radio oscillators, periscopes, and gun sights. It is now used in computers and satellites and to seed the growth of synthetic crystals. Mostly, though, is sold as mineral specimens and gemstones. Dealers near Mount Ida let you dig your own crystals in open-pit fee mines, and an annual quartz-digging contest is held, with prizes for largest crystal, best cluster, most crystals, and more.

—Jim Brace-Thompson

Which Mineral Does Not Belong?

Below are 10 groups of four minerals. Three of the minerals in each group belong together for some reason or another. One does not belong! Circle the one that does not belong. And then, if you're a real mineral-collecting smarty pants, write down *why* that one doesn't belong. You can check your answers on the *Rock & Gem* Web site beginning November 1. Good luck!

—Darryl Powell

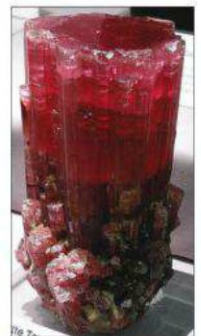
- | | | | |
|--------------|-----------|-----------|------------|
| 1. Amethyst | Milky | Elbaite | Rose |
| 2. Pyrite | Quartz | Galena | Gold |
| 3. Copper | Silver | Gold | Muscovite |
| 4. Biotite | Feldspar | Muscovite | Lepidolite |
| 5. Emerald | Heliodor | Ruby | Aquamarine |
| 6. Azurite | Malachite | Cuprite | Galena |
| 7. Fluorite | Sulfur | Diamond | Mercury |
| 8. Grossular | Jasper | Pyrope | Almandine |
| 9. Galena | Pyrite | Fluorite | Calcite |
| 10. Corundum | Talc | Gypsum | Calcite |



Azurite



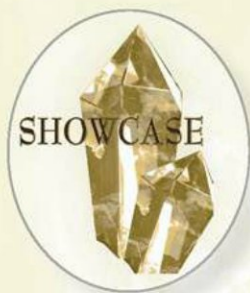
Amethyst quartz



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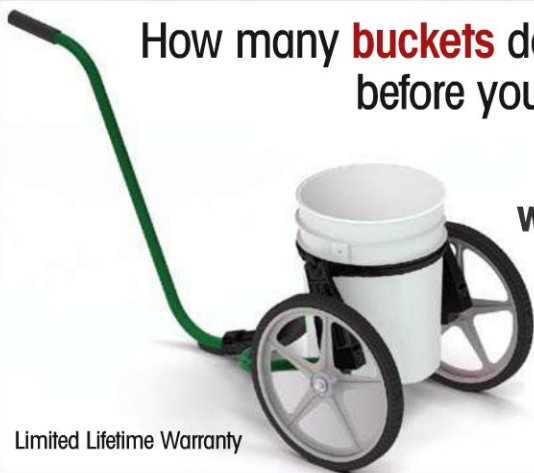
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October 15 & 16 Placerville, CA; El Dorado County Mineral & Gem Society's 28th Annual Gem Show; El Dorado County Fairgrounds 100 Placerville Drive; Both Sat. & Sun. 10am - 5pm

November 5 & 6 San Diego, CA; Gem Diego Show; Al Bahr Shrine Center; 5440 Kearny Mesa Road; Sat. 9:30am - 5pm and Sun. 10am - 4pm

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The POWER of TURQUOISE



It Plays a Significant Role in Human History

Story and Photos by Bob Jones

Of the several thousand known minerals, none has played a more important role in human civilization than turquoise. This blue non-crystalline gem, as a decorative, votive and amulet stone, has been an integral part of early civilizations and even today plays a significant role in jewelry and fashion. The early cultures of Egypt, China, Mongolia, Babylonia, and other Near East countries all used turquoise in some formal way. Mesoamericans and, of course, the natives of the American Southwest developed an entire religious and mystical culture around this lovely gem.

Turquoise has been regularly used as a royal gem. It has been an important unit of trade and played a role in the broad commercial trade routes that encouraged the exchange of ideas and cultures. Its value and instrumental use in much of the lore and religion of every early civilization is unrivaled. No other gem has been credited with so much power and had such an impact on the lives of those who wear it.

No one can give an exact date when turquoise was first collected and used, but it may even have predated the initial gathering of gold. Like gold, its native color may well have attracted some hunter-gatherer to pick it up. The use of turquoise as beads dated back tens of thousands of years; as a colorful and relatively easily worked gem, turquoise was ideal for early lapidaries. We do



Turquoise has long been popular for making useful items that also ring good luck to the owner. This turquoise snuff bottle also has a very nice contrasting iron oxide matrix.

know it was in use during the early evolution of the Egyptian civilization. It most likely preceded that time because the Egyptians must have obtained turquoise early on from wandering nomads who came in from the Sinai Desert, where they picked up loose stones. How else could the Egyptians have known of the desert deposits far to the east? Archaeological evidence shows the



Jane Popovich, a Navajo princess and silversmith, wears traditional turquoise and silver jewelry she made.



The center turquoise nugget is from the ancient source in Persia. It is bracketed by two Chinese turquoise nuggets, which show some manganese oxide matrix.

Egyptians were among the first to actually formally mine turquoise. The mines were located on the Sinai Peninsula at Wadi Maghara and Serabit el-Khadim.

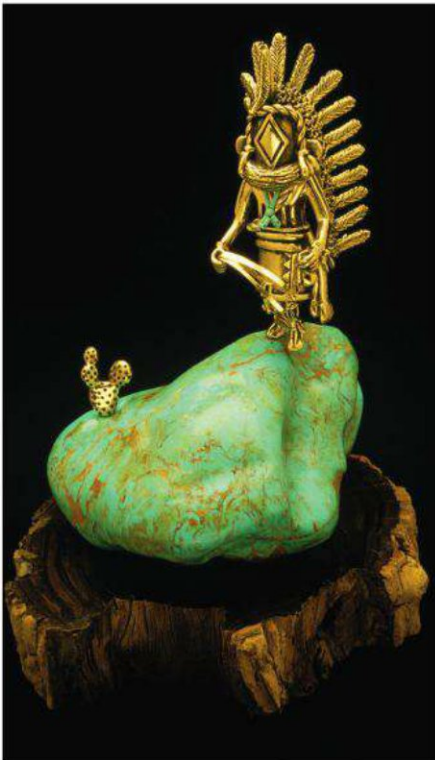
We have the same problem with dating turquoise mining and use in China, where turquoise has also been revered for thousands of years. As the Chinese mined copper for their early bronze work, dating back thousands of years, they must certainly have come across turquoise, which is most often found in or near copper deposits. It would not surprise me if turquoise was actually found first, leading Chinese miners to discover nearby copper deposits!

The Chinese also prized turquoise for its hidden powers. It was often carved into mystical figures like goddesses and buddhas. It never achieved the status of jade in China, but it was certainly eagerly sought and used.

The lore and power of turquoise is found throughout any history of the use of gems in early cultures. In many cultures, it was thought to guard against evil. Some attributed turquoise with the power to help avoid falls and injuries. It was always considered a lucky stone that could guard against evil, snake bites, and some diseases, while acting as a lucky charm and bringing good fortune to anyone who wore it. In China, turquoise

was considered an important talisman because legend credits the blue stone with helping Buddha defeat evil!

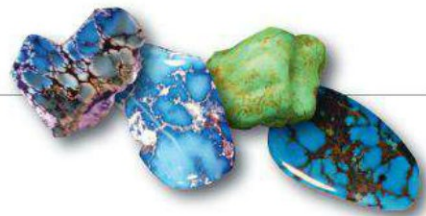
There are four major historic turquoise sources. Already mentioned are Egypt and China. We all know how important the Southwestern United States deposits have been in providing turquoise for centuries. Persia, now known as Iran, is a fourth major classic source and is usually considered to have been the source of the best turquoise. The fine sky-blue color and hardness of Iran's turquoise serve as the standard against which all other turquoise is compared. Today, more recently discovered sources are recognized as contributing to the world's



This Hopi Kachina, cast in 14k gold by artist Carol Sues, is mounted on a large stabilized turquoise nugget.



This French crown, which now resides in the Smithsonian, once had emeralds in it, but it now features cabochons of natural Persian turquoise.



supply. As older sources are mined out, recently worked sources become more important. Well-known historical sources do continue to produce in many cases, but their contribution is often minimal, mainly because of a depleted supply due to prolonged mining.

Some fine turquoise has recently been coming from Uzbekistan, though only in limited amounts. Armenia is another recent source that has been reported as having some potential if developed vigorously. The most productive source these days seems to be the Hubei and Shanxi provinces in China. In fact, the Yongxian area of Hubei Province has been heavily worked and has become a major source. This area is recognized by some as the largest deposit in the world with great potential.

I've had an opportunity to examine and work with turquoise from China. It generally has a pale to good blue color, is somewhat soft, and is easily worked. In most cases, the turquoise masses, which can exceed 6 inches across, have a minor amount of matrix included. The included matrix is a relatively soft black manganese oxide, which makes a very nice contrast to the blue turquoise. Because this matrix is slightly softer than the turquoise, it does present a minor problem of undercutting. Care must be taken to avoid undercutting. Chinese turquoise is often porous enough to be impregnated with a stabilizing resin or epoxy, though the better grades of Hubei turquoise I've worked are natural.

There is abundant evidence in the form of carvings and votive objects that turquoise has long been afforded special status by humans. Tens of thousands of turquoise beads, carvings and objects have been found in countless tombs in a host of early human sites. In New Mexico, for example, some 25,000 small beads and other turquoise objects were found in burial sites. It was obvious some of the tombs discovered held the remains of royalty, leaders of society, or major religious figures in the culture. Such turquoise finds are a valuable clue to the culture these early peoples developed.

Since the beginning of human ornamentation, turquoise has been an important part of our décor. It was also worn as a talisman to protect the wearer. Even in modern times, some believe in the power of turquoise. Clothing designers have also used the color of turquoise in their fabrics and used turquoise nugget beads, bracelets, and belt ornaments to complement their designs.

In this country, the use of turquoise by Southwest Native Americans is well estab-



A Chinese artist carved this votive turquoise work featuring the Goddess of Life nestled under a tree.



Bisbee was well known as a source of natural turquoise with contrasting iron oxide veining matrix.

lished. People have recognized the artistic beauty of Native American turquoise-and-silver jewelry designs. In recent decades, the blue gem has emerged from its regional popularity to become the darling of the jewelry and gem investment community. The latter part of the 20th century saw a huge spurt in interest and value in turquoise as a jewelry gem. This had a huge impact

on the Native American jewelry market. Everyone wanted a good squash blossom necklace, a fine silver-and-turquoise ring, or a fancy belt buckle. Old pawn that had sat on the shelves of trading posts and shops for months or even years was suddenly worth a lot more money. This had a very positive effect on the finances of Southwest Indians. Their handcrafted work was eagerly sought. On a negative note, this new interest in turquoise also generated a vast network of fakery and imitation of Native American turquoise styles.

Native Americans used turquoise for centuries before the arrival of Europeans. The stones were drilled, hand polished, and sometimes rubbed with bear fat to improve their luster. Then they were strung together to form necklaces and other types of adornment. Only after the Spanish arrived did Southwest Indians begin using silver in their work. Silver metal was scarce, but coins were available, so the Native Americans initially hammered and shaped silver coins. Some of the more valuable old pawn jewelry today has turquoise mounted in old, hammered Spanish and Mexican coins.

As the value of Southwest Indian jewelry rose, old-timers on the reservations, who had been making fine jewelry for decades, began teaching youngsters the fine art of silversmithing and cabochon cutting. These youngsters, realizing they could make a living with jewelry art, infused more modern designs into the native turquoise culture. Western towns like Santa Fe and Gallup, New Mexico, and Scottsdale, Arizona, saw exponential growth in the Indian jewelry market like never before. The demand for Indian-crafted jewelry rose so dramatically that roadside stands on highways running through the reservations blossomed.

The natural result of this demand for Native American turquoise and silver jewelry was for hundreds of non-Indian silversmiths to begin producing "Indian" jewelry. A small group of unscrupulous dealers profited by marketing non-native work to tourists as authentic. I can recall visiting a well-known shop in the Scottsdale area, where I live. A customer was fawning over a finely crafted Navajo-style turquoise-and-silver pendant. The shop owner, a good friend of mine, was assuring the buyer that this piece had been made on the reservation, where he had bought it directly from a Native American artist. The problem was, I knew the fellow who had actually made the piece. He was an Anglo and he was sitting at his workbench in the back room of that same shop, making yet another "authentic" pendant.



Jesse Monongye is one of the younger Navajo silversmiths who incorporate other gem materials into traditional Navajo turquoise-and-silver jewelry designs.

When investors got into the gem market, the price of good turquoise rose quite dramatically. As the value of turquoise went up, non-turquoise gems that closely resembled turquoise, including blue-dyed howlite and plastic, were introduced into the market as natural material. Gradually, because of fraud, misleading sales techniques, and a flooded market, the use and buying of turquoise tapered off into a near collapse of the turquoise market.

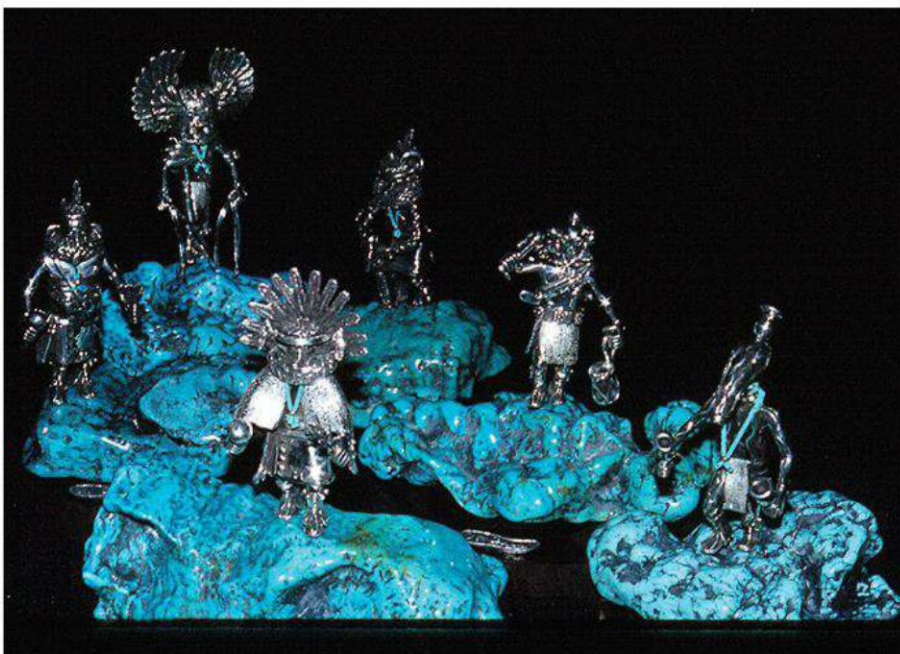
Today, turquoise once again plays a very important part in the bead and jewelry industry. What is significant about the current popularity of turquoise is its use as natural chunks and nuggets strung for a necklace or set in silver rather than beads,

cabochons, or other worked forms. I suspect this is a reflection of the overall trend toward fashion designs in natural colors and forms.

Turquoise is making a comeback! Its lovely color and natural form have great appeal, and it has once again taken its place in the forefront of the jewelry scene. This may well be because turquoise nuggets are not easily replicated using another mineral or plastic. It seems obvious to me that natural turquoise nuggets are very popular simply because they *are* natural—not cut, shaped and polished—since lapidary processes can be used to mask non-turquoise stones, which are then sold as the real thing.

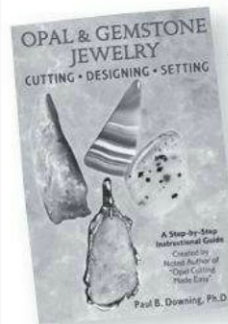
Another wonderful aspect of today's turquoise market is the arrival of a new breed of young Native Americans who still use the traditional native designs, but have added creatively sculpted designs that are works of art! They still use silver, but gold and even stainless steel are also being employed. Young artists also incorporate other gem materials, including opal, lapis, coral and shell, which lend themselves to more colorful and complex designs, which appeal to the modern buyer.

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Silversmith Carol Sues cast these kachinas out of pure silver using the lost wax method and mounted them on stabilized Kingman, Arizona, turquoise.

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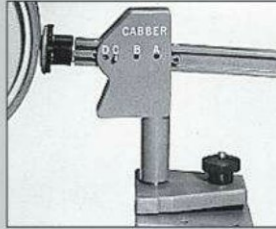
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Show Dates from page 35

OCTOBER 2011

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—SANTA ROSA, CALIFORNIA: 35th annual show; Santa Rosa Mineral & Gem Society; Sonoma County Veterans Memorial Bldg., 1351 Maple Ave.; Sat. 10-6, Sun. 10-5; admission \$6, \$1-off coupon on Web site; contact Debbie Granat, (707) 542-1651; Web site: www.srmgs.org

15-16—SEDONA, ARIZONA: Annual show; Sedona Gem & Mineral Club, Sedona Red Rock High School, 995 Upper Red Rock Loop Rd.; Sat. 10-5, Sun. 10-4; free admission; more than 40 dealers, Kids' Corner, guest speakers, slide show presentations, hourly raffles, grand prize; contact: Gayle Macklin, PO Box 21222, Sedona, AZ 86341, (520) 921-0100; e-mail: gayleis@gmail.com; Web site: www.sedona.gemandmineral.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—SPRINGFIELD, MISSOURI: Annual show; Ozark Mountain Gem & Mineral Society, Expo Center, 625 E. St. Louis St.; Sat. 9:30-5, Sun. 10-5; adults \$3.50, children (under 12) 50 cents; rocks, minerals, fossils, specimens, cabochons, stones, jewelry, beads, door prizes, grab bags, demonstrations, exhibits; contact: Eddie Maples, 2621 W. Wild West Rd., Nixa, MO 65714, (417) 725-3001; e-mail: OMGandMS@gmail.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: showchariman@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

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21-23—MASON, MICHIGAN: Annual show; Central Michigan Lapidary & Mineral Society; Ingham County Fairgrounds Main Arena, 700 E. Ash St.; Fri. 6-9, Sat. 10-7, Sun. 11-5; adults \$3, students \$1, children free; Petoskey stone polishing, fluorescent booth, Touch and Feel table, demonstrations, door prizes; contact Roger Laylin, (517) 349-3249; e-mail: show@michrocks.org; Web site: www.michrocks.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, 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

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—CUYAHOGA FALLS, OHIO: Show and sale; Akron Mineral Society, Summit Lapidary Club; Emidio & Sons Expo Center, [Gemboree] 48 E. Bath Rd.; Sat. 10-6, Sun. 10-6; adults \$5, seniors and students \$4, children \$1; dealers, door prizes, silent auction, lapidary demonstrations, gem mine, children's activities; contact Evelyn Tryon, 2028 Tallmadge Rd., Kent, OH 44240, (330) 673-9664; e-mail: gemboree76@yahoo.com; Web site: www.lapidaryclubofohio.org

22-23—DENISON, TEXAS: Annual show; Texoma Rockhounds; Senior Center (Snap Center), 531 W. Chestnut; Sat. 9-5, Sun. 10-4; free admission; contact Rosemary Siems, 91 Country Hill Circle, Sherman, TX 75090, (903) 647-5590; e-mail: ramblingrosetoo@yahoo.com

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: gerewb@gmail.com; Web site: www.lakecountygemshow.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

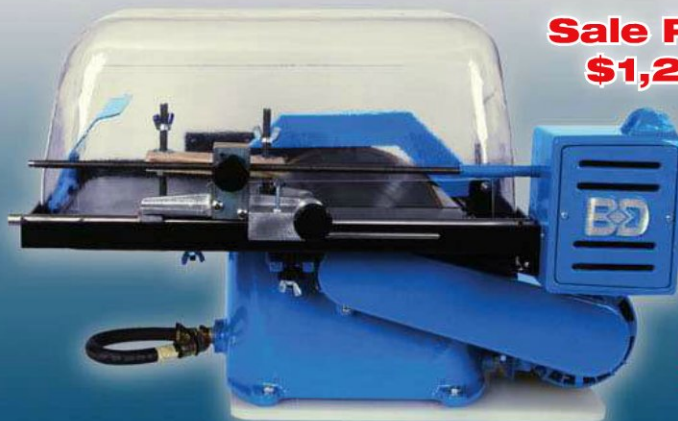
22-23—ST. ALBERT, ALBERTA, CANADA: Show and sale; Edmonton Tumblewood Lapidary Club; St. Albert Senior Citizens' Center Gym, 7 Tache St.; Sat. 11-6, Sun. 12-5; adults \$4, students (13-18) with ID \$3, children 12 and under accompanied by an adult free; dealers, rocks, fossils, jewelry, gems, crystals, lapidary demonstrations, faceting, gemstone beading, wire wrapping, chain mail, displays, educational activities, hourly door prizes; contact Pauline Zeschuk, (780) 430-6694; e-mail: paulinez8@shaw.ca; Web site: http://rme.tcor.ca/cms/tumblewood

continued on page 52



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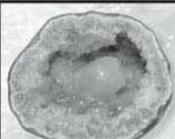
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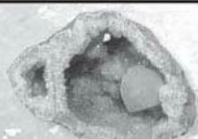
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Lyda K Mine

Feldspar and Fluorite

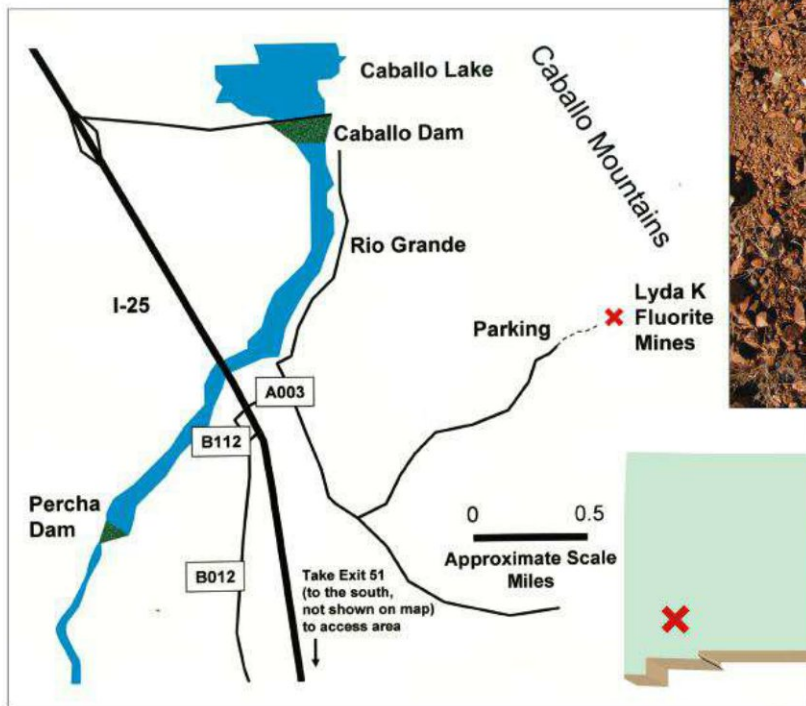
Pegmatites and Fluorite Veins
in Southwest New Mexico

Story and Photos by Robert Beard



Bright-orange feldspar is a common find at the Lyda K mine workings in southwest New Mexico.

Fluorite mining districts are almost always good places for collecting minerals. One of the best characteristics of fluorite, especially when you are collecting with kids, is that it is usually colorful and often forms interesting cubes and distinct angular patterns on freshly broken surfaces. Most fluorite districts, at least in the United States, also ceased to be economic to mine many decades ago, so many areas with fluorite mineralization are no longer actively mined.



Cleavage planes of the feldspar are distinct and easily visible on fresh surfaces of the rocks at the Lyda K mine.

Rock & Gem gives locality information for reference purposes only. Readers should never attempt to visit any of the sites described in this publication without first verifying that the location is open to collecting and obtaining the permission of the land and/or mineral rights holders.

New Mexico is an excellent state for fluorite collecting, as the geology has produced many areas with fluorite minerals. Fluorite is found in nearly all the mountain ranges in the state, and you can generally locate a fluorite mine to visit within a few hours drive anywhere in New Mexico.

In December 2009, I had the opportunity to do some additional prospecting for fluorite sites in southwestern New Mexico. I often refer to "Fluorspar in New Mexico", by William N. McAnulty, which is Memoir 34 of the New Mexico Bureau of Mines and Mineral Resources. This was published in 1978 and remains an excellent resource for locating fluorite prospects in New Mexico. It can be purchased through the New Mexico Bureau of Mines and Geology at <http://geoinfo.nmt.edu/publications/home.html>.

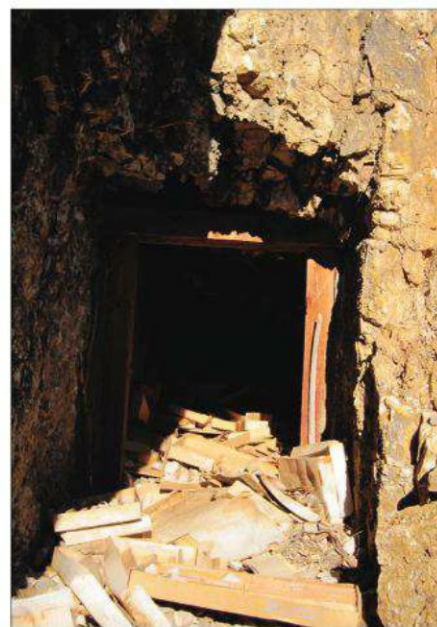
One of the deposits I had always wanted to visit was the Lyda K mine, which is located just southeast of the Caballo Reservoir. Its fluorite mineralization was described in "Fluorspar in New Mexico" as occurring in fissure veins in Precambrian granite. This was different than some of the other fluorite deposits I have seen in southwestern New Mexico; most of the fluorite in this region occurs as vein deposits in Tertiary volcanic rocks or replacement deposits in Paleozoic sediments.

The Lyda K mine is located in Section 29, Township 16 South, Range 4 West, in Sierra County. The original block of claims extended into surrounding sections as well. The Lyda K claim blocks totaled 47 claims, of which seven were patented. Patented claims are lands for which the federal government has passed on the title to the land to the mineral claimant, making it private land. This was very common many de-

acades ago, but a moratorium was placed on patenting mining claims by the federal government in 1995. You always need to be aware that some mining districts, even though they are within BLM or U.S. Forest Service lands, may contain patented mining claims. However, despite the presence of patented claims, the district was surrounded by U.S. Bureau of Land Management (BLM) ground, and appeared to at least be accessible for visiting.

Fluorite is an important industrial mineral. When it is mined or produced for industry, it is generally referred to as fluorspar. Nearly all fluorspar used in industry today comes from international sources. Information on the use of fluorite and countries that supply fluorspar, as well as information on other minerals, is available from the U.S. Geological Survey at <http://minerals.usgs.gov/minerals/pubs/mcs/2011/mcs2011.pdf>. According to the USGS, during 2006-09, the principal countries that imported fluorspar to the United States were Mexico (47%), China (40%), South Africa (9%), and Mongolia (7%).

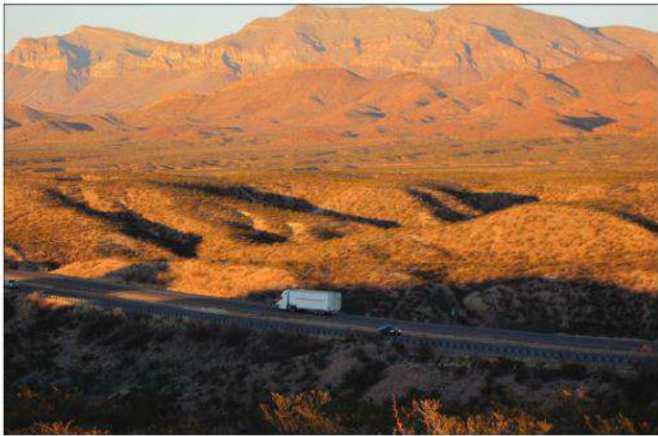
China, however, has recently started consuming much of its own production, and this has resulted in a reduction of the availability of Chinese fluorspar for the U.S. market. This change in market dynamics resulted in some new deposits becoming economically viable. A new domestic mine in western Kentucky, operated by the Hastie Mining and Trucking Co. of Cave-in-Rock, Illinois, was expected to begin production in 2010, while Canada Fluorspar Inc. is developing a new large fluorspar mine in St. Lawrence, Newfoundland, and is reactivating underground fluorspar mines, expanding a mill, and building a new deep-water marine terminal in the



Rock cores that have been stored in an old mine adit date back to 1973.

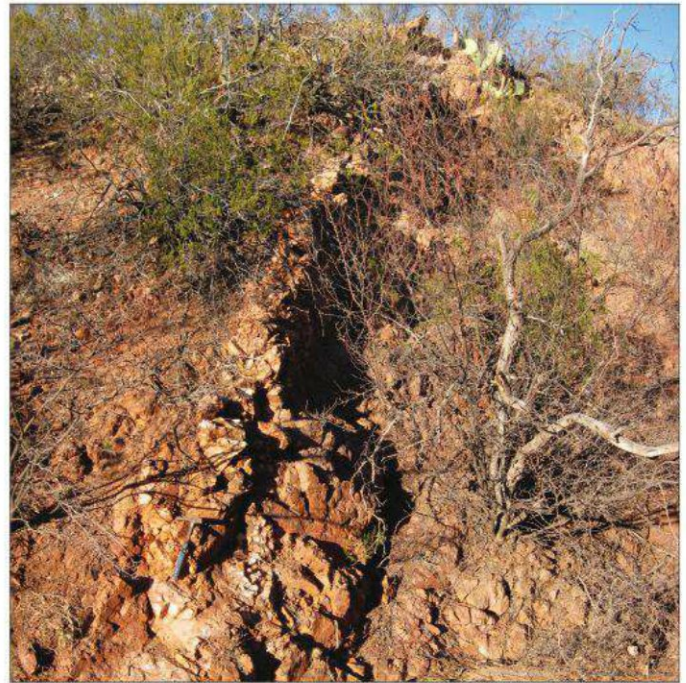
outer St. Lawrence Harbor for the export of fluorspar concentrates.

Approximately 5.5 million tons of fluorspar, with an estimated value of \$1.6 billion, is currently consumed each year by industry. Fluorspar is mainly used in the production of hydrofluoric acid (HF), most of which is produced in Louisiana and Texas. HF is the principal feedstock for the manufacture of virtually all organic and inorganic fluorine-containing compounds, including fluoropolymers and fluorocarbons. These compounds are used in anesthetics, non-stick coatings, and fire retardant clothing. Other uses of fluorspar are as a flux in steelmaking, iron and steel casting, primary



ABOVE: The Lyda K mine is just east of I-25 in the foothills of the Caballo Mountains.

RIGHT: This pegmatite dike, located in an arroyo near the Lyda K mine, contains excellent, large pieces of orange feldspar.



aluminum production, glass manufacturing, enamels, welding rod coatings, and cement manufacturing. Fluorspar and HF are key components in the manufacture of many common products.

The New Mexico fluorspar industry started in the early 20th century and was most active during the war years, when demand for fluorspar and other raw materials spiked with demand. After World War II, however, foreign sources of fluorspar soon became abundant, and the New Mexico deposits were no longer economic to mine. Companies have periodically explored the various fluorspar districts in New Mexico as the demand for fluorspar has increased, but they have all lost interest once the market for fluorspar began another downward spiral.

Today, the biggest barriers to developing the fluorspar industry in New Mexico remain the distance to the end users and the environmental hurdles to developing a new mine. While it appears unlikely, the economics of the mining industry will have the final say in whether any new fluorspar mines will be developed in New Mexico. But given the new production that is being developed in Kentucky and Canada, I would not rule out anything at this point.

I was able to schedule a trip to visit the Lyda K mine on Dec. 29, 2009, and I took my two teenage kids and their two teenage cousins. I had a four-wheel-drive SUV, so we had plenty of room. The Lyda K mine seemed easy to get to, as it was just southeast of Caballo Dam, but it was on the east side of the Rio Grande. We initially drove to the dam on Interstate 25, and I was hoping to find a way to cross the river, but there was none. I soon realized that our best option was to head south and take the first

exit south of Caballo Dam, which is Exit 51, and work our way north on the west side of I-25 to cross under the highway. We eventually came to a dirt road that went under I-25, and we followed this to the reported area of the Lyda K mine.

The road was reasonably good, and we soon came to a parking area at the foothills of the Caballo Mountains, where there were concrete foundations and other indications of mining in the area. We secured the vehicle and began walking up the hills looking for mine dumps. It was not long before we saw a large tailings dump, and I knew we were in the right place.

I thought it would be a cinch to find large pieces of colorful fluorspar immediately, but I was wrong. Much of the rock on the dumps was orange granite, and relatively few pieces of fluorite were apparent. However, the granite was quite unusual, as it had a very high percentage of coarse, bright-orange potassium feldspar, and the cleavages reflected the sun strongly.

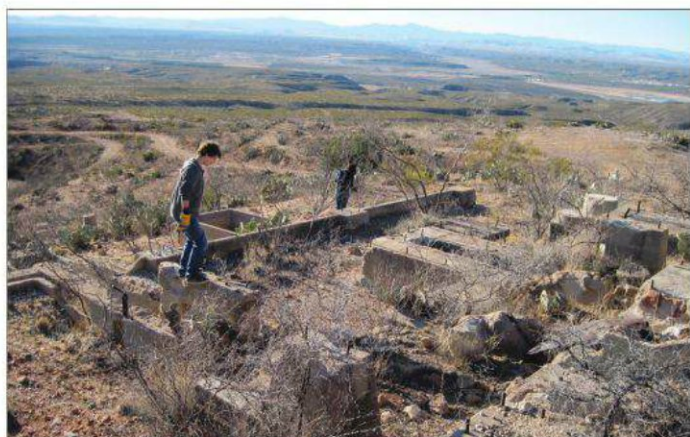
I soon found some pieces of fluorite around the surface of the mines and on the dumps. It was generally very light blue, and it was massive fluorite from vein mineralization. I did not find any pieces with cubes or vugs, but when I broke open a mineralized piece it would generally show a good cleavage pattern. It was very different from many of the other fluorite deposits I have seen in southwestern New Mexico, as most of the deposits in this region are generally associated with volcanic rocks, and the host rocks are generally highly altered by hydrothermal fluids and not worth collecting. At the Lyda K, the feldspar in the host rocks was actually as interesting as the fluorite. A small amount of galena was also present in the mineral-

ized rocks, indicating that this district also had some lead mineralization.

"Fluorspar in New Mexico" has an excellent description of the Lyda K mine, and the pictures of the former headframe and foundations can be matched to the current conditions. The original claims, the Lyda K No. 1 and No. 2, were located in 1926, and the mill was built in 1927. The mines produced 1,000 tons of fluorspar in 1928. The Great Depression soon followed, and apparently the district was then inactive for several years. In 1938, a subsidiary of DuPont acquired the claims and shipped 457 tons of fluorspar concentrates. In 1943, 1,200 tons of fluorspar ore were mined, and this was undoubtedly related to the war effort. In the late 1950s, Allied Chemical Corp. bought the Lyda K from DuPont, but apparently did not do much until the early 1970s. In 1972, Allied Chemical began an extensive exploration program that included core drilling, locating additional claims, constructing a new headframe, and bulk sampling. Despite these efforts, the Lyda K never proved economic. The steel and salvageable equipment have long been removed, but the concrete foundations and mining scars remain.

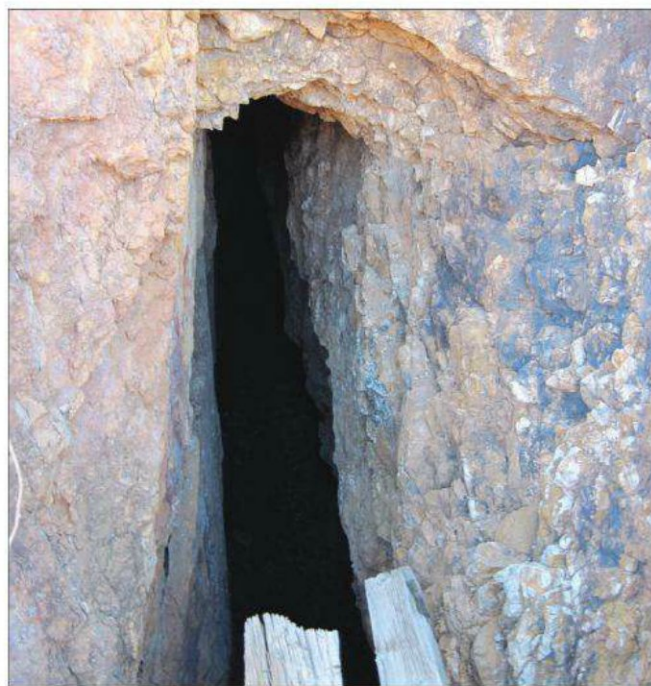
A small geologic map, which is labeled Figure 16 in "Fluorspar in New Mexico", is useful as a guide to the site. The Lyda K vein lies along the Lyda K fault, which strikes N 48° E with a dip that varies from 70° to 85° NW. The Lyda K No. 1, No. 2, and No. 3 shafts are along the vein. Chlorite schist, pegmatites, and an outcrop of milky quartz are also shown on the map, along with the approximate boundaries of the extent of Precambrian granite in the area.

We walked around the foundations and the mine dumps, and came across a par-



ABOVE: The concrete foundations are all that remain of the Lyda K headframe.

RIGHT: The mined-out sections of the fluorite veins make steep and dangerous openings around the Lyda K.



tially caved-in mine adit that was full of core boxes. Whenever I find cores, I always look for a date, and one of the boxes was dated June 5, 1973, which is consistent with the reported date of the exploration program that was started by Allied in 1972. The boxes were cardboard, and many of them were unlabeled and partially empty. They were quite disheveled and had not been properly stored. Obviously, they were not important enough to keep for further analysis.

I found the feldspar much more interesting than the fluorite. The feldspar was easy to break into pieces that showed their cleavage, and some of it was deep orange. The fluorite was generally massive and, as I mentioned, did not contain cubes.

On the way out, I encountered a pegmatite in an arroyo that had some very coarse feldspar, muscovite and quartz. Similar pegmatites are common in the Lyda K area, and many of them are very well exposed in the arroyos, as they tend to be slightly more resistant to erosion than the surrounding host rocks.

The following are coordinates collected in the field and using aerial photographs from Google Earth (www.google.com). All coordinates are referenced using the North American 83 and World Geodetic System 84 (NAD83/WGS84) datum, and are in the degree-minutes-seconds format:

Parking Area: 32° 52' 56.23"N, 107° 16' 21.91"W (estimated from Google Earth)

Blue fluorite and galena: 32° 53' 06.1"N, 107° 16' 15.4"W (collected in field)

Pegmatite in arroyo: 32° 53' 01.7"N, 107° 16' 15.4"W (collected in field)

I later checked for active mining claims using the BLM's GeoCommunicator (www.geocommunicator.gov). Unfortu-

nately, information on unpatented mining claims has been removed from the GeoCommunicator as of May 23, 2011, due to concerns about data quality. Even if some of the information was not perfect, the GeoCommunicator was an excellent screening tool for identifying mining claims, so it is a shame that the information has been removed.

However, the GeoCommunicator does show information about the land status. Much of the surrounding area is shown as managed by the U.S. Bureau of Land Management, but the main part of the district is shown as private land. This area of private land covers nearly all of the Lyda K mine area. Figure 15 in "Fluorspar in New Mexico" also contains a map of the claims around the Lyda K, and this figure showed that there were 47 claims, at least during the time of publication in 1978. Although the text of this report says that seven claims were patented, this figure only shows five of these patented claims, and these covered the main sections of the Lyda K workings.

At the time my teenagers and I made our visit to the Lyda K, there were no indications on the surface that the area was private ground, and there were not any "No Trespassing" signs, locked gates, or other indications that access was restricted. We also did not see any indications of active unpatented mining claims in the area surrounding the mine sites, so there were no signs of new claim activity. However, if you decide to visit the Lyda K, you must be aware that the mine lands are patented claims and that access to the area may change at any time, and that, as always, any collecting in the area will be done at your own risk.

Due to the complexity of finding the site, I recommend using Mapquest.com or an equivalent mapping service to help you identify the easiest route, and I highly recommend printing out the maps if you do not have a GPS unit that will show you the roads.

To get to the district, take I-25 to Exit 51, near Derry, New Mexico, and take state Route 546, also known as Two Counties Road, west to state Route 187. Drive north on 187 to County Road B012. This road may not be labeled on the street sign, as many of the smaller county roads are not well marked. Continue on B012 for approximately six miles. At this point, the road becomes County Road B112 and crosses under I-25. On the other side, it is labeled County Road A003 on Mapquest. Take the first right, continue approximately 0.5 mile to where the road splits, and take the fork to the left. Follow this road approximately one mile to the parking area from which you access the Lyda K mine site.

In the event that there are problems with the southern sections of Road B012, which is not paved and is potentially subject to flooding and washouts, you may also elect to continue farther north on state Route 187 and take County Road B038 to reach County Road B112 and cross under I-25.

Be on the alert for any changes to land status when entering this area. Even if you prefer to stay outside the patented areas, there are still lots of areas to explore for pegmatites and other associated mineralization. The Lyda K mine area is relatively easy to reach, and while access cannot be guaranteed, it is still a good area to visit if you are in southwest New Mexico and are looking for an interesting pegmatite and fluorite locality. 💎

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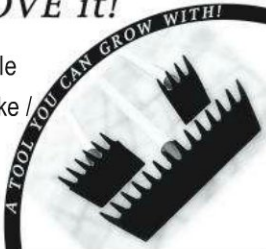
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Show Dates from page 47

22-23—WARWICK, RHODE ISLAND: Show and sale; Rhode Island Mineral Hunters; CCRJ 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 Poullette Terrace, Plymouth, MA 02360; e-mail: jsroule@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 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

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

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 11747, (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—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—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—EUREKA, CALIFORNIA: Show and sale; Humboldt Gem & Mineral Society; Redwood Acres Fairgrounds, 3750 Harris St.; Fri. 9-6, Sat. 10-6, Sun. 10-5; adults \$2, children \$1; flint knapper, live demonstrations, geode cutting; contact Toni Tyson, 82787 Charlestown Ave., Indio, CA 92201, (707) 502-9574; e-mail: rockchick9233@aol.com

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: geodysssey-rocks.com

4-6—KANSAS CITY, MISSOURI: 33rd annual Wholesale and retail show; Shows of Integrity; MCC/BTC Exhibit Hall, 1775 N. Universal Ave.; Fri. 10-7, Sat. 10-7, Sun. 10-5; adults \$6, 3-day pass \$10, ages 5-12 \$2, children under 5 free; more than 80 dealers, jewelry, beads, beading supplies, findings, gemstones, minerals, cabochons, gold, silver, diamonds, charms; contact Terry James, 18362 S. Hwy. 78, Leonard, TX 75452, (903) 587-2543; e-mail: info@showsofintegrity.com; Web site: www.showsofintegrity.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—AMARILLO, TEXAS: Annual show; Golden Spread Gem & Mineral Society; Amarillo Civic Center-Regency Room, 401 S. Buchanan St.; Sat. 10-6, Sun. 10-5; adults \$3, children under 12 free; prehistoric, outer space, down under, precious, unusual, cheap, artifacts, valuables, jewelry, Indian jewelry, beads, displays; contact Wanda Finley, 9170 FM 1151 Claude, TX 79019, (806) 944-5464; e-mail: finfran@midplains.coop

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—CONCORD, CALIFORNIA: Annual show; Contra Costa Mineral & Gem Society; Centre Concord, Clayton Fair Shopping Center, 5298 Clayton Rd. (near Ygnacio Valley Rd.); Sat. 10-5, Sun. 10-5; adults \$5 (discount on Web site), children under 16 and Scouts in uniform free with adult; fluorescent room displays, 21 vendors, minerals, fossils, gems, crystals, jewelry, books, tools, equipment, lapidary supplies, 60 exhibitors, 12 demonstrators, beading, wire-wrapping, faceting, stone carving, youth activities, silent auction, prizes, raffle, woolly mammoth skull, giant jade, giant cave bear, giant auction; contact Harry Nichandros, P.O. Box 4667, Walnut Creek, CA 94596, (925) 289-0454; e-mail: bob@ccmgs.org; Web site: ccmgs.org

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—GREENWICH, CONNECTICUT: Annual show; Stamford Mineralogical Society; Eastern Greenwich Civic Center, 90 Harding Rd.; Sat. 9:30-5, Sun. 10-4:30; contact Howard Heitner, (914) 779-2041; Web site: www.stamfordmineralsociety.org

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: crmgs.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

5-6—RIDGECREST, CALIFORNIA: 56th annual show; Indian Wells Gem & Mineral Society; Desert Empire Fairgrounds, Mesquite Hall, 520 S. Richmond Rd.; Sat. 9-5, Sun. 9-5; free admission; contact John DeRosa, (760) 375-7905; e-mail: IndianWellsGems@hotmail.com; Web site: www.indianwells.weebly.com

5-6—SAN DIEGO, CALIFORNIA: Annual show; San Diego Mineral & Gem Society; Al Bahr Shrine, 5440 Kearny Mesa Rd.; Sat. 9:30-5, Sun. 10-4; free admission; free gem I.D., more than 12 dealers, more than 40 exhibits, club sales, slabs, books, magazines, junior booth, door prizes, demonstrators, faceting, lost wax casting, silver chain making, sphere making, wire wrapping; contact Bob Hancock, (619) 889-6886; e-mail: RHBOBHANCOCK@cs.com; Web site: www.SDMG.org

5-6—STURTEVANT, WISCONSIN: Annual show; Racine Geological Society; Fountain Banquet Hall, 8505 Durand Ave.; Sat. 10-5, Sun. 10-5; free admission; club displays,

silent auction, rock identification, door prizes; contact John Lowman, 3223 Spruce St., Racine, WI 53403, (262) 554-5370; Web site: rgs-wi.tripod.com

11-13—HAMBURG, NEW YORK: Show and sale; GemStreet USA; Erie County Fairgrounds, The Grange Bldg., 5600 McKinley Pkwy.; 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

11-13—HUMBLE, TEXAS: 58th annual show; Houston Gem & Mineral Society; Humble Civic Center, 8233 Will Clayton Pkwy.; Fri. 9-6, Sat. 9-6, Sun. 10-5; adults \$7, seniors and students \$6, children under 12 free; displays, working exhibits, fluorescent mineral exhibit, Rock Food Table, swap area, more than 40 dealers, minerals, fossils, jewelry, slabs, rough, spheres, meteorites, beads, petrified wood slabs; contact Theresa Peek, Houston Gem & Mineral Society, 10805 Brooklet, Houston, TX 77099, (281) 530-0942; e-mail: show@hgms.org; Web site: www.hgms.org

11-13—KINGSPORT, TENNESSEE: Annual show; Mystery of Natural History Museum, MNHM Bldg., 321 Broad St.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$3, children 3 and up \$1, under 3 free; contact: Mary McNabb, (423) 765-9900; e-mail: kptmuseumassn@usa.com

11-13—ORLANDO, FLORIDA: Fall show; Central Florida Mineral & Gem Society; Central Florida Fairgrounds, 4603 W. Colonial Dr.; Fri. 1-6 Sat. 10-6, Sun. 10-5; adults \$5, seniors and students \$2, \$1 off with ad; minerals, metaphysical stones, beads, jewelry, cabochons, sterling silver, demonstrations, faceting, cutting and polishing cabochons, silver smithing, children's sluice table, Scout merit badge help; contact Gordon Oakley, 5032 Lido St., Orlando, FL 32807, (407) 592-4358; e-mail: oakleysmall@gmail.com; Web site: www.cfmgms.org

11-13—PASCAGOULA, MISSISSIPPI: Annual show; Mississippi Gulf Coast Gem & Mineral Society, Magnolia State Gem, Mineral & Jewelry Show; Jackson County Fairgrounds, 2902 Short Cut Rd.; Fri. 10-6, Sat. 9-6, Sun. 10-5; adults \$3, children 12 and under free; door prizes, raffle, 20 dealers, gold panning and sluicing; contact James Darnell, 7121 Oakhurst Dr., Ocean Springs, MS 39564, (228) 875-2310; Web site: www.mgcgms.org

11-13—SANTA ANA, CALIFORNIA: Wholesale/retail show, "Fall West Coast Gem & Mineral Show"; Martin Zinn Expositions; Holiday Inn-Orange County Airport, 2726 S. Grand Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; open to the public, more than 80 wholesale and retail dealers, minerals, fossils, gems, jewelry, lapidary supplies; contact Martin Zinn Expositions LLC, PO Box 665, Bernalillo, NM 87004-0665, (505) 867-0425; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

11-13—TACOMA, WASHINGTON: Wholesale and retail show; Gem Faire Inc.; Tacoma Dome, 2727 E. D St.; 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

11-13—KINGSPORT, TENNESSEE: 2nd annual fall show; Mystery of Natural History Museum, 321 Broad St.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$3, ages 4-12 \$1, children 3 or younger free; special fossil exhibits, full-scale T-rex skeleton, door prizes, mineral and gem identification; contact Mary McNabb, (423) 765-9900; e-mail: kptmuseumassn@usa.com

12—RICHMOND, VIRGINIA: 20th annual Rock Swap; Richmond Gem & Mineral Society; Ridge Baptist Church Meeting Hall, 1515 Eastridge Rd.; Sat. 9-3; free admission; swapping, rocks, minerals, fossils, shells, geology-related items, dealers, mineral specimens; contact Murray Rosenberg, (804) 740-0019; e-mail: mdr63sdr@verizon.net

12—VALLEJO, CALIFORNIA: 2nd annual show; Vallejo Gem & Mineral Society; Vallejo Veterans Bldg., 420 Admiral Callaghan Ln.; Sat. 9-5; adults \$1, children under 14 free with adult admission; free raffle prizes; contact Dan Wolke, 255 Essex Way, Benicia, CA 94510, (707) 745-1816; e-mail: dncwolke@sbcglobal.net; Web site: www.iwired.org

12-13—CORDOVA, TENNESSEE: Show; Intergalactic Bead & Jewelry Shows; Woodland Hills-Grand Ballroom, 10000 Woodland Hills 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

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OFF THE DOP

by Jim Perkins

Iolite, aka Water Sapphire



According to *Descriptions of Gem Materials*, 3rd Edition, by Glenn and Martha Vargas, iolite has a Mohs hardness of 7 to 7.5 and a refractive index of X-1.544, Y-1.548, Z-1.550. It has strong trichroism (blue, yellow and clear), is transparent to translucent, and had a vitreous luster. Cleavage is distinct in one direction, according to the Gemological Institute of America (GIA). This tells faceters that it can be faceted; however, because of the possibility of cleavage problems, it may shatter during the grinding process without warning.

In every regard, iolite is a good candidate for faceting; however, what I believe prevents it from being more popular with faceters is the potential cleavage issues, which could create problems when a jeweler sets the stone or a consumer wears it. Therefore, you may see this gem occasionally in jewelry stores, but it is most likely to be found as a collector gem.

Mineral collectors may be familiar with this mineral by a different name: cordierite or dichroite. Faceters prefer the strong blue color to the yellow or clear, so the stone must be oriented properly. Since it has a refractive index near that of quartz, any design suitable for quartz will work with iolite. I prefer the angles 43° (pavilion) and 37° (crown).

According to my reference materials from the GIA Colored Stones Course, the mineral cordierite was named after geologist Pierre Cordier, while the gem became known by the trade name iolite, which comes from the Greek word *ion*, meaning "violet". Some older jewelry references call iolite "water sapphire", which was another trade name referring to the stone's color. When tanzanite was first discovered, gemologists initially thought it might be cordierite. Unlike tanzanite, which was discovered in 1969, however, iolite has a very long history. Early sailors used thin pieces of iolite as a filter so they could clearly see the location of the sun for navigation. Unlike tanzanite,

blue topaz, sapphires, and many other blue gems, iolite is not treated beyond normal cutting and polishing. From a consumer point of view, the lack of treatment or enhancement may be a positive point.

Sources for iolite occur in Sri Lanka and several African countries, including Kenya, Tanzania and Madagascar. The gem is also found in alluvial deposits in India, Brazil, Norway and Finland. Faceted iolite is commonly found in 1- to 10-carat gems, and prices range from \$5 to \$75 per carat for commercial cut stones depending on the size and quality. The only source for iolite facet rough I have found is New Era Gems (www.neweragems.com), which had some pieces up to 9 carats for approximately \$6.34 per carat. While cutting my iolite, I found it had a softer feel against the grinding wheel compared to quartz and it ground very easily using 360, 600 and 1200 diamond laps. I polished the stone first using a Spectra Ultra Lap and water; however I found that my Darkside Lap™ and a thin cerium oxide slurry provided a better polish, flatter facets, and sharper meets.

Iolite is known to have many inclusions, veils, and, of course, a distinct cleavage plane. In general, however, I found iolite easier to polish than quartz, right up to the end of my stone, when a small cleavage showed up across one of my crown girdle facets and a star facet. The money I spent for rough was more than I could sell the finished stone for, which was very disappointing after all that work, but that is a chance we take when we cut some stones that I think are better suited for mineral specimens rather than gems. ♦

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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Using **Copper** in GEMSTONE JEWELRY

This Ancient Material Has Modern Appeal

Story and Photos by Kara Bachman

Many jewelry and accessories craftspeople are afraid to work with copper. In an age when sterling silver is considered king, copper is a risky choice for many designers who have never worked with it. They wonder, Will people buy a piece with such warm tones? Which gemstones complement this metal? How do I work with copper? Doesn't it tarnish? Such concerns are understandable. But in my experience as a jewelry designer, I have found that my customers love copper and are quite willing to take a chance on it when it is used well and when I educate them about the material and its care.



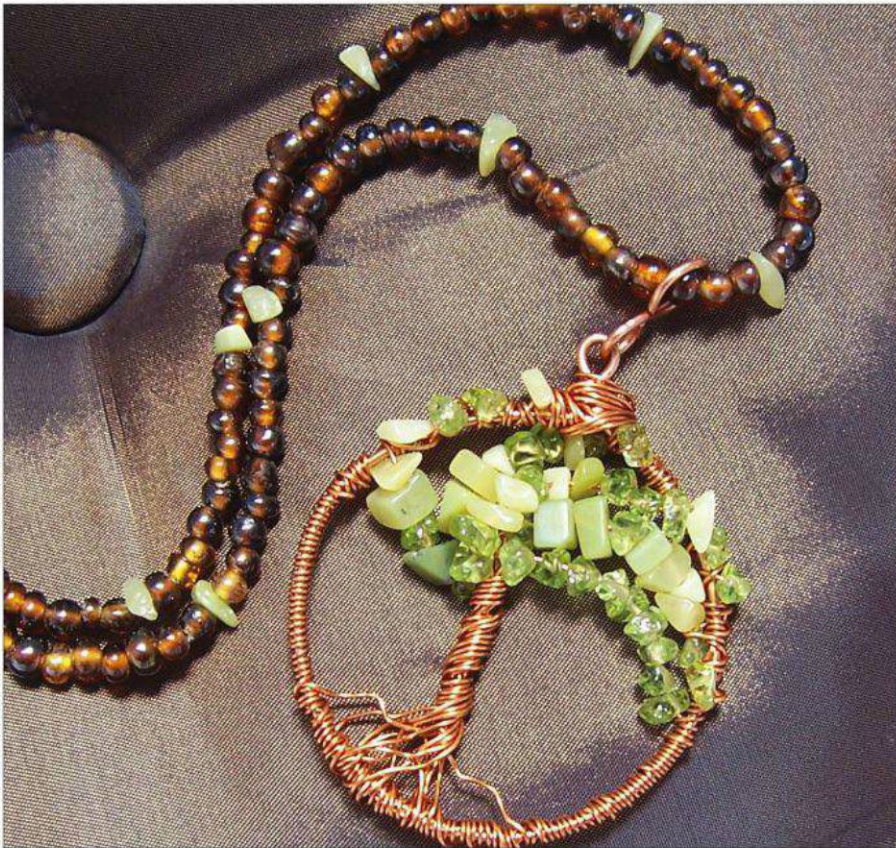
Jewelry made with copper can seem rustic, yet modern at the same time.



Don't be afraid to use copper with brightly colored stones in your copper jewelry designs!

When first starting out as a designer of jewelry and accessories, I wondered how receptive my buyers would be to this warm, rustic, and currently underutilized metal. A quick glance at fashion and design magazines shows the current dominance of sterling silver in jewelry, hair, and body accessories crafted of metal. Gold-toned accessories run a close second and have always been a reliable staple of wearable crafts and jewelry. How, then, does copper fit into this picture?

According to the Copper Development Association (www.copper.org), copper is the oldest metal used by man. Archaeological digs show worked copper dating back more than 10,000 years. In fact, one of the oldest copper items ever found was not a tool, but a handcrafted adornment, a copper pendant unearthed in Iraq. Clearly, in the hands of a skilled craftsman, copper has always been desirable for use in creative decoration of the body. When mixed with appropriate



Green stones such as peridot and serpentine can be paired beautifully with copper.



Copper is easy to work with and, in the hands of a skilled craftsman, is desirable for use in creative jewelry.

gemstones, it can create the most unique and beautiful of wearable art.

For the jewelry or wearable accessories artisan, crafting necklaces, bracelets, rings, hair accessories, handbags, belts, and other items of this metal presents little challenge. Copper is easy to work with. It rates a 3 on the Mohs scale, which makes it slightly harder than gold and silver. It loves to be worked with a mallet and, in the hands of a skilled designer, can take on an unparalleled depth when textured. When heat-treated, copper can develop a very beautiful rainbow-hued patina. (There are many online tutorials that describe this technique).

Copper is safe to wear, and some believe that it may even be beneficial for certain medical conditions, such as arthritis. Aside from some sensitivity when worn for long periods of time through the earlobes (as ear wires), there should be little concern about toxicity or environmental or allergic sensitivities as regards wearable items crafted of copper.

Copper is also extremely easy to find. There is no need to order copper from specialty suppliers. Just walk into your local home improvement or hardware store, and copper is there in ample supply. Bare copper can easily be purchased as sheets, tubing, and wire in many different gauges that can all be used in your wearable designs. In addition, a quick Google search will yield many suppliers of copper wire for crafters and jewelers on the Internet. In addition to bare untreated copper, many other options are available, including wire that has been treated with non-tarnish coatings, generally of enamel.

Although the price of copper has been rising in recent years, it is still significantly more affordable than sterling. For this reason, copper is an ideal metal to use for experimental designs or for pieces that require large amounts of material. In our current economy, when the average consumer cannot afford to purchase items crafted of precious metals, copper comes to the rescue as a beautiful alternative priced at less than half the cost of sterling, but with a much higher aesthetic value and lifespan than that of cheaper alloys.

Based on its workability, availability, and cost, copper is a fine material for the workman's bench. But is it popular among



The combination of lapis lazuli and copper can have an old-world appeal.



Experiment with combinations of richly colored stones. The sky's the limit!

current consumers? Copper jewelry was very popular in the United States during the 1950s and early '60s, with designers such as Renoir of California spearheading the copper craze. Since then, its popularity has waxed and waned with the seasons. But due to the qualities outlined above, in the past decade, copper seems to have flourished in the hands of the small artisan designer.

It is not that copper isn't used by the large fine jewelry houses; it is. But there seems to be a strong revival of interest in this material within the ranks of the handcrafted movement. No doubt it is the rustic beauty, the historic significance, and the uniqueness of this metal that has captured the hearts and minds of these designers.

When I first began using copper about five or six years ago, I wasn't sure which gemstones would complement this metal. Sure, there were some that were obvious. The warm earth tones of unakite, tiger's-eye, and many forms of jasper were clearly suitable candidates. At first, I only used copper with stones that are commonly associated with autumn. I honestly believed that these pieces would only be of interest to my customers with "autumn" complexions or to redheads.

As time went on, I quickly discovered that women of all complexions and colorations would be drawn to the beauty of copper and that all could wear it well. As I began to experiment more with copper wire, I soon discovered that copper can be used well with stones with a "cooler" feel or with a combination of warm and cool tones. I also learned that, when copper is combined with silver in the same design, consumers who were "on the fence" about copper would oftentimes

be willing to give it a go. If you are on the fence as a designer, I suggest you play around with using copper in conjunction with another metal, such as silver. It may take some time and experimentation to get the look just right, but the effort is worth it, as the result will be a unique piece of wearable art.

Experiment with using copper with combinations of extremely color-saturated stones. With a little trial and error, you will soon discover that copper can look as beautiful with lapis lazuli, amethyst or malachite as it does with more neutral tones. Using copper in this way is a fresh, modern approach that your customers will appreciate. Although copper is an ancient metal, there really is no reason to limit its use to ancient thinking.

By using copper in uncommon ways, I believe that I often achieved an uncommon product. And if there is one thing that enthusiasts of the artisan or handcrafted movement love, it is the uncommon product. The warm depth of copper gives it a certain rustic charm that gold and silver lack. It almost seems to want to age; it seems to need a patina.

A critical point in selling your copper creations is educating customers about what I like to call the "patina factor" of copper. Copper will develop a dark or greenish coating, called verdigris, as it oxidizes over time. Many people do not realize that, when the Statue of Liberty was first erected, it was a bright copper color, unlike the green shade that we are all familiar with today. Similarly, jewelry and accessories crafted of copper will slowly develop this greenish patina when exposed to air for any length of time.

I wish I had a dollar for every time a potential customer asked me, "But won't this

tarnish?" I also wish I had a dollar for each look of surprise when I responded, "Yes! Thank goodness!" You see, I am a fan of old stuff. I have never enjoyed the slick look and feel of mass produced items that seem to reflect machine casting and a uniform design. I love the quirky and the ancient. I love items that seem to have been carefully worked by a craftsman's hands. I love the one-of-a-kind, and no metal suits this aesthetic better than copper.

A cursory glance at cheap nickel-alloy costume jewelry shows that purposefully adding a sense of age is a critical part of contemporary design. Faux finishes and chemical antiquing agents abound. The principal beauty of copper is that this patina of age will arise of its own accord—and in its own time and its own way. It is not a faux process; it is part of the natural appeal of the material.

When presenting copper pieces, I always sell this beautiful verdigris as the true asset that it is. In fact, many pieces I produce are designed specifically to antique, and I honestly believe that it adds to their beauty. Understandably, some women do not agree. This is why it is critically important that, while you educate them about the beauty of the patina, you also explain how copper can be restored to its shiny, new look, if that is preferred.

Restoring the shine to copper is easy. In fact, it can be done using ingredients that can be found in the average kitchen. Although many women have silver polishing cloths or solutions as part of their jewelry care kits, few think to include products for caring for copper. Often, they are delighted to learn this simple home remedy for removing copper patina.

Combine equal portions of vinegar and salt. Apply the mixture with a cotton



Copper partners well with many different gems.



Use copper in your creative designs, such as this carnival mask made with amethyst and serpentine.

swab, rubbing the copper gently, and it will remove the dark patina instantly. If there are no gemstones, pearls, shell, or other organics in the piece, it is probably fine to briefly immerse the entire copper piece in this salt and vinegar solution for a quicker result. But if the piece contains stones, carefully avoid them when applying the solution so that it solution will not affect their color and texture. Additionally, be sure to quickly rinse the item of all vinegar/salt residue and towel it dry. By using this cleaning regimen every few months (depending on how the item is stored, worn, etc.), you can keep the copper verdigris at bay and maintain the shine. Copper will also retain its shine for a longer time if it is stored in an airtight container, such as a re-sealable plastic bag, in your jewelry or accessory box.

Are you unsure where to start with your copper designs? You may want to begin as I did, using the tried and true gemstones of autumn. I have found the gorgeous olive-green and salmon tones of unakite to work very well with copper, and it is one of my favorite pairings. Mookaite jasper, carnelian, serpentine, leopardskin jasper, and various types of agate may also work well for you.

Try out copper and labradorite. Labradorite is a very interesting and versatile stone; its chatoyancy can give it either a "warm" or "cool" feeling. Labradorite has always seemed to me to be a good stone that can bring warm and cool metals and stones together within a common theme. I have used labradorite beautifully in copper rings with pale blue pearls. I have also used it in copper pendants in tandem with accents of hematite, for a more metallic effect.

Sometimes, objects that pair copper with extremely colorful stones can be quite arresting. Once, before an arts festival, I crafted a bracelet of copper that incorporated nuggets of brightly-colored lapis lazuli, malachite, and Red Sponge coral. I could not believe how many of the customers who visited my booth picked up that bracelet and commented on its unique color story. Oftentimes, the key to working with unique

get tried on the most. Everyone seems to want to touch them.

Hopefully, you will give copper a try in your next project. If you are afraid to go all out and make a large purchase of material, head on over to your local hardware store and purchase several yards of 18 or 20 gauge bare copper wire for under \$7. Play around with it. Make some fun rings. Wire wrap a headband. Make a showy copper

According to the *Copper Development Association* (www.copper.org), **copper** is the *oldest metal used by man*. Archaeological digs show worked copper dating back more than **10,000 years**.

materials is not to make them conform to the common trends, but to allow them to make a brand-new, stunning statement of their own.

Another one of my favorite combinations is copper used with turquoise. When you have a stone that is crisscrossed with a large amount of black matrix, nothing has more organic and rustic appeal than wrapping it with a length of copper wire. There is something so earthy and natural about this combination that it has real appeal to the modern sensibility. Oftentimes, the rustic copper and turquoise rings I have on display are the items that

and gemstone hair pin. Experiment with different color combinations and stones. Hammer it. Heat it. Most importantly, do not restrict yourself only to earth-toned combinations; sometimes the uncommon can be quirky, arresting, and downright beautiful. Before long, you'll love playing around with copper so much that you'll wonder what took you so long to come on board. 💎

Kara Bachman has been designing jewelry for almost 10 years. Her wire and gemstone work can be seen and purchased at www.meditations.etsy.com.

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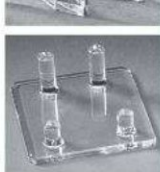
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12-13—JACKSON, MISSISSIPPI: Show and sale; The Greater Southern Gem & Jewelry Shows; Trade Mart Facility, Mississippi Fairgrounds, 1207 Mississippi St.; Sat. 9-6, Sun. 10-5; adults \$6, children under 6 free; dealers, demonstrations, opals, gemstones, minerals, fossils, jewelry, precious stones, rare stones, rough, classes, gold and silver at discount prices; contact Stan Bennett, 242 Faith Hill Dr., Ridgeland, MS 39157, (601) 898-0407; e-mail: stan@tompkinsdesigngrp.com

12-13—LAKE HAVASU CITY, ARIZONA: 42nd annual show; Lake Havasu City Gem & Mineral Society; LHC Community Center, 100 Park Ave.; mineral and jewelry displays, dealers, demonstrations, educational geological presentations; contact C. Russell, (928) 846-0927

12-13—NEW YORK, NEW YORK: Show and sale; Excalibur Mineral Corp.; Holiday Inn Midtown Manhattan, 440 W. 57th St. (between 9th Ave. and 10th Ave.); Sat. 10-6, Sun. 11-5; adults \$6, children under 12 free with adult; minerals, gems, gemstone gifts, jewelry, crystals, fossils, beads, lectures, exhibits, door prizes, kids' events; contact Excalibur Minerals, (914) 739-1134; e-mail: info@excaliburmineral.com; Web site: www.excaliburmineral.com

12-13—YUBA CITY, CALIFORNIA: 20th annual show, "Festival of Gems and Minerals"; Yuba Sutter Fairgrounds, Franklin Hall, 442 Franklin Ave.; Sat. 9-5, Sun. 9-4; free admission; exhibits, demonstrations, silent auction, children's activities, exhibits, dealers; contact Erik Anspaugh, (916) 567-9750; e-mail: rocks@Hughes.net; Web site: www.sutterbuttes.net

11-13—KINGSPOUR, TENNESSEE: Annual show; Mystery of Natural History Museum; MNHM Bldg., 321 Broad St.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$3, children 3 and up \$1, under 3 free; contact Mary McNabb, (423) 765-9900; e-mail: kptmuseumasn@usa.com

18-20—COLUMBIA, SOUTH CAROLINA: Annual show; Columbia Gem & Mineral Society; Jamil Temple, 206 Jamil Rd.; Fri. 10-7, Sat. 10-6, Sun. 10-5; adults \$4, children 12 and under free, military and dependants free Sun.; geode sales and cutting, beads, jewelry, South Carolina amethyst clusters, crystals, fossils; contact Susan Shrader, PO Box 6333, Columbia, SC 29260, (803) 736-9317; e-mail: ashdrader@mindspring.com; Web site: www.cgams.org

18-20—MARIETTA, GEORGIA: Annual show; Cobb County Gem & Mineral Society, Cobb County Civic Center, 548 S. Marietta Pkwy.; Fri. 10-6; free admission; lapidary demonstrations, gem, mineral, fossil and jewelry displays; contact Mary Ingram, 2771 Fernvalley Rd. NE, Marietta, GA 30066, (404) 915-3588; e-mail: mandmgram@gmail.com; Web site: www.cobbcountymineral.org

18-20—PORTLAND, OREGON: Wholesale and retail show; Gem Faire Inc.; Oregon Convention Center, 777 NE MLK Jr. 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

18-20—SPRINGFIELD, OREGON: Show; Springfield Thunderegg Club; Willamalane Center for Sports and Recreation, 250 S. 32nd St.; Fri. 12-7, Sat. 10-7, Sun. 11-4; contact John Randall, PO Box 312, Springfield, OR 97472, (541) 683-2661, or Bob Smith, (541) 736-0060

18-20—ST. LOUIS, MISSOURI: Annual show; St. Louis Mineral & Gem Society; Affton Community Center, 9801 Mackenzie Rd.; Fri. 4-8, Sat. 10-7, Sun. 10-5; adults \$3, students \$1, children 13 and under and Scouts in uniform free;

free rockhound starter kit for all children 13 and under; contact Melissa Perucca, (636) 861-3865; e-mail: PeruccaM@aol.com; Web site: www.SILRockClub.com

19-20—BREMERTON, WASHINGTON: Show, "Fall Festival of Gems"; Kitsap Mineral & Gem Society; Kitsap County Fairgrounds, The President's Hall, 1200 NW Fairgrounds Rd.; Sat. 10-5, Sun. 10-5; free admission; dealers, demonstrations, club displays, junior events, silent auction, raffle; contact Jim McClure, (253) 265-3011; e-mail: pogy2@centurytel.net; Web site: www.kmgs.org

19-20—CHARLOTTE, NORTH CAROLINA: Show; Inter-galactic Bead & Jewelry Shows; Metrolina Tradeshow Expo-Bldg. B, 7100 Statesville 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

19-20—FORT WORTH, TEXAS: Wholesale and retail show; The Bead Market; Amon Carter Exhibit Hall Will Rogers Center, 3400 Burnett Tandy Dr.; Sat. 10-5, Sun. 10-4; beads, gemstones, vintage beads and buttons, pearls, Swarovski Elements, crystals, lampwork, PMC, seed beads, glass beads, bone beads, jewelry, tools, books; contact Rebekah Wills, (903) 240-7198; e-mail: rebekah@thebeadmarket.net; Web site: www.thebeadmarket.net

19-20—LEBANON, PENNSYLVANIA: Show and sale, "Gem Miner's Holiday Festival"; Mid-Atlantic Gem & Jewelry Association; Lebanon Expo Center, Rte. 72 and Rocherty Rd.; Sat. 10-5, Sun. 11-4; adults \$5, children under 12 free; gems, jewelry, minerals, fossils, beads; contact MAGMA, (301) 565-0487; Web site: www.gem-show.com

19-20—OXNARD, CALIFORNIA: Annual show; Oxnard Gem & Mineral Society; Oxnard Performing Arts Center, 800 Hobson Way; Sat. 9-5, Sun. 10-4; free admission; free rock for each child, lapidary demonstrations, glass-bead making, wire wrapping, rock polishing, dealers, gems, minerals, fossils, stone beads, Idaho opals, silver craft, finished jewelry, tools, lapidary supplies, books; contact Norb Kinsler, 6550 Swan St., Ventura, CA 93003, (805) 644-6450; e-mail: show_info@oxnardgem.com; Web site: www.oxnardgem.com

19-20—PAYSON, ARIZONA: 14th annual show; Payson Rimstones Rock Club; Mazatzal Hotel & Casino Event Center, Bingo Hall, Tonto Apache Reservation; adults \$3, children under 12 free; gems, minerals, fossils, lapidary equipment, education center, spinning wheel, silent auction; contact Margaret Jones, (928) 476-3513 or (928) 970-0857

19-20—WORCESTER, MASSACHUSETTS: Annual show; Worcester Mineral Club; National Guard Armory, 701 Lincoln St., I-290 Exit 22; Sat. 10-5, Sun. 10-4; adults \$3, seniors and students \$2, children under 6 and Scouts in uniform free; 14 dealers, exhibits, door prizes, demonstrations, raffle, unique gifts, minerals, fossils; contact Lawrence Bull, Worcester Mineral Club, PO Box 2278, Worcester, MA 01613-2278; Web site: www.worcestermineralclub.org

25-27—MOBILE, ALABAMA: Show; Mobile Rock & Gem Society; Greater Gulf State Fairgrounds, Cody Rd. and Ziegler Blvd.; Fri. 2-7, Sat. 9-6, Sun. 10-5; contact Jerry Shirey, 2911 Pretty Branch Dr. W, Mobile, AL 36618, (251) 786-4777; e-mail: rockhoundjs@aol.com

25-27—SALEM, VIRGINIA: 32nd show; Roanoke Valley Mineral & Gem Society; Salem Civic Center, 1001 Boulevard; Fri. 2-7, Sat. 10-6, Sun. 12-5; adults \$3 for three days, children under 16 free; contact Roanoke Valley Mineral & Gem Society, PO Box 203, Boones Mill, VA 24065, (540) 204-7505

26-27—MONTEREY, CALIFORNIA: Wholesale and retail show; Gem Faire Inc.; Monterey County Fairgrounds, 2004 Fairground Rd.; Sat. 10-6, Sun. 10-5; free admission; jewelry, gems, beads, crystals, silver, rocks, minerals; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

26-27—SAN FRANCISCO, CALIFORNIA: Show, "San Francisco Crystal Fair"; Pacific Crystal Guild; Fort Mason Center, 99 Marina Blvd.; Sat. 10-6, Sun. 10-4; adults \$6, children (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

26-27—WICKENBURG, ARIZONA: 11th annual show, "WOWW Gem Fair"; Wickenburg Gem & Mineral Society;

Wickenburg community Center, 160 N. Valentine St.; free admission; Sat. 9-5, Sun. 9-5; more than 40 dealers, gems, minerals, jewelry, door prizes, grab bags, spinning wheels, raffle; contact Beth, (480) 540-2318 or (928) 684-0380

DECEMBER 2011

2-4—INDIANAPOLIS, INDIANA: Show and sale; Gem-Street USA; Indiana State Fairgrounds, The Pioneer, Our Land Bldg. 1202 E. 38th St.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$5, children under 12 free; gems, jewelry, beads, fossils, minerals; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

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; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

3-4—YORK, PENNSYLVANIA: Show; Intergalactic Bead & Jewelry Shows; York Expo Center—Horticultural Hall, 334 Carlisle 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

9-11—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

9-11—LONGMONT, COLORADO: Annual show; Flatirons Mineral Club; Boulder County Fairgrounds Exhibit Bldg., 9595 Nelson Rd. (at Hover); Fri. 10-6, Sat. 9-6, Sun. 10-5; \$3 Fri., \$5 Sat. or Sun., children under 13 free with adult; 16 dealers, gems, rocks, minerals, jewelry, lapidary equipment, exhibits, demonstrations, kids' gold panning, scavenger hunt, mineral identification game, dig site; contact Ray Gilbert, Flatirons Mineral Club, PO Box 3331, Boulder, CO 80307, (303) 774-8468; e-mail: HOSS1ONE@cs.com; Web site: <http://bcn.boulder.co.us/community/fmc/fmcshow.htm>

9-11—NORCROSS, GEORGIA: Annual show; Mammoth Rock Shows LLC; North Atlanta Trade Center, 1700 Jeurgens Court; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$4 for 3 days, children under 16 free; 50 dealers, minerals, fossils, rough rock, gold and silver findings, tools, lapidary equipment, beads, jewelry, loose and mounted precious stones, jewelry repair, drawings, grand prize; contact Richard Hightower, 7334 Quail Run Rd., Lizella, GA 31052, (478) 935-9345; e-mail: staff@mammothrock.com; Web site: www.mammothrock.com

9-11—SHARONVILLE, OHIO: Show and sale; GemStreet USA; Sharonville Convention Center, 11355 Chester 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

10-11—FRANKLIN, TENNESSEE: Annual show; Mid-Tennessee Gem & Mineral Society; Williamson County AgExpoPark, 4215 Long Ln., I-65 exit 61; Sat. 9-6, Sun. 10-5; adults \$4 (2-day pass \$6), students (13-18) \$1, children under 12 free with adult; demonstrations, exhibits, silent auction, door prizes, grand prize, more than 30 dealers, beads, crystals, geodes, rough, cabochons, gemstones, finished jewelry, tools, supplies, minerals, fossils, stone carvings; contact John Stanley, 2828 Donna Hill Dr., Nashville, TN 37214, (615) 885-5704; e-mail: show@mtgms.org; Web site: www.MTGMS.org

10-11—RICHMOND, VIRGINIA: Show; Intergalactic Bead & Jewelry Shows; Richmond Raceway Complex-Colonial Bldg., 600 E. Laburnum 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

16-18—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; 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

JANUARY 2012

1-31—QUARTZSITE, ARIZONA: Wholesale and retail show; Desert Gardens RV Park; 1055 Kuehn St. (I-10 Exit 17); 9-6 daily; free admission; crystals, minerals, rough, polished, jewelry, lapidary equipment; contact Sharon or Sandy, 1055 Kuehn St., Quartzsite, AZ 85346, (928) 927-6361; e-mail: dggemshow@ureach.com; Web site: www.desertgardensrvpark.net

6-8—MESA, ARIZONA: 40th annual show; Flagg Mineral Foundation, Mesa Community College, US 60 at Dobson, southwest parking lot; Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; Peralta Stone maps exhibit, fluorescent display, free children's activities, free samples for children and teachers, more than 100 dealers, crystals, minerals, fossils, club and museum booths; contact: Dr. Ray Grant, PO Box 41834, Mesa, AZ 85274, (480) 892-0779; e-mail: Presmyk@cox.net; Web site: www.AZMinFun.com

6-15—QUARTZSITE, ARIZONA: Annual show; Tyson Wells Enterprises Inc.; Tyson Wells Show Grounds, 100 W. Kuehn St.; 9-5 daily; free admission; rocks, gems, minerals, jewelry, silver and gold smithing, faceting, precious metals, lapidary tools, equipment, supplies; contact Kym Scott, P.O. Box 60, Quartzsite, AZ 85346, (928) 927-6364; e-mail: tysonwells@tds.net; Web site: www.tysonwells.com

13-15—LARGO, FLORIDA: 36th annual show and sale; Pinellas Geological Society; Largo Cultural Center, Parkside Room, 105 Central Park Dr.; free admission; contact Hugh Sheffield, (727) 894-2440 or (727) 707-3236

20-29—QUARTZSITE, ARIZONA: Annual show; Tyson Wells Enterprises Inc.; Tyson Wells Show Grounds, 100 W. Kuehn St.; 9-5 daily; free admission; rocks, gems, minerals, jewelry, lapidary tools, equipment, supplies, arts and crafts; contact Kym Scott, P.O. Box 60, Quartzsite, AZ 85346, (928) 927-6364; e-mail: tysonwells@tds.net; Web site: www.tysonwells.com

21-22—FREDERICKSBURG, TEXAS: 43rd Annual Hill Country Gem & Mineral Show; Fredericksburg Rockhounds; Pioneer Pavilion, Lady Bird Johnson Municipal Park, state Hwy. 16, 2 miles south of downtown; Sat. 9-6, Sun. 10-5; free admission; hourly door prizes, raffle, fossils, minerals, geodes, crystals, petrified wood, gems, jewelry, jewelry-making and lapidary supplies, exhibits, demonstrations, wire wrapping; contact Jeff Smith, 208 Castle Pines Dr., Kerrville, TX 78028; e-mail: jeffbrenda@windstream.net; Web site: www.fredericksburgrockhounds.org

27-29—REDLANDS, CALIFORNIA: Annual symposium; MSSC Micro Mounters; San Bernardino County Museum, 2024 Orange Tree Dr.; mineral giveaway tables, sales tables, silent and verbal auctions, speakers, field trip; contact Dr. Robert Housley, (626) 449-6454; e-mail: rhouley@its.caltech.edu; or Gene Reynolds; e-mail: quartzhunter1@hotmail.com

JANUARY-FEBRUARY 2012

26-12—TUCSON, ARIZONA: Wholesale and retail show; Eons Expos RLLLP, 22nd St., at I-10; Thu. 9-6 daily; free admission; minerals, fossils, dinosaurs, crystals, gems, jewelry, meteorites; contact: Christine Coyle, 38 Fox Ridge Rd., Sparta, NJ 07871, (516) 818-1228; e-mail: lowellcarhart@yahoo.com; Web site: www.22ndstreetshow.com

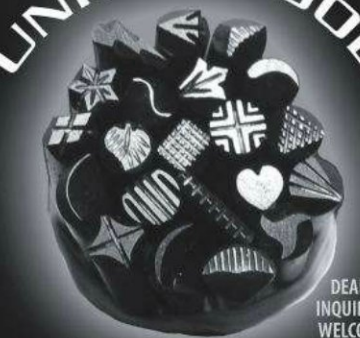
28-11—TUCSON, ARIZONA: Arizona Mineral & Fossil Show; Martin Zinn Expositions, Ramada Ltd., 665 N. Freeway; Thu. 10-6 daily; free admission; more than 400 dealers, free shuttle among locations, Artists' Gallery at the Hotel Tucson City Center; contact: Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

28-11—TUCSON, ARIZONA: Arizona Mineral & Fossil Show; Martin Zinn Expositions, Quality Inn-Benson Hwy., 1025 E. Benson Hwy.; Thu. 10-6 daily; free admission; more than 400 dealers, free shuttle among locations, Artists' Gallery at the Hotel Tucson City Center; contact: Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

28-11—TUCSON, ARIZONA: Arizona Mineral & Fossil Show; Martin Zinn Expositions, The Hotel Tucson City Center, 475 N. Granada; Sat. 10-6 daily; free admission; more than 400 dealers, free shuttle among locations, Artists' Gallery at the Hotel Tucson City Center; contact: Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

28-11—TUCSON, ARIZONA: Arizona Mineral & Fossil Show; Martin Zinn Expositions, The Mineral & Fossil

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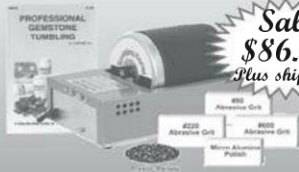
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Show Dates from page 63

Marketplace, 1333 N. Oracle Rd.; Thu. 10-6 daily; free admission; more than 400 dealers, free shuttle among locations, Artists' Gallery at the Hotel Tucson City Center; contact: Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

FEBRUARY 2012

1-29—QUARTZSITE, ARIZONA: Wholesale and retail show; Desert Gardens RV Park; 1064 Kuehn St. (I-10 Exit 17); 9-6 daily; free admission; crystals, minerals, rough, polished, jewelry, lapidary equipment; contact Sharon or Sandy, 1064 Kuehn St., Quartzsite, AZ 85346, (928) 927-6361; e-mail: info@desertgardensrvpark.net; Web site: www.desertgardensrvpark.net

9-12—TUCSON, ARIZONA: Annual show; Tucson Gem & Mineral Society, Tucson Convention Center, 260 S. Church Ave.; Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-6; adults \$10, seniors and active military \$8 on Fri., children (14 and under) free with adult; 2-day tickets \$17; contact: Show Chairman, PO Box 42588, Tucson, AZ 85733, (520) 322-5773; e-mail: tgms@tgms.org; Web site: www.tgms.org

11-12—MERRITT ISLAND, FLORIDA: Annual show; Central Brevard Rock & Gem Club; Kiwanis Island Park, 950 Kiwanis Park Rd.; Sat. 10-5, Sun. 10-5; adults \$3, children 12 and under free with adult; rough and cut gems, minerals, fine jewelry, equipment, lapidary supplies, books, beads, exhibits, demonstrations; contact Erleen Estes, (321) 632-3201

11-12—OAK HARBOR, WASHINGTON: 47th annual show, "Sweetheart of Gems"; Whidbey Island Gem Club; Oak Harbor Senior Center, 51 SE Jerome St.; Sat. 9-5, Sun. 9-4; free admission; member exhibits, demonstrations, dealers, rough and finished rock and gems, slabs, silent auction, door prizes, raffle, spinning wheel; contact Keith Ludemann, (360) 675-1837; e-mail: rock9@whidbey.net

17-26—INDIO, CALIFORNIA: Annual show; San Geronio Mineral & Gem Society, Riverside County Fair & National Date Festival, Gem & Mineral Bldg. Bldg. #1, 46-350 Arabia St.; Fri. 10-10, Sat. 10-10, Sun. 10-10, Mon. 10-10; adults \$8, seniors \$7, students \$6, children (under 5) free; contact: Bert Grisham, 1029 N. 8th St., Banning, CA 92220, (951) 849-1674; e-mail: bert167@verizon.net

18-19—MESA, ARIZONA: 46th annual show; Apache Junction Rock & Gem Club; Skyline High School, 845 South Crismon Rd.; Sat. 9-5, Sun. 10-4; adults \$3, students (with ID) \$1, children under 12 free; dealers, jewelry, gems, cabochons, beads, rock, specimens, slabs, fossils, lapidary equipment and supplies, silent auction, door prizes, grand raffle, gem tree-making activity, Wheel of Rocks; contact Kelly Iverson, (480) 325-2705; Web site: www.ajrockclub.com

MARCH 2012

2-4—NEWARK, CALIFORNIA: Annual show; Mineral & Gem Society of Castro Valley, Newark Pavilion, 6430 Thornton Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$6 (3-day pass), children (under 12) free with adult; fluorescent rock display and sale, more than 35 dealers, live demonstrations, display cases, jewelry, gemstones, beads, fossils, equipment, supplies, auction, door prizes, kids' Spinning Wheel; contact: Cathy Miller, PO Box 2145, Castro Valley, CA 94546, (510) 887-9007; e-mail: info@mgscv.org; Web site: www.mgscv.org

2-4—RICHMOND INDIANA: 39th annual show; Eastern Indiana Gem & Geological Society; Wayne County Fairgrounds, 861 N. Salisbury Rd.; adults \$5 (3-day pass), seniors \$3, ages 18 and under 7 free; Fri. 10-6, Sat. 10-6, Sun. 11-4; jewelry, minerals, crystals, fossils, displays, dealer demonstrations, silent auctions; contact John LaMont, (765) 647-4894

3-4—ROBSTOWN, TEXAS: 50th annual show; Gulf Coast Gem & Mineral Society, Richard Borchard Regional Fairgrounds, 1213 Terry Shamsie Blvd., US 77 and Hwy. 44; Sat. 10-6, Sun. 10-5; adults \$5 (2-day pass), children (12 and under) free, Scouts in uniform free; kids' wheel, silent auction, beads, findings, jewelry, minerals, fossils, meteorites, displays, Rock Food Table, hourly door prizes, grand prize; contact: Jerrold Simpson, P.O. Box 7786, Corpus Christi, TX 78467-7786, (361) 877-3073; e-mail: jsimpson1@stx.rr.com; Web site: www.gcgms.org

8-11—VICTORVILLE, CALIFORNIA: 35th annual tailgate; Victorville Gem & Mineral Club, Stoddard Wells, Stoddard Wells Rd., 7 miles east of I-15; Thu. 8-dusk, Fri. 8-dusk, Sat. 8-dusk, Sun. 9-4; free admission; more than 60 dealers, crystals, rocks, minerals, fossils, gems, silent auctions; contact: Brett Ward, 15056 - B, 7th St., Victorville, CA 92395, (760) 243-2330; e-mail: info@vvgmc.org; Web site: www.vvgmc.org

10-11—SPRECKELS, CALIFORNIA: Annual show; Salinas Valley Rock & Gem Club; Vet's Memorial Hall, 5th St. and Llano St.; Sat. 10-5, Sun. 10-5; free admission; beads, minerals, rocks, silent auction, free drawings, member donated raffle prizes, display cases, demonstrators; contact Karin Salomon, (831) 375-5233; e-mail: kcbakes27@yahoo.com; Web site: salinasrockandgem.com

16-18—ALBUQUERQUE, NEW MEXICO: Annual show; Albuquerque Gem & Mineral Club, New Mexico State Fairgrounds, CAC Bldg., San Pedro Ave. entrance; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$3; more than 40 dealers, crystals, jewelry, fossils, rocks, minerals, decorator items, jewelry, books, supplies, beads, mineral ID booth, visits by a well-behaved and socialized wolf, NM Bureau of Geology and Mineral Resources educational booth, kids' grab bags, silent auctions, about 20 displays; contact: Paul Hlava, PO Box 13718, Albuquerque, NM 87192, (505) 255-5478; e-mail: paulhlava@q.com; Web site: www.agmc.info

16-18—JACKSON, MICHIGAN: 50th annual show; Michigan Gem & Mineral Society, Jackson County Fair Grounds, American 1 Event Center, 200 W. Ganson; Fri. 10-7, Sat. 10-7, Sun. 10-5; adults \$3, seniors \$2, students 50 cents, children under 5 free; free admission for military, public service, and Scouts; more than 20 dealers and demonstrators, displays, silent auction, raffle, rocks, minerals, fossils, jewelry, carvings, findings, beads, tools; contact: Sally Hoskin, 10990 Phal Rd., Grass Lake, MI 49240, (517) 522.3396; e-mail: saltoosal2@yahoo.com; Web site: www.mgmsrockclub.com

16-18—SPANISH FORK, UTAH: Show and sale; Timpanogos Gem & Mineral Society, Spanish Fork Fair Grounds, 475 S. Main St.; Fri. 10-7, Sat. 10-7, Sun. 10-5; free admission; Wheel of Fortune, rock Grab Bags, rock display table, auction, Dinosaur Man; contact: Vickie Hathaway, 693 E 1 South, Spanishfork, UT 84660, (435) 820-2672; e-mail: jamnjelleze@gmail.com

23-25—INDIANAPOLIS, INDIANA: 14th Annual Indianapolis Spring Gem, Mineral & Jewelry Show; Treasures of the Earth Gem & Jewelry Shows, Indiana State Fairgrounds - Agriculture/Horticulture Bldg., 1202 E. 38th St.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$3 (3-day ticket), children (under 16) free; beads, pearls, gemstones, wire wrapping, wire sculpture, silver- and goldsmiths, custom work and repairs while you wait; contact: Van Wimmer, 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

24-25—ANGELS CAMP, CALIFORNIA: Show and sale; Calaveras Gem & Mineral Society, Calaveras County Fairground, 101 Frogtown Rd.; Sat. 10-5, Sun. 10-4; adults \$4, children (12 and under) free with adult; exhibits, demonstrations, kids' activities, silent auction, sales, raffle, door prizes, dealers, fossils, jewelry, meteorites, books, lapidary supplies, slabs, gems, beads; contact: Tak Iwata, 18310 Coyote Meadow Rd., Sonora, CA 95370, (209) 928-5579; e-mail: tak2me@msn.com; Web site: www.calaverasgemandmineral.org

24-25—YUMA, ARIZONA: Annual show; Sharon Szymanski and Val Latham; Yuma Civic Center, 1440 Desert Hills Dr.; Sat. 10-5, Sun. 10-4; adults \$3, children under 12 free with paying adult; out-of-state dealers, jewelry (fine and costume), gems, beads, slabs, fossils, cabochons, lapidary supplies, machinery, wire wrapping demonstration; contact Sharon Szymanski, 1792 E. Laddoo Ave., San Tan Valley, AZ 85140, (480) 215-9101; e-mail: goldcanyon2@yahoo.com

MARCH-APRIL 2012

30-1—ADA, OKLAHOMA: Annual show; Ada Gem, Mineral & Fossil Club, Pontotoc County Agri-Plex, Main Bldg. #1, northeast corner of state Rte. 99 (U.S. 377) and the Richardson Bypass (state Rte. 1 & 3); Fri. 9-5, Sat. 9-5, Sun. 10-4; free admission; demonstrations, displays of fluorescent rocks, minerals, fossils, lapidary, jewelry, silent auctions, raffle, kids' Fossil Dig, Petting Zoo, fluorescent demonstration; contact: Ed Vermillion, PO Box 782, Purcell, OK 73080, (405) 527-6431; e-mail: okieed42@windstream.net; Web site: www.freewebs.com/agmfc

APRIL 2012

20-22—DENVER, COLORADO: Spring show, "Colorado Mineral & Fossil Show"; Holiday Inn - Denver Central, 4849 Bannock St.; free admission; Fri. 10-6, Sat. 10-6, Sun. 10-5; 80 wholesale and retail dealers, minerals, fossils, gems, jewelry; contact Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665, fax: (303) 223-3478; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

continued on page 71



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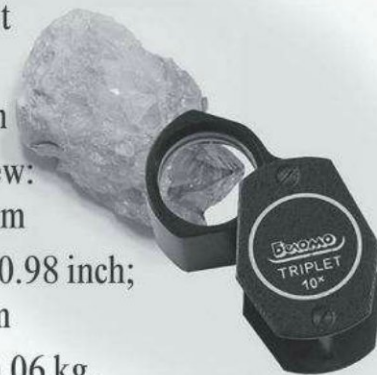
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MANY FACETS

by Jim Perkins

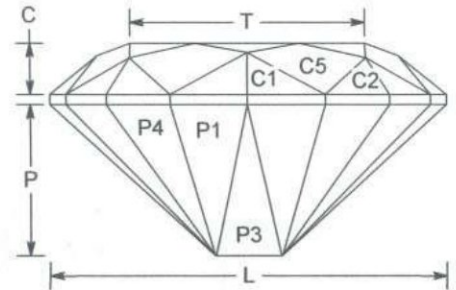
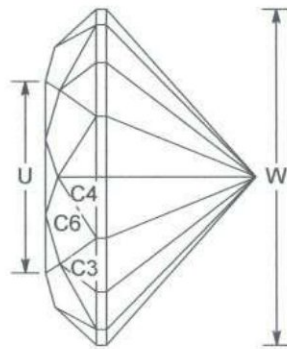
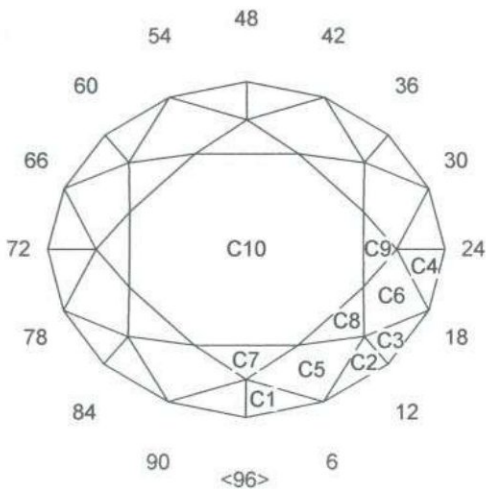
Faceters are welcome to submit their original designs for publication. Mail materials to Many Facets Submissions, *Rock & Gem* magazine, 3585 Maple St., Ste. 232, Ventura, CA 93003.

I met John Franke, owner of The Facet Shoppe (www.gemcutter.com), at the 2001 Northwest Faceters Conference in Portland, Oregon. John is an excellent faceter and a partner in a sunstone mine. Sunstone is very popular with gem and jewelry collectors and is one of the finest of gem materials found in the United States.

I phoned John one day and asked him to pick out a nice piece of rough sunstone for my next project. Once I received it, I created the design Sunny Oval. Of course, I put a French Tip on this design to prevent chipping on the ends of the stone. I use quartz angles whenever I cut opals or sunstone; they also work well for quartz and beryl. Therefore, this design is very versatile.

I haven't cut a lot of sunstone, but with advice from John, I found it an easy material to work with and was thrilled with the finished stone. This design is very easy to cut, so even novice cutters should be able to use it. Enjoy!

-Jim Perkins



SUNNY OVAL

CAD by Jim Perkins, jimperkins@zoominternet.net

© January 2011

Use for opal, sunstone, quartz or beryl.

Angles for R.I. = 1.550

51 + 16 girdles = 67 facets

2-fold, mirror-image symmetry

96 index

$L/W = 1.200$ $T/W = 0.708$ $U/W = 0.571$

$P/W = 0.450$ $C/W = 0.153$

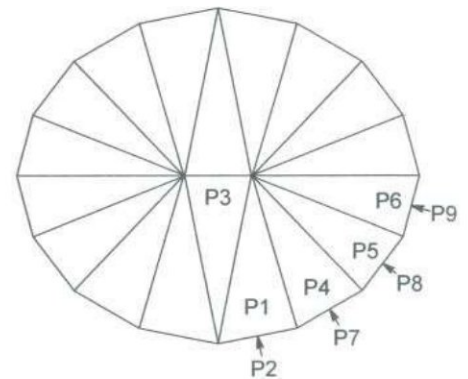
$Vol./W^3 = 0.275$

PAVILION

P1	43.70°	03-45-51-93	Create a center point
P2	90.00°	03-45-51-93	Set width
P3	42.00°	96-48	Girdle meet point
P4	44.40°	08-40-56-88	MP @ P1 - P3
P5	43.90°	14-34-62-82	MP @ P1 - P4
P6	43.00°	20-28-68-76	MP @ P4 - P6
P7	90.00°	08-40-56-88	MP @ P1 - P2
P8	90.00°	14-34-62-82	MP @ P4 - P7
P9	90.00°	20-28-68-76	MP @ P6 - P8

CROWN

C1	48.30°	03-45-51-93	Set girdle height
C2	45.60°	08-40-56-88	Set girdle height
C3	45.60°	14-34-62-82	Set girdle height
C4	39.50°	20-28-68-76	Set girdle height
C5	39.50°	06-42-54-90	GMP
C6	36.10°	18-30-66-78	GMP
C7	15.30°	96-48	MP @ C1 - C1
C8	20.90°	11-37-59-85	MP @ C2 - C3
C9	20.00°	24-72	MP @ C4 - C4
C10	0.00°	Table	MP @ C5 - C6



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6" Slab-Trim Saw



Bull Wheel



10" Slab-Trim Saw

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Show Dates from page 64

28-29—LANCASTER, CALIFORNIA: Annual show; Antelope Valley Gem & Mineral Club; Lancaster High School, 44701 32nd St. W; Sat. 9-5, Sun. 9-5; free admission; tailgaters, gems, minerals, jewelry, touch table, fossils, raffle drawing, dealers, demonstrations, auction table, raffle Sun.; contact Rodney Skillings, PO Box 903044, Palmdale, CA 93590, (661) 400-5198; e-mail: rodneykillings@ymail.com; Web site: www.avgem.weebly.com

MAY 2012

5-6—WASHINGTON, PENNSYLVANIA: 7th annual show; F M Minerals; Washington County Fairgrounds, 2151 N. Main St.; Sat. 10-6, Sun. 10-5; adults \$1, children 12 and under free; dealers, gems, minerals, hand-made jewelry, metaphysical things, door prizes; contact F M Minerals, (304) 657-7089

10-13—SECAUCUS, NEW JERSEY: Wholesale and retail show; Eons Expos, RLLP, Meadowlands Exposition Center, 355 Plaza Dr.; Thu. 5-9, Fri. 9-7, Sat. 9-7, Sun. 9-4; free admission; exhibitors, minerals, fossils, dinosaurs, crystals, gems, jewelry, beads, meteorites, wholesale only Thu. evening, open to the public Fri. through Sun., "American Woman" sculpture, Fine Mineral & Gem Gallery; contact: Lowell Carhart, Pearl Harbor - Hickam, HI, (804) 291-6357; e-mail: lowellcarhart@yahoo.com; Web site: www.nycmetroshow.com

11-13—SANTA ANA, CALIFORNIA: Spring show, "West Coast Gem & Mineral Show"; Holiday Inn - Orange County Airport, 2726 S. Grand Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; 80 retail and wholesale dealers; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax: (303) 223-3478; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

25-27—SALEM, VIRGINIA: 21st Annual Spring Roanoke Valley Gem & Mineral Show; Treasures of the Earth Gem & Jewelry Shows, Salem Civic Center, 1001 Boulevard; Fri. 10-6, Sat. 10-6, Sun. 11-6; adults \$3 (3-day ticket), children (under 16) free; beads, pearls, gemstones, wire wrapping, wire sculpture, silver- and goldsmiths, custom work and repairs while you wait; contact: Van Wimmer, 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

JUNE 2012

29-1—FISHERSVILLE, VIRGINIA: 25th Annual Fishersville/Waynesboro Area Gem, Mineral & Jewelry Show; Treasures of the Earth Gem & Jewelry Shows, Augusta Expo, 277 Expo Rd.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$3 (3-day ticket), children (under 16) free; beads, pearls, gemstones, wire wrapping, wire sculpture, silver- and goldsmiths, custom work and repairs while you wait; contact: Van Wimmer, 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

JULY 2012

20-22—BOONE, NORTH CAROLINA: 18th Annual High Country Gem, Mineral & Jewelry Show; Treasures of the Earth Gem & Jewelry Shows, Boone National Guard Armory, 274 Hunting Hills Ln.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$2 (3-day ticket), children (under 16) free; beads, pearls, gemstones, wire wrapping, wire sculpture, silver- and goldsmiths, custom work and repairs while you wait; contact: Van Wimmer, 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

JULY-AUGUST 2012

29-5—SPRUCE PINE, NORTH CAROLINA: 24th annual show; Parkway Fire & Rescue, Parkway Fire & Rescue Bldg., 12966 Hwy. 226 S.; Sun. 12-6, Mon. 9-6, Sat. 9-7, Sun. 12-5; free admission; raffles, more than 80 dealers, crystals, rocks, minerals, tumbled stones, beads, jewelry, rock hobby-related items; contact: Roger Frye, 12966 Hwy. 226 S., Spruce Pine, ND 28777, (828) 766-6136; e-mail: collisidonna@yahoo.com

OCTOBER 2012

5-7—INDIANAPOLIS, INDIANA: 14th Annual Fall Gem, Mineral & Jewelry Show; Treasures of the Earth Gem & Jewelry Shows, Indiana State Fairgrounds - Agriculture/Horticulture Bldg., 1202 E. 38th St.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$3 (3-day ticket), children (under 16) free; beads, pearls, gemstones, wire wrapping, wire sculpture, silver- and goldsmiths, custom work and repairs while you wait; contact: Van Wimmer, 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

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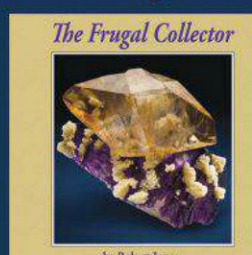
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ON THE ROCKS

2011 Show in Shasta



Shasta Gem & Mineral Society junior members Kyle Parkinson and Donny Munro work on cabbing projects in the well-equipped club workshop.

The California Federation Show in May 2011 turned out to be a very pleasant surprise for me. The show was held on the Shasta County Fairgrounds in Anderson, just south of Redding. Normally, I would not have ventured that far north during the busy spring in the desert. After all, you can't do yard work in the hot summer, so spring is when we have to catch up on all the tree trimming, cactus pruning, and other yard chores. But I was invited by my very good friends Bob and Jeanne Stultz to attend the show and give some talks, so I decided to go.

Bob and Jeanne are very active in the California Federation. Both have served as federation president and for years they were deeply involved in the shows held in Ventura, California, until they moved to Redding. Once there, they immediately joined the Shasta Gem & Mineral Society and helped organize the 2011 California Federation Show. I accepted their invitation to give some talks simply because they have been such loyal federation people.

The California Federation Show was organized by two local clubs, the Shasta Gem & Mineral Society and the Paradise Mineral Society, which joined together to do an excellent job. The setting was marvelous: large buildings housed the displays and dealers. Skirting those buildings were lovely shaded grounds where outside dealers were set up. This was a marvelous setting for a show. In fact, the Shasta club holds its own show on this site every October.

While at the show, I was invited to visit the Shasta club's workshop. Now I've visited other club workshops, but I was not ready for what I saw here. The building itself is faced with fine stone and is quite large, with a very handy parking lot. But it is what is inside that really impressed me. Built like a house, the workshop has a series of rooms, each devoted to one or two lapidary activities. There is a casting room, a wire wrap room, a Junior's room for classes and work, a silversmithing classroom, a room for beading activities, a buffing room, and so on.

The club also built onto the main building, creating a large room for its saws and grinding equipment. Every lapidary activity imaginable was provided for somewhere in that facility. If you know nothing about a craft and want to learn, that can be done, since every aspect of our hobby has instructors available who will get you started and guide you along to successful finish a project. The Shasta club has really provided for every contingency at its workshop!

What probably impressed me the most was the club's policy for the use of their equipment. If you are working with one of their specialty machines and can't get your job done, you can actually check out the specialty machine as if it were a library book! I don't know of any other club that does that.

Of all the activities the club conducts, the most important is its junior program. On Awards night during the show, a number of trophies were awarded for junior exhibits, lapidary and jewelry work. And I must say the work I saw was impressive! One junior display case had dozens of photos of kids and their work, kids who were involved with the hobby thanks to the Shasta club. Another case held examples of work done by the juniors, which visiting rockhounds were asked to vote on. This is a great way to encourage youngsters in the hobby.

One of the reasons the club has such a strong junior following is that it works directly with local 4-H clubs. Keep in mind that, when someone says "California", sandy beaches, surf and sun come to mind.

Northern California is so far removed from that image it is like another state. The area is named Shasta County for good reason: snowcapped Mount Shasta looms high on the horizon. The Sacramento River meanders through the area. The grass is lush and fine trees dominate the slopes. Ranching is common, as are horses, olive groves, and hay fields. The hobbies here are not surfing and swimming. They are fishing and hunting, skiing and hiking. The area is—in a word—delightful, and lacks the hustle and bustle and crowding of the southern half of the state. It's no wonder a movement got started to sever the state of California in two, creating a northern state that some wanted to call Jefferson.

The Shasta club is far enough north in California to be within striking distance of some of the geode and thunder egg digs in Oregon. Therefore, I was not surprised to find a number of what they call "thunder egg grabbers" in the saw room. These vise-like tools will hold a thunder egg so you can cut it in half without putting your fingers at risk! They'll work on geodes, too.

I was quite surprised at the number of competitive and special exhibits at this show. Since competition has been dwindling in some areas, I did not expect to see a large number of exhibits. It was really a pleasure to check out several dozen of them, all of which were really excellent. Most of the exhibits were of lapidary work, as would be expected, but some really nice minerals were displayed, as well.

All in all, I was really impressed with the 2011 California Federation Show and the work done by the Shasta Gem & Mineral Society and the Surprise Club group. I suspect the joint Shasta Gem & Mineral Society and Paradise Gem & Mineral Club show in October will be just as good, and the setting is really choice. If you happen to be in Northern California in October, check out the show on the Shasta County Fairgrounds, just off Interstate 5 in Anderson, and maybe even visit the club's workshop. You'd be most welcome!

FRUGAL UPDATE

I'll be on the road for the next few weeks, as usual. Last year, when we traveled in the fall, it dramatically slowed the production of my book, *The Frugal Collector, Volume I*. Many of you were quite anxious to see it and had already sent your money in, so I apologize for not getting it done in a timely fashion. Actually, more than once in the past, someone has asked me when I was going to write a book and my answer has always been, "When I'm in a wheelchair and can't travel!" I'm not in a wheelchair yet, so my travels do interfere with my office work.

While at the California Federation Show last May, someone asked me how I ever got involved in writing so much. As with so many other experiences in my life, I was lucky! Back in the 1950s, the leading rockhound magazine was *Rocks and Minerals*, which is still a very good publication. *R&M*, as it is known, was the handiwork of Peter Zodac, who started the thing long before World War II. Along with articles, Peter ran a series of columns on various subjects. You may recall the micromounting column by Neal Yedlin, as an example. At the time, I was collecting fluorescent minerals and had written my master's thesis on "Luminescent Minerals of Connecticut". I wrote to Peter and asked why there was no column on fluorescent minerals in his magazine. His answer was to the point: "Because you have not written it!" So I did just that for 12 years. After leaving *R&M* I wrote a few freelance articles for *Lapidary Journal*.

In 1972, at the Anaheim National/California Federation Show, I met Jim Miller of Miller Magazines Inc., who had just started *Rock & Gem* magazine. He asked if I would write for him and I agreed. He asked how many articles I might write each year. I said I thought four or five would do it. He encouraged me to write more. You know the rest. I have not counted them, but I suspect I've written maybe 700 or 800 articles for *Rock & Gem*, not counting my columns. Jim was a very important contributor to our hobby because he published *Rock & Gem* for so many years!



The 2011 California Federation Show was held on the lovely, shaded Shasta County Fairgrounds off Interstate 5 in Anderson.

2012 TUCSON SHOW

October is not too soon to be talking about the 2012 Tucson Show. I served on the Show Committee for about 40 years, then took some time off. But with the centennial of the state of Arizona coming up in 2012, I had to get back on the committee and put in my two cents! My primary task with to resume my duties as liaison to the Tucson mayor's office. Bob Walkup, a delightful fellow and excellent mayor of the



Evan Jones dug this superb wulfenite at the Rowley mine and will display it at the 2012 Tucson Gem & Mineral Show celebrating 100 years of Arizona statehood.

Old Pueblo, has certainly been a stalwart in supporting the show. I'm really going to miss Bob when he retires as mayor of Tucson at the end of his current term. He's one of the good guys!

Of course, he is a realist, too. The 40-odd shows that run in Tucson from late January to mid-February bring in more tax money for Tucson than any other event held there. Just try to find a motel or rent a car in Tucson in early February! Waiting in line at a good restaurant is a given.

Naturally, the theme of the 2012 Tucson Gem & Mineral Show™ will be "The Min-

erals of Arizona". No other state in America has produced more mineral wealth than this desert state has. The hundreds of old silver and gold mines and the vast copper deposits that are still being worked have produced metallic riches almost beyond measure. Don't forget the uranium mines that were so important in World War II and are being revived in some places today.

In order to give show attendees a real look at Arizona's best minerals, a team of some 25 collectors, working closely with Peter Megaw, the committee special exhibit chairman, has assigned to themselves the task of ferreting out as many of Arizona's finest minerals as can be brought under one roof! The plan is that one or two collectors will accept responsibility for a species, a mine, or a region in the state. Acting as case managers, these people are contacting museums and private collectors and requesting the finest Arizona minerals be brought to the show for exhibit.

If you have even a passing acquaintance with Arizona's minerals, you can guess some of the mines, mining areas, and minerals that will be featured: Bisbee, Tiger, Ajo, Globe/Miami, the Red Cloud mine, wulfenite, Tombstone, Morenci, scheelite, silver, garnet, turquoise and more. The 50 exhibits planned won't show visitors everything Arizona has produced from the earth, but it will give them a great taste of the state's best.

I came away from the 2011 California Federation Show feeling very positive about our hobby. It's alive and well! The enthusiasm of the people there and their love of the earth and our country are

really obvious. I got the same vibe from the National Eastern Federation Show in Syracuse this August. I'll report on that show in my next column. 💎

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, 3585 Maple St., Ste. 232, Ventura, CA 93003.

Correction

In my June 2011 article "Build an 18-inch Lapidary Drop Saw", I realized there is an error in the description of the assembly of the mandrel onto the boom arms. Refer to the bottom-center photograph on page 61 of the article. The steel plate should be mounted on the underside of the boom arms. The mandrel should be inverted so that it mounts on the underside of the plate. No other changes are necessary. It is about a 10-minute operation to correct this.

I did not realize the error until recently, while cutting a larger than usual stone. The correct assembly adds 1 1/4-inches of cutting depth over that shown in the photographs.

—Dale Blankenship
Freelance Contributor

packages are currently on sale for \$34. I ordered a pound immediately to try out, and have been very pleased with the results I have gotten when using it on my Darkside Lap™.

For faceting, I use about 2 teaspoons of Micro-Alumina in a pint of water and, after trying out the solution, I add more polish if it is needed. The Kingsley North rep told me that Micro-Alumina also works well for tumble polishing, and they've had good success with Lake Superior agates, which are very hard.

—Jim Perkins
Off the Dop columnist

Via Facebook

Love the magazine. We have been getting it for years and couldn't do without Bob Jones. He is the best.

—Pat Rush

Central Florida Mineral & Gem Society loves *Rock & Gem* magazine!

—CFGMS page

I just love this magazine!

—Boneta Marie Hensley

Great photography! Great magazine.

—www.canadianammolite.com

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—Editor

Vacation Planner

Our club members use your Show Dates listing to plan our vacations and incorporate a lot of your articles so we can have as much of a "rock" vacation as possible. Not only are your articles so informative, but you have great quality photographs to go along with them. This is a superior magazine in every way. All I can say is "thank you for being there for us rockhounds."

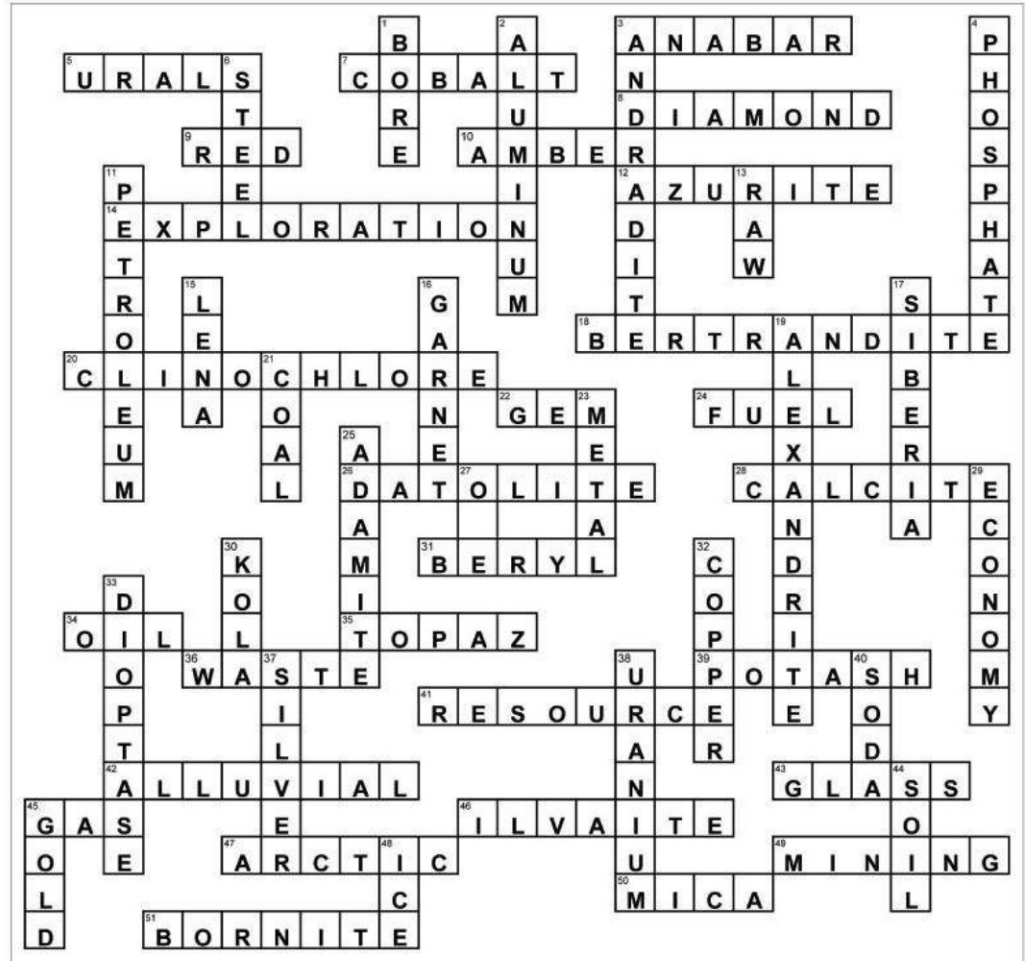
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Cerium Substitute

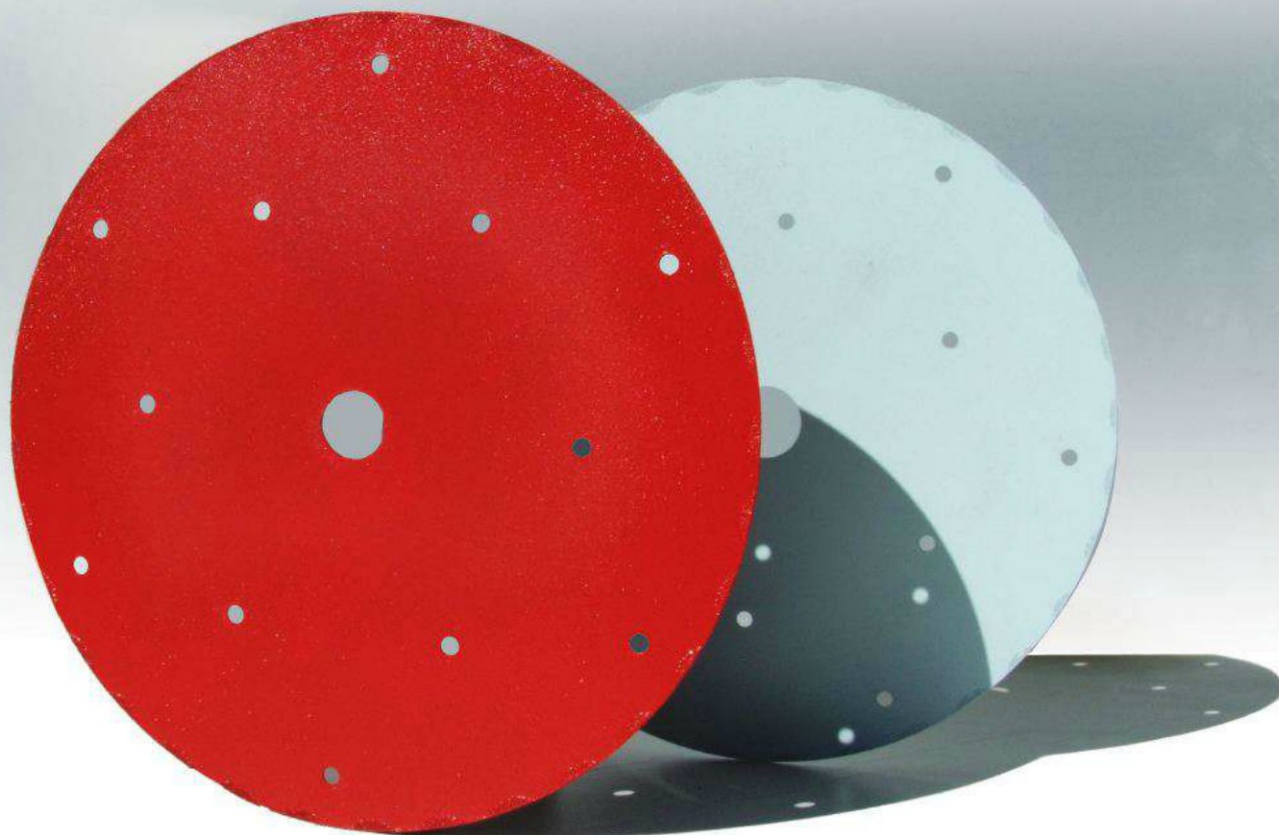
Recently, I have noticed that the price of cerium oxide has increased substantially. China controls approximately 95% of the world's cerium oxide, which it uses in electronics manufacturing, and has decided to sell at a substantially higher price, if they ship it out of the country at all.

Judging from the research I've done, it seems that the world's demand for cerium oxide exceeds the supply. I spoke to a representative from Kingsley North, a lapidary supplier in Michigan, who recommended I try their Micro-Alumina polish 0-0037, which sells for only \$8 per pound; 5-pound

Crossword Solution (September 2011, page 74)



IJS



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