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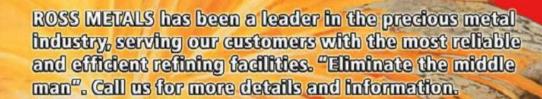






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This scheelite crystal on muscovite from Mount Xuebaoding (Sichuan Province), China, was part of the outstanding 2010 Mineral Treasures of the World exhibition in Beijing, China. (Richard Jackson photo/Courtesy The Collector's Edge)

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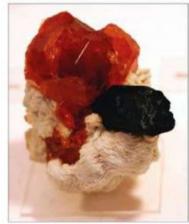
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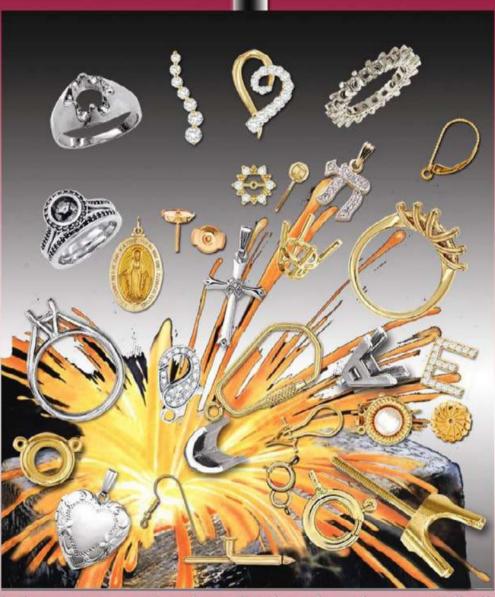
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ICKS & PANS

The Mineral Art of Hildegard Könighofer \$170

A recent trend in the hobby and science of mineral collecting is the creation and collecting of artful renditions of mineral specimens by a small group of very talented artists who love minerals and whose work has been featured in magazines and at mineral shows.

The growing interest in mineral art was best expressed in the 2010 Tucson Gem & Mineral Show™, at which a group of mineral artists was invited to exhibit its

works. Among those artists was Hildegard Könighofer, of Germany, whose beautiful drawings of minerals were particularly well received.

Now, you can obtain a wonderful collection of her work in book form. *The Mineral Art of Hildegard Könighofer* is beautifully bound and boxed in a sturdy cover, and is available in the United States only from BlueCap Productions.

The more than 200 mineral paintings in the 223-page book are properly identified and described as to locality and ownership. The captions are in German, but anyone familiar with mineral names and localities will have little trouble deciphering them.

Along with Könighofer's artwork are chapter sections printed in parallel columns of German and English text. They include Austrian Mineral Deposits and Occurrences, Minerals from Romanian Deposits, and Science vs. Aesthetics.

For lovers of minerals who also appreciate exquisitely executed mineral art, this excellent text will be a worthy addition to the library. (Herausberger and Verleger, 2010)

—Bob Jones

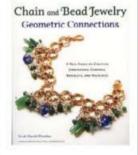




Wire wrapping has long been a popular way to make settings for gemstones without covering up too much of the stone. In *Geometric Connections*, however, the wire itself takes center stage. The opening chapter, Chain and Bead Basics, lays out the tools and materials used for wire wrapping and reviews the basic steps that will be used in the projects

to follow. Chapter 2 reviews Essential Techniques such as forging Sclasps and bead settings and bending earring backs. Wire wrappers can refer back to these chapters as they work on the projects.

In the six chapters that follow, Plumlee explains how to fashion round loops of copper, bronze, sterling, and gold-filled wire into clusters that take on geometric shapes like the triangle, quatrefoil, trapezoid and pentagon. The more than 30 bracelet, necklace, earring, and key fob projects adapt and build on the Byzantine chain configuration. In each chapter, the projects start simple and become more elaborate, and many of the designs incorporate gemstone beads. Readers will progress from the bronze and jade bead Tripoli bracelet to the Quatre-



foil earrings with lapis lazuli to the gold and garnet Pentagon necklace and so on. A list of references, illustrations of chain configurations, and an index round off the 160-page text.

The instructions are illustrated with clear, close-up, color step-by-step photos. This is Plumlee's third book on chain and bead jewelry. (Watson-Guptill Publications, 2010)

-Lynn Varon

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> resin bonded diamond wheels, 325, 600, 1200 & 3000 grits. A right hand 6" x 1/4" 20 spin - on polish head, polishing pad and 2 grams diamond compound is included along with complete instructions, and a 1 year warranty on machine and motor. Dimensions – 26" W x 17" L x 9" H. Ships in two boxes (motor ships separately) wt. 66 lbs.

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C

raftsman of the Month

I clearly remember an opal ring that my mother just loved," says February Craftsman of the Month David G. Monette. It was the first piece of jewelry I remember noticing as a young child—every color of the rainbow sparkling in what I now know was most likely Coober Pedy white pin-fire opal. I can still see it in my mind's eye; it was a magical first lapidary sight for this former 5 year old to behold!

"When my partner Karen's 50th birthday came around recently, I decided to try my hand at making a piece of opal jewelry that I hoped would capture some of that same magic. The image of a 22k gold pendant with hand-carved opal depicting our favorite hiking spot on Mount Hood kept consuming my thoughts, even though I thought such a project was way beyond my ability.

"In my favor, I have been a metal worker for almost 30 years, but I had never made jewelry until just a few months prior to starting this project. With the expert advice of a dear friend who is a nationally known goldsmith, I bought some tools, a torch, some diamond files, and some 22k gold sheet and wire. Then I contacted an opal dealer here in the Northwest who always has wonderful rough opal in all shapes and sizes.

"In visualizing this project, I decided on blue crystal opal for the sky, stunning white opal for a snow-covered Mount Hood, and vibrant green opal with multicolor pin-fire highlights for the steep hills and forest of the foreground. I made a thick brass template to use as I carved the white opal mountain. I super-glued the white opal, best side up, onto the template, and ground and carved away until the mountain fit the template perfectly at a thickness of just under 2mm.

"Next, I cut three pieces of rough blue crystal opal for the sky, and seven pieces of rough green opal for the forest and hills. I backed the sky pieces with black tourmaline to help bring out the color. The expense of opal this bright made it cost-prohibitive to use cut opal or rubs. I ground the opal from rough, which made the end result even sweeter.

"I made two 1mm-wide 22k gold strips to highlight the edges of the mountain and hopefully add strength to the project. Many tedious hours of carving and grinding later, the remaining pieces



of opal were all 2mm thick and looked pretty good, so it was time to start the metal work.

"I fabricated the bezel from 22k rectangular wire, and the back from thick 22k sheet. The bail is 18k gold for added strength. Soldering the back to the bezel was pushing the limits of my ability, so I enlisted the supervision of my friend, goldsmith Tami Dean, to ensure that I did not make a very expensive puddle of 22k gold!

"At 1.5 inches high and 1 inch wide, I felt the project was too large and delicate to final grind and polish the opal to a perfect finish, so I cut an optical quartz lens that I ground to 0.7mm thick to fit over the opal for added strength and protection. My first two attempts at the lens both cracked, but the third time was the charm. I had the back of the piece engraved by a local master engraver, and I used stone setters' epoxy to set everything in place. I finished up by making a simple set of matching opal stud earrings to complete the project."



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. Submit an electronic copy of the story, along with your printed manuscript, if you are able.
- Take least one sharp, close-up, color photo of the finished project. Submit a photographic print or a high-resolution (300 dpi at 4 inches by 5 inches) digital photo as a .tif or .jpg file on a CD. (Contact the editor with questions.)
- · Send your materials, along with your name and street address

(required for delivery), to Craftsman of the Month, *Rock & Gem* magazine, 290 Maple Ct., Ste. 232, Ventura, CA 93003. Submissions will not be returned, so do not send originals. Only winners will be notified.

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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Detroit, MI......July 9-10-11
Franklin, NC.....July 22-23-24-25
Spruce Pine, NC....July 29-30-31-Aug. 1
Tucson, AZ....September 9-10-11-12
Minneapolis, MN....September 26-27
Detroit, MI......October 1-2-3
West Springfield, MA....October 8-9
Asheville, NC......October 26-27
Orlando, FL......October 29-30-31

2011

Asheville, NC.....January 4-5
Orlando, FL....January 7-8-9
Tucson, AZ...January 29-February 11

Tucson

Gem Mall January 29- February 11

Holiday Inn-Palo Verde/Holidome February 3 - February 11

> Grant Inn on Grant Road January 29 - February 11

Minneapolis, MN......April 3-4
Detroit, MI......April 8-9-10
West Springfield, MA...April 15-16
Orlando, FL.....April 29-30-May 1
Franklin, NC.....May 6-7-8
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JANUARY-FEBRUARY 2011

27-12—TUCSON, ARIZONA: Show; Eons Expositions LLC; 600 22nd St., northeast corner of I-10 and 22nd St.; 9-7 daily; free admission; minerals, fossils, rough, gems, jewelry, amber, meteorites; contact Lowell Carhart, 7514 Antelope Meadows Circle, Peyton, CO 80831, (516) 818-1228; e-mail: lowellcarhart@yahoo.com; Web site: www.22ndStreetShow.com

28-13—TUCSON, ARIZONA: Show; ColorWright; ColorWright Warehouse, 1201 N. Main Ave.; 10-6 daily; free admission; cutting and carving rough, slabs, cabochons, gemology equipment, fossils, fossil preparation equipment, Covington lapidary equipment, new Highland Park slab saws, books, jewelry; contact Rob Kulakofsky, 1201 N. Main Ave., Tucson, AZ 85705, (520) 792-1439; e-mail: rk3@color-wright.com; Web site: www.rglshow.com

29-12—TUCSON, ARIZONA: Show, "Arizona Mineral & Fossil Show"; Martin Zinn Expositions; The Hotel Tucson City Center (formerly InnSuites), 475 N. Granada; 10-6 daily, final day 10-5; free admission; more than 400 dealers, Artists' Gallery, four locations, free shuttle; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

29-12—TUCSON, ARIZONA: Show, "Arizona Mineral & Fossil Show"; Martin Zinn Expositions; The Mineral & Fossil Marketplace, 1333 N. Oracle Rd.; 10-6 daily, final day 10-5; free admission; more than 400 dealers, four locations, free shuttle; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

29-12—TUCSON, ARIZONA: Show, "Arizona Mineral & Fossil Show"; Martin Zinn Expositions; Quality Inn-Benson Hwy., 1025 E. Benson Hwy.; 10-6 daily, final day 10-5; free admission; more than 400 dealers, four locations, free shuttle; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

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31-6—TUCSON, ARIZONA: Wholesale show; Arizona Global Gem & Jewelry; The Hotel Arizona, 181 W. Broadway; Mon. 10-6, Tue. 10-6, Wed. 10-6, Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-6; contact Ron Swanson, (520) 396-4469; e-mail: ron@aggjs.com; Web site: www.aggjs.com

FEBRUARY 2011

1-28—QUARTZSITE, ARIZONA: Show, "Desert Gardens International Gem & Mineral Show"; Desert Gardens RV Park; 1064 Kuehn St. (I-10 Exit 17, south side); 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@desertgardensrypark.net; Web site: www.desertgardensrypark.net

4-6—ROSEVILLE, CALIFORNIA: Show; Gem Faire Inc.; Placer County Fairgrounds, 800 All America City Blvd.; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

5-6—DULUTH, GEORGIA: Retail show; Intergalactic Bead & Jewelry Shows; Gwinnett Center-Hall C, 6400 Sugarloaf Pkwy.; Sat. 10-5; Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact

Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

10-13—TUCSON, ARIZONA: Show; Tucson Gem & Mineral Society; Tucson Convention Center, 260 S. Church St.; Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$10, seniors and active military \$2 off Fri. admission, children under 14 free with adult; contact TGMS, P.O. Box 42588, Tucson, AZ 85733, (520) 322-5773; e-mail: tgms@tgms.org; Web site: www.tgms.org

11-13—PORTLAND, OREGON: Show; Oregon Agate & Mineral Society; Oregon Museum of Science and Industry, 1945 SE Water Ave.; Fri. 10-5, Sat. 10-5, Sun. 10-5; contact Craig Prier, 4927 SE Haig St., Portland, OR 97206; e-mail: oamsrockhound@live.com

11-13—SANTA MONICA, CALIFORNIA: Show; Gem Faire Inc.; Santa Monica Civic Auditorium, 1855 Main St.; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

12-13—BEREA, OHIO: Retail show; Intergalactic Bead & Jewelry Shows; Cuyahoga Fairgrounds-Multi Purpose Bldg. (#25), 164 Eastland Rd.; Sat. 10-5, Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

12-13—MERRITT ISLAND, FLORIDA: 34th annual show, "Symphony of Gemstones"; Central Brevard Rock & Gem Club; Kiwanis Island, Merritt Island Causeway; Sat. 10-5, Sun. 10-5; adults \$3, children 12 and under free with adult; demonstrations, silent auction, exhibits, grand prize, lapidary supplies and equipment, gemstones, jewelry, beads, rocks, minerals, hourly door prizes; contact Ray Huntington, (321) 799-8536; e-mail: bdewey@cfl.rr.com

12-13—OAK HARBOR, WASHINGTON: 46th annual show, "Sweetheart of Gems"; Whidbey Island Gem Club; Oak Harbor Senior Center, 51 SE Jerome St.; Sat. 9-5, Sun. 9-4; contact Keith Ludemann, (360) 675-1837; e-mail: rock9@whidbev.net

18-20—SANTA BARBARA, CALIFORNIA: Show; Gem Faire Inc.; Earl Warren Showgrounds/Exhibit Hall, 3400 Calle Real; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com: Web site: www.gemfaire.com

18-20—SARASOTA, FLORIDA: Show; Frank Cox Productions; Municipal Auditorium, 801 N. Tamiami Tr. (Hwy. 41); Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net: Web site: www.frankcoxproductions.com

18-27—INDIO, CALIFORNIA: Show, "Riverside County Fair & National Date Festival"; San Gorgonio Mineral & Gem Society; Riverside County Fair & National Date Festival, Gem & Mineral Bldg., 46-350 Arabia St.; 10-10 daily; adults \$8, seniors \$7, students \$6, children free; 16 dealers, 108 lapidary display cases, lapidary demonstrations, geode cutting and sales; contact Bert Grisham, 1029 N. 8th St., Banning, CA 92220, (951) 849-1674; e-mail: bert67@verizon.net

19—UPPER MARLBORO, MARYLAND: 21st annual show; Southern Maryland Rock & Mineral Club; The Show Place Arena, 14900 Pennsylvania Ave.; Sat. 10-5; admission S3, children 6 and under free; vendors, minerals, fossils, gems, original jewelry designs, exhibitors, demonstrations, faceting, bead stringing, wire wrapping, gold panning, children's crafts, door prizes; contact Michael Patterson, 11000 Thrift Rd., Clinton, MD 20735, (301) 297-4575; e-mail: michael.patterson@pgparks.com; Web site: www.smrmc.org/index.html

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MINERAL TREASURES of the WORLD

A Unique Mineral Exhibition in China

Story and Photos by Bob Jones



Visitors to the Mineral Treasures of the World exhibition were greeted by this very colorful wall mural and fine mineral display.

n early July 2010, I was invited to visit Beijing, China, to view and report on a remarkable and unique exhibition entitled "Mineral Treasures of the World". The idea of this exhibition was hatched between the official Geological Museum of China in Beijing and a well-known American private business, The Collector's Edge, located in Golden, Colorado.

Collector's Edge representatives met with museum staff to work out an agreement that is, in my opinion, historic. The agreement established an opportunity for Collector's Edge to bring a covey of superb mineral specimens to Beijing. The idea was not to sell these minerals, but to use them to demonstrate a series of themes designed to promote the preservation of Chinese minerals and encourage people in that vast country to collect minerals. To support that concept, the exhibition also offered ideas and methods for collecting, preserving and preparing minerals and information on investing in minerals.

I had seen a few of the minerals intended for the exhibition in the spring of 2010 when I visited the Collector's Edge offices. At that time,

I was briefed on this unique exhibition, which had been in the planning stages for over a year. I was pretty well convinced the planned exhibition would be startlingly exciting! This proved to be true when I actually visited the Geological Museum in Beijing in July 2010.

If you love fine minerals, especially rhodochrosite, you'll remember Collector's Edge as the group that re-opened the old Sweet Home mine in Alma, Colorado, and brought to light a small horde of what have proved to be the greatest rhodochrosite specimens ever mined!

Since that time, Collector's Edge has mined a variety of species from a list of active mineral deposits with considerable success. This was possible because Collector's Edge has established a reputation for recovering specimens that appear during active mining operations. It was due to this reputation that they were invited to co-sponsor this special exhibition by the staff of the Geological Museum of China, the most important geological facility in that country. The purpose of the exhibition was twofold: to bring visitors into the museum and to help open the Chinese market to mineral collecting, preservation and investing!

TOP: Superb crystals of tanzanite are usually faceted for gem use, but this choice cluster in matrix has been prepared for exhibit by The Collector's Edge.

BOTTOM: Chinese students sit enthralled by the video that explains how collector specimens are mined.

Over the last several decades, China has become a major source of superb minerals, so Collector's Edge opened a second office in Hunan Province, one of China's great mineral provinces. The company has been at work there for 10 years, helping train Chinese miners in the art of extracting mineral crystals without damaging them and without interfering with mining operations.

Such a co-sponsorship between a government facility in China and an American mineral business had never happened before. This is truly a unique and remarkable partnership. The year-long discussions leading up to this agreement were led by Graham Sutton of Collector's Edge. One reason for the timing of the 2010 exhibition was to coincide with the 2010 World's Fair, going on in Shanghai, China.

Out of joint planning sessions, a series of themes emerged for the exhibition design. Display case designs were developed and placards and wall charts were prepared to promote the several themes: mining, collecting, preparing, selling, and investing in minerals. This suggests two things: China is well aware of the economic value and marketing of selling minerals and the Chinese government is anxious to develop greater intercourse with businesses in other countries through the recovery and sale of fine minerals, of which China happens to have a remarkably huge supply!

Opening day of the Mineral Treasures of the World exhibition was a fantastic success. The crowds were large and the press was there in full array, as were many dignitaries from government ministries, along with museum staff and Collector's Edge leadership.

Jia Tueming, the chairman of the Geological Museum of China, welcomed guests and Bryan Lees, the founder and president of Collector's Edge, made opening remarks. Bryan also presented a marvelous specimen of Sweet Home mine rhodochrosite to add to the museum's collection! After the opening ceremonies, everyone filed into the museum and was instantly overwhelmed by the amazing exhibits of minerals from so many noted worldwide localities.

My visit to the exhibition was a real thrill. Any collector would have been stunned by the colorful and showy display in the main exhibition hall. Using some of the world's finest minerals, which ranged from hand-size to a foot or more across, Collector's Edge created an exhibition designed to put the mineral world's best foot forward. The mineral specimens on display were superb examples of the world's natural mineral beauty. Accompanying these minerals were large explanation boards covering the main themes of the exhibition, giving visitors much to enjoy and read.

The first thing to be seen upon entering the exhibition hall was a wide glass case holding four phenomenal mineral specimens: a bright-green African fluorite, a breathtaking red rhodochrosite from Colorado, a brilliant crystallized gold from California, and a delicately hued violet amethyst from Bolivia.

On either side of this huge glass case were two smaller cases, each with a superb Chinese specimen from the Geological Museum of China collection: bright orange orpiment with calcite and a bright black stibnite crystal group, both outstanding examples as what China produces.

The hall was lined around with glass cases that housed more than 50 superb specimens, all among the better known examples for each species. Many of the display specimens rank as the world's best for the species!

Though I was impressed by the overall quality of every specimen display, there were many specimens I found hard to believe. Two tanzanite specimens were the best I've ever seen. One has three single crystals in and on matrix. The second tanzanite is a larger-than-hand-





size group of five parallel crystals, perfectly terminated and of superb quality! Of course, several Sweet Home mine rhodochrosite crystal groups brought intense red color to the exhibits.

As a lover of copper species, I particularly liked a large parallel cluster of African malachite stalagmites, all 20 of them in a tight 20-inch by 6-inch cluster like a bunch of round-ended green carrots!

The exhibition also held several historically noteworthy specimens. There was a lovely, large, green velvet malachite from Bisbee that had been displayed at the Chicago Exposition of 1893 and was later housed at the Philadelphia Academy of Science. Knowing some of the history of early Bisbee copper mines, I suspect this particular lovely malachite was originally dug by Ben Williams, or by someone else at his behest, from the Copper Queen mine. Williams was the mine's first captain and he was charged with supplying many of the colorful specimens seen in the award-winning Arizona mineral ex-

February 2011

MINERAL TREASURES of the WORLD from page 13



The superb specimen of Chinese orpiment and calcite was supplied by the Geological Museum of China for the 2010 exhibition.



Morocco produced some of the world's finest vanadinites, like this large specimen, which was on display in Beijing.

hibit at the 1893 Chicago Exposition. Some of the specimens from this exhibition ended up at the Philadelphia Academy of Science, which was once a major force in mineralogy!

Among the other superb Chinese minerals in the exhibition, a couple of amazing orange-yellow scheelite crystals on matrix caught my eye. Chinese scheelites are the world's finest examples of this calcium tungstate and they are currently being mined!

Visitors who love gem crystals had plenty of drool over. There were foot-long gem crystals of aquamarine, heliodor and beryl, along with a couple of famous California elbaites, including one of the famous blue cap tourmalines found at the Tourmaline Queen mine in 1972!

Personally, I got a special kick out of specimens from underground mines I have visited: the Sweet Home mine's rhodocrosites; yellow mimetite from San Pedro Corallitas, Mexico; azurite and malachite from the Copper Queen mine in Bisbee, Arizona; California gold from the Colorado Quartz mine; wulfenite from Arizona's Red Cloud mine; dioptase and smithsonite from Tsumeb, Africa; Ojuela mine adamite from Mapimi, Mexico; and pegmatite elbaites from California.

As gorgeous as the mineral exhibits were, I was particularly impressed by the placards alongside each display case. Each described one theme of the exhibition. They were loaded with information for visitors, yet the content was brief enough to inform any reader anxious to move on to the next exciting mineral display.

The introductory exhibit demonstrated the techniques needed for discovering and actually salvaging specimens encountered during normal mining operations. This is just one of the more im-



Twenty choice malachite stalactites cluster together to create this remarkable specimen from Katanga, Democratic Republic of Congo.



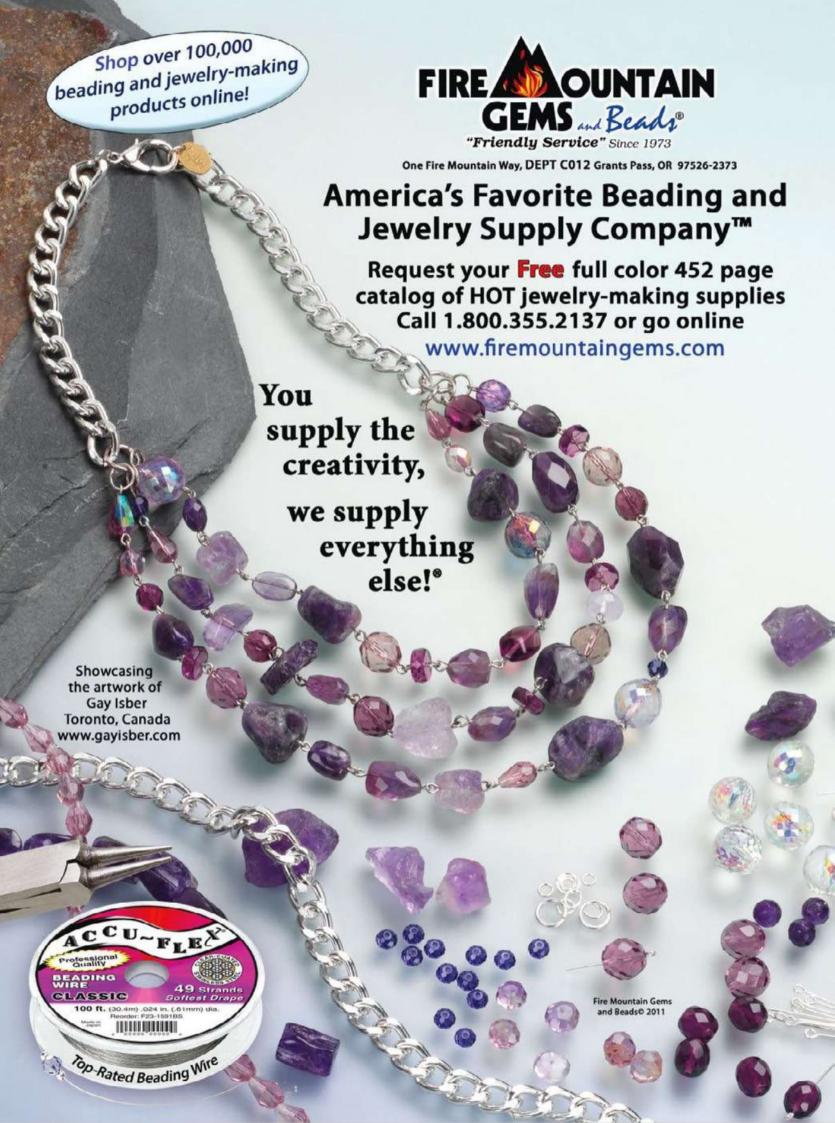
This choice bright-green fluorite from Riemvasmaak, South Africa, was mined and prepared for exhibit by The Collector's Edge.

portant functions of the Collector's Edge staff in Hunan Province. More and more miners in China recognize they can make a living collecting and selling specimens, so many have gone into old deposits to collect specimens for sale. This, in large part, accounts for the flood of choice Chinese specimens we have seen in the last couple of decades. The Collector's Edge's 10-year history of training and helping Chinese miners extract mineral specimens is another factor accounting for the generous supply of fine undamaged Chinese minerals we see these days.

A second placard helped visitors understand that, once specimens are exposed during mining, great care must be employed to properly extract, treat, trim, clean, and otherwise prepare specimens. Collector's Edge has won awards for its specimen preparation lab in Golden, Colorado.

Graham Sutton is the lead man in the Collector's Edge specimen recovery effort in China. Graham, a good friend of mine, cut his eyeteeth on mineral collecting in Arizona and later worked at the Sweet Home mine, the Twin Creeks gold mine in Nevada, and other important Collector's Edge specimen sources. It is through his efforts and those of Collector's Edge that hundreds of fine Chinese minerals are regularly preserved and made available for the marketplace.

A major idea of the exhibition was to encourage mineral collecting in China, and to that end a superb exhibit was designed to help collectors select fine minerals from the myriad of specimens available in the marketplace today. It described what to look for, how to critique specimens, and how to choose specimens with the greatest investment potential.



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MINERAL TREASURES of the WORLD from page 14



VIPs at the exhibition included (left to right) two Beijing University professors, Richard Jackson of The Collector's Edge, an exhibition visitor, *Mineralogical Record* Chairman Tom Gressman, Editor Bob Jones, and Sabaa, an interpreter.

Every collector should have the skills to identify rare and unusual species and specimens that are considered superb for a species. This helps him build a superior collection, while building equity and value as an investment in that same mineral collection.

In the United States and around the world in the last couple of decades, prices of minerals have gone up dramatically, but that is not all bad. As values increased, the effort to find more and more minerals has increased. As more money enters the mineral market, more can be spent on searching for and mining minerals. The Collector's Edge's mining venture at the Sweet Home mine is a prime example of this. This venture probably would not have gotten off the ground if the price of minerals in the '90s had been what they were in the '60s. The investment in specimen mining efforts has grown greatly thanks to the dramatic increase in specimen values.

Building equity in a mineral collection for investment purposes has become part of the hobby, like it or not. Therefore, there was a section of the exhibition especially designed to encourage investment in minerals. The average collector may buy specimens as an investment, but every collection should have an equity aspect. Every collection will eventually return to the specimen market. The financial return that descendents of a collector may enjoy will be much better if initial collecting efforts include careful consideration of the investment value of the specimens bought!

In today's market, every collector must have a grasp of worldwide market trends if for no other reason than to maintain a good idea of the value of minerals already in his collection. One goal of the exhibition was to encourage the purchase of minerals with investment potential.

This has implications for everyone. Think of the collectors who've been collecting for decades and can now take advantage of today's high prices to sell off a specimen or two to supplement a retirement income. And how about collectors who can now leave a substantial financial legacy to family because of the current high value of minerals bought decades ago? Or how about those collectors who are now shunning the stock market and investing in tangible goods like fine minerals?

Finally, for those who have no idea how to begin, ideas on how to start a collection were offered. A beginning collector could learn how to make a collection grow, improve, and become more meaningful. This exhibition would do much to help our hobby if it was brought to America and displayed at various museums and shows. It would encourage people to realize the great potential in collecting fine minerals.

With the vast quantity of minerals currently being recovered from China's mines, the organizers of this unique exhibition realized the need for it, in China and elsewhere. It is valuable in building on the current interest in mining, collecting and preserving minerals, while recognizing the potential of minerals as an investment.

Overall, this unique collaboration between an American private mineral company and a Chinese government entity has to have a salutary effect on the mineral hobby. There has to be a positive result to demonstrating to people how to collect and preserve minerals and highlighting the business and investment potential of the specimens. To that end, the exhibit makes an important contribution to the mineral hobby.

The leadership of the Geological Museum of China and the staff of the Collector's Edge—Bryan, Graham, Steve Beiling, and Richard Jackson—are to be commended for having creating such a forward-looking exhibition while raising the level of cooperation among mining companies, the Chinese government, and one of America's major mineral businesses. The impact of this unique exhibition is bound to be profound. *Rock & Gem* is pleased to have been invited to participate in getting out the word of such a ground-breaking cooperative event!

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hop Talk

Stone Clocks

I like to build clocks. I have built clocks out of both pine and oak in a number of styles, but I had never made one of stone. This is due primarily to my total dislike of drilling or cutting holes in stone. I know how to do it and I have done it, but I don't like to because I usually mess it up. Since hobbies are supposed to be fun, I see no reason to punish myself for the sake of a hobby.

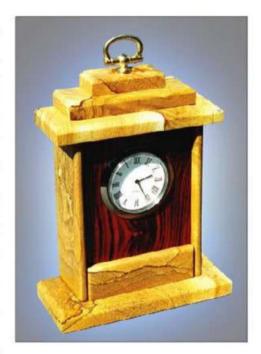
Unfortunately, I had what I thought were some good ideas for stone clocks, so I either had to overcome my dislike of hole cutting or find a way to avoid it. I thought that I might be able to combine my woodworking skills with my lapidary hobby. I researched the subject very carefully on the Internet and could find no law against it, so I set out to design a small stone desk clock.

I had some nice pieces of picture stone that I had collected years ago up at the head of La Plata Canyon, outside of Durango, Colorado. I also had a few nice pieces of cocobolo (a variety of rosewood) that were left over from a wood project. The picture stone was a tan sandstone that went well with the deep reddish brown of the cocobolo. I picked up a small clock insert that only needed a hole of about 1½ in. and I was ready to start.

I started by cutting all the slabs except the one for the small filler piece at the bottom front of the wood block to the same thickness. I cut the filler piece to a thickness of approximately ¼ in. Next, I cut the wooden center piece to size. Those who do not share my hole-cutting phobia, can use either a contrasting or matching stone for the center block.

Next, I picked a spot slightly above center and bored a hole for my clock insert. I made the stone side pieces by first cutting them to the height of the wooden center block. I cut the width of the sides approximately ½ in. wider than the thickness of the wooden block and rounded over the front edges. My clock was made to sit in a spot where the back would not be seen, so I just left those edges flat.

I cut the filler piece so that it was the width of the wood block and ground a half round on the top and end edges. I cut the top and bottom pieces and beveled the front and end edges. Finally, I cut



the two little pyramid blocks on the tip and beveled the edges.

The kind of finish you are able to put on a project is always determined by the material you use. I used a stone that will not take a polish, so I gave it a coat or two of a matte lacquer or polyurethane from a spray can to keep down the accumulation of dirt from handling. I attached all the parts with epoxy or cyanoacrylate, inserted the clock, and I was finished.

Using some of the scraps left over, I made a paperclip holder. To keep from spilling the clips, I glued a small magnet in the bottom of the holder. Then I finished the outside of the holder the same way as the clock.

You can find clock components, plans and kits on the Internet and at woodworking supply or hobby stores. If you don't want to wing it, you might be able to use one of these kits as a template for cutting the stone pieces to size.

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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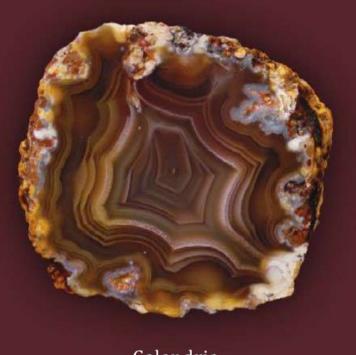
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Yes, You Can!

Story and Photos by Jim Brace-Thompson



After our fall 2010 trip to the Benitoite State Gem mine, Susie Harlow showed us specimens from her father's 1937 collecting trip.

The Clear Creek Management Area of California is a region of San Benito and Fresno counties that has been mined since the Gold Rush era. Generations of rockhounds have collected interesting rocks and minerals here, such as jadeite, chromite, melanite, topazolite, andradite, and serpentine, the California state rock. The area is also the world's sole source of large, gem-quality specimens of the ultra-rare blue mineral benitoite.

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.

First discovered in 1907 by James Marshall Couch benitoite was named and described by Berkeley professor George Davis Louderback in 1909. The mineral has been mined off and on for the past century, and the claim has been held by various owners. In 1985, it was crowned the California state gem, thanks in large part to lobbying efforts by the California Federation of Mineralogical Societies. Other rare minerals that formed in association with benitoite include neptunite, natrolite, joaquinite and djurleite. In the 1900s, asbestos mining began in this region, and that's where the trouble began.

In the Clear Creek Management Area, the Bureau of Land Management (BLM) manages 63,000 acres of what was once considered public land, for all to access and enjoy. However, citing potential health risk due to asbestos in gravel roadbeds, the BLM closed 31,000 acres to public entry and public use in May 2008. Rockhounds have been opposing this action. (See sidebar.)

Fortunately, in 2005, one rockhound hero by the name of Dave Schreiner obtained the claim to the classic old benitoite mine in the Clear Creek district, and he has been able to retain control of that claim. In addition to his mine claim, Dave has purchased the Old Road Camp, a historic work camp of Depression Era buildings and dormitories, which he is gradually restoring. He's converted one to an office and shop, one building, surrounded by small boulders of Clear Creek jadeite, is used as a workshop for the local Coalinga rock club, and others are used for storage and assorted purposes. Within this camp, Dave provides the opportunity to screen for your very own benitoite.

Coalinga is situated on the edge of the San Joaquin Valley, northwest of Bakersfield. The Old Road Camp is 20 miles northwest of Coalinga. You'll find plenty of parking in the lot with the white buffalo statue. You'll also see an iron gate with a sign proudly pronouncing "Benitoite – California State Gem Mine" and a flag pole with the outline of a benitoite crystal welded to it. The camp is open only on Saturdays and Sundays all year 'round; reservations are optional, but preferred. Sign-in starts at 9 a.m. at the cabin next to the benitoite flagpole. The cabin also holds a small rock shop with rough and faceted specimens for



Mine owner Dave Schreiner makes sure everyone gets set up at screening stations to sift through mine tailings for benitoite and associated minerals.



Ventura Gem & Mineral Society member Diane Cook hopes this scoop of dirt from the mine tailings will reward her with a rare benitoite crystal.

sale, including some benitoite mounted in jewelry. One pair of earrings now graces my wife's earlobes.

Within the camp is a series of screening stations in a broad circle surrounding piles of tailings that have been trucked in from the benitoite mine. For \$70 per person per day, you can sift to your heart's content. There are reduced rates of \$20 for kids 12 and under and \$35 for seniors 70 years or older who have proof of membership in any Federation-affiliated club.

Collecting time is from 9 a.m. to 3 p.m. Dave supplies everything you need, including that hallmark of any civilized mine camp: a flush toilet! Upon arriving at your station, you'll find screens, screening tables, buckets, water, and quart ziplock bags to hold your finds. There's even a dark room with an ultraviolet lamp you can use to better search through your washed material, since benitoite glows a pale white-blue under UV light. Employees are there to assist, demonstrate, and help identify your finds during and at the

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Jay House of the Carmel Valley Gem & Mineral Society hopes that this might be his lucky screen!

end of the day. The only extras they suggest you bring are safety glasses for the UV dark room, lunch and drinks, lawn chairs, and a pop-up shade, if desired. You may also want to consider rubber gloves, since you'll have your hands in water all day.

If you go, be observant of the "rules of engagement": Stay in the immediate area of the screening piles. Don't wander around to explore any of the dormitories or other buildings of the Old Road Camp without permission. You're allowed to take home a quart-sized ziplock bag of finds, but if you find something too large for your bag (such as a chunk of blue schist with a potential vein of benitoite in natrolite), a price can be negotiated with the mine owners. I initially thought that stipulation would be restrictive, but we fit all we needed in the ziplock, and Dave was very generous in allowing folks to take chunks of blue schist and serpentine. Finally, kids can play freely, but should be kept close by and monitored, and pets are allowed if they are kept on a leash and you clean up after them.

Dave also offers more expensive collecting options on a limited basis by reservation. As noted, the BLM has restricted access to the Clear Creek Management Area, but because of his pre-existing claim, Dave is able to truck in small groups in one vehicle owned by the mine. He has outfitted a rugged van that sits nine with room on top for equipment, so you can hunt in the tailings at the mine itself. The fee for this adventure excursion (and a true adventure it is, from the sound of the road conditions!) is \$150 per person per day and there is a 10-pound limit on what you can take out. Another option is to do a night hunt for \$500 per person. Although it's pricey and you would have to stay up all night, this option gives you the very best chance at discovering some truly high-quality crystals, using portable UV lamps. Since gem-quality benitoite now sells in the neighborhood of \$800 per carat, with clean, 1-carat faceted stones going for \$2,500 or more, a single good stone could make your day—or night!

If you can't make it to the Old Road Camp or to the mine itself but would still like the experience of personally collecting one of the rarest minerals on earth, you can purchase bags of gravel from the mine through Wayne Schrimp and his Capistrano



Susie Harlow's father collected benitoite in the Clear Creek district as a Berkeley student with Peter Bancroft and Ed Swoboda in 1937.



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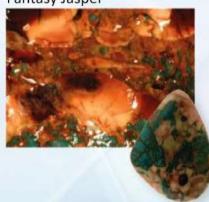
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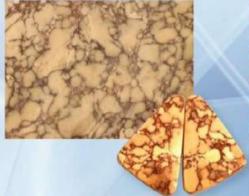
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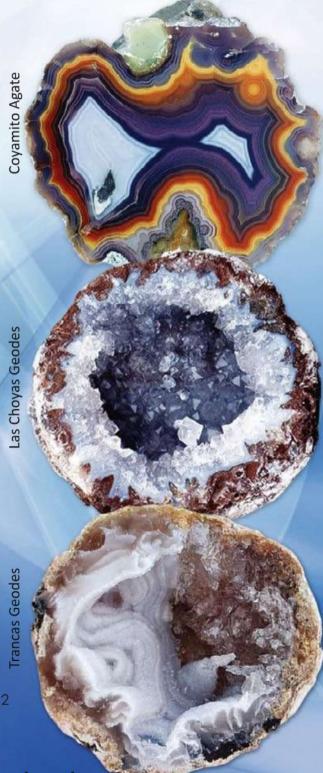
2. Tucson Gem & Mineral Society, 260 S. Church Street, Tucson AZ Convention Center, Space 16W, Feb 10-13, 2011

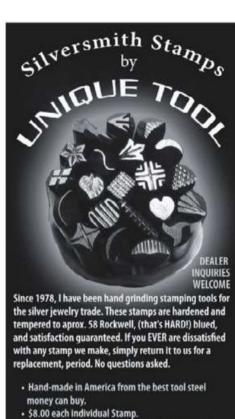
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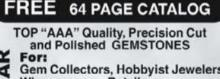
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The author and his wife, Nancy, plan to sift through these findings under UV light back home.

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To get to the Old Road Camp from California's San Joaquin Valley, take Interstate 5 to Coalinga, exiting at Jayne Avenue (Exit 325). Go west Jayne approximately 10 miles to Coalinga. Proceed through downtown Coalinga and through the westernmost stoplight in town. One mile past the light, the road makes a sweeping turn to the right and becomes Derrick Boulevard. Continue on Derrick for three miles through active oil fields before turning left onto the very curvy Los Gatos Road. Proceed for 15 miles. Turn into the Old Road Camp just before a white buffalo statue to your right.

There are a number of options for lodging. Dry camping is available at Los Gatos Creek County Park, 1.5 miles east of the Old Road Camp, or you can stay in Coalinga. We can personally recommend the Baker House Bed & Breakfast, the Best Western, or the Harris Ranch, 10 miles east of Coalinga at the Interstate 5/state Route 198 junction. Coalinga has gas, groceries, and a variety of restaurants. A great little museum at 297 W. Elm Ave. contains exhibits about Coalinga's pioneer days, its oil history, and local minerals, rocks and fossils.

My wife, Nancy, and I, along with several fellow members of the Ventura and Carmel Valley gem and mineral societies, tried our hand at screening for benitoite at the Old Road Camp over Halloween weekend in 2010. These folks included Susie Harlow. whose father, Art Pawson, collected at the original benitoite locality as a Berkeley geology student in 1937. One of Art's professors was none other than Louderback, and his traveling companions were Pete Bancroft and Ed Swoboda, two of America's

most prominent field collectors, so we felt a direct link with California mineralogical history on this trip. In fact, Susie brought along spectacular specimens from her father's collection for a show-and-tell back at the Baker House.

While we didn't come away with any huge, gem-quality crystals, we all found a nice variety of highly rare specimen-grade gem minerals and we had a terrific time enjoying great company at the hospitably comfortable Baker House between collecting. If you'd like to try your hand at collecting the California state gem, contact Dave Schreiner by phoning (559) 935-5909 or e-mailing dave@CalStateGemMine.com. You can also e-mail co-owner John-Luke Schreiner at il@ calstategemmine.com. Before you visit the mine, get current cost information and operating hours on the Benitoite Gem mine Web site, www.CalStateGemMine.com. Give it a shot. My collecting companions and I highly recommend it! "

More Information

For further information on the Clear Creek Management Area closure, the BLM Web site encourages you to contact Field Manager, Bureau of Land Management, Hollister Field Office, 20 Hamilton Court, Hollister, CA 95023, (831) 630-5060 or (831) 630-5000. If you enjoy collecting minerals—especially some of the rarest specimens on earth—in the field, speak up for maintaining access to classic localities like the Clear Creek Management Area



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Show Dates from page 10

FEBRUARY 2011

19-20—ANTIOCH, CALIFORNIA: Show; Antioch Lapidary Club; Contra Costa Fairgrounds, 1201 W. 10th St.; Sat. 10-5; Sun. 10-5; adults \$3, children 12 and under, active military with ID, and Scouts in uniform free; jewelry, gems, findings, supplies, tools, auction, grab bags, exhibits, demonstrations, kids' projects; contact Brenda Miguel, 800 Bluerock Dr., Antioch, CA 94509, (925) 301-6957; e-mail: brenda.miguel
yahoo.com; Web site: www.antiochlapidaryclub.tripod.com

19-20—CINCINNATI, OHIO: Retail show; Intergalactic Bead & Jewelry Shows; Sharonville Convention Center, North Hall, 11355 Chester Rd.; Sat. 10-5, Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela couch @beadshows.com; Web site: www.beadshows.com

19-20—MESA, ARIZONA: Show, "2011: Rocks From Heavern"; Apache Junction Rock & Gem Club; Skyline High School, 845 S. Crismon Rd.; Sat. 9-5, Sun. 10-4; adults \$3, students \$1, children under 12 free; vendors, jewelry, gemstones, cabochons, rocks, minerals, fossils, beads, findings, lapidary equipment, lapidary supplies, silent auction, gem tree making, wheel of rocks, grand raffle; contact Wally Frlich, 463 N. Valley Dr., Apache Junction, AZ 85120; (480) 982-7760; e-mail: wfrlich@hotmail.com; Web site: www. airockclub.com

25-27—COSTA MESA, CALIFORNIA: Show; Gem Faire Inc.; OC Fair & Event Center/Bldg. 10, 88 Fair Dr. Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

25-27—GOLDEN, COLORADO: Show; Denver Gem & Mineral Guild; defferson County Fairgrounds, 15200 W. 6th Ave.; Fri. 10-6, Sat. 10-6, Sun. 11-5; free admission; gemeutting demonstrations, geode cutting, mineral sample bags, mineral displays, dealers, gems, minerals, fossils, geodes, jewelry, books; contact Joseph Payne, 6101 S Logan Ct., Centennial, CO 80121, (303) 783-0221; e-mail: jpayne@englewoodgov.org; Web site: www.denvergem.org

25-27—MELBOURNE, FLORIDA: Show; Frank Cox Productions; Melbourne Auditorium, 625 E. Hibiscus Blvd.; Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

25-27—NEWARK, CALIFORNIA: Annual show and sale; 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), coupon on Web site; children under 12 free with adult; rare Ice Age fossils, fluorescent rock display, 48 display cases, 40 dealers, eight lapidary demonstrations, rocks, minerals, jewelry, gemstones, fossils, faceted stones, beads, petrified wood, lapidary equipment, jewelry making supplies, kids' Spinning Wheel, live auction, door prizes; contact Larry Ham, P.O. Box 2145, Castro Valley, CA 94546, (510) 887-9007; e-mail: show chair@mgscv.org; Web site: www.mgscv.org

26-27—BOISE, IDAHO: Annual show; Idaho Gem & Mineral Club; Expo Idaho, 5610 Glenwood St.; Sat. 10-6, Sun. 10-5; contact Charlie Smith, P.O. Box 8443, Boise, ID 83707, (208) 628-4002

26-27—EVERETT, WASHINGTON: 58th annual show; Everett Rock & Gem Club; Washington National Guard Armory, 2730 Oakes Ave.; Sat. 10-6, Sun. 10-5; free admission; dealers, demonstrations; contact Fritz Mack, P.O. Box 1615, Everett, WA 98206, (425) 232-0809

26-27—JACKSON, MISSISSIPPI: 52nd show; Mississippi Gem & Mineral Society; Trade Mart Bildg., State Fairgrounds, 1207 Mississippi St.; Sat. 9-6, Sun. 10-5; adults \$5, students and children \$3; more than 24 dealers, gemstones, minerals, fossils, jewelry, rough, lapidary tools, special Mississippi Museum of Natural Science exhibit, club exhibits, demonstrations, junior demonstrations; contact Keith Peacock, 114 Quail Ridge Rd., Braxton, MS 39044; e-mail: kpcoc@aol.com; Web site: www.missgems.org

26-27—PITTSBURGH, PENNSYLVANIA: Retail show; Intergalactic Bead & Jewelry Shows; IBEW Bldg., The Circuit Center & Ballroom, 5 Hot Metal St.; Sat. 10-5, Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

continued on page 44

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Impact Metamorphism

In its geological context, the term "metamorphism" refers to the alteration of rocks and their mineral components by exposure to elevated temperatures and pressures over widely varying periods of time. Regional metamorphism can require millions of years of deep burial. Yet another type of metamorphism takes place literally in a fraction of a second. This is impact, or shock, metamorphism, which results from meteoric impact.

The world's best-studied impact-metamorphism locality is Meteor Crater, just off Interstate 40 some 40 miles east of Flagstaff, Arizona. This spectacular crater is a major tourist attraction, the type locality for two impact-metamorphism minerals, and a plentiful source of oddly deformed quartz grains called "shocked quartz".

Meteor Crater originated some 50,000 years ago when a 150-foot-diameter meteoroid weighing many thousands of tons and traveling at 40,000 miles per hour (11 miles per second) slammed into the northern Arizona desert. In less than one second, its impact released energy equal to that of a 20-megaton nuclear detonation, creating a 4,100-foot-wide, 700-foot-deep crater and scattering fragmented iron meteorites for miles around.

Despite the abundance of meteorite fragments, the crater was initially thought to be volcanic in origin. But suspicions of its meteoric origin, first voiced in 1890, cited the absence of any nearby volcanic rock. By the 1920s, despite the lack of positive proof, most scientists recognized the crater's origin as meteoric.

The initial step toward *proving* the crater's meteoric origin was actually taken at New Mexico's Trinity Site, where the first atomic bomb was detonated in 1945. Rock samples recovered from "ground zero" contained oddly deformed quartz grains that showed intersecting planar lines under polarizing microscopy. Picture a stacked deck of cards that has been pushed to one side, slightly displacing each card relative to the adjacent cards. Within the crystal lattices of the quartz grains at Trinity Site, a similar displacement had occurred between adjacent atomic planes to create detectable zones of optical interference.

Scientists realized that this shocked quartz had been created by an enormously powerful, instantaneous compression wave. Shocked quartz was initially thought not to exist naturally because scientists had previ-



ously assumed that no natural geophysical pressures could approach those generated by nuclear detonations.

But in the late 1950s, after finding shocked quartz at Meteor Crater, scientists renewed their crater investigation and discovered two new minerals that dispelled any doubt about its meteoric origin. Both minerals are polymorphs of silicon dioxide—minerals chemically identical to quartz, but with different crystal structures and physical properties.

Coesite, first synthesized in 1953, was discovered at the crater in 1960. Unlike quartz, which crystallizes in the hexagonal system, this rare quartz polymorph crystallizes in the monoclinic system, and does so only at pressures exceeding 300,000 pounds per square inch. Coesite is harder than quartz (Mohs 8) and slightly denser.

Stishovite, a quartz polymorph that had been synthesized in laboratories, was discovered at the crater in 1968. Stishovite crystallizes in the tetragonal system, is softer and much denser than quartz, and forms only under extreme pressures exceeding 2 million pounds per square inch.

Today, the presence of such impactmetamorphism products as shocked quartz, coesite, and stishovite are the defining criteria for all meteoric-impact structures. Meteor Crater represents more than a relatively recent meteoric impact. It is also a source of shocked quartz, the type locality for the high-pressure silicon dioxide minerals coesite and stishovite, and the world's premier study site for the phenomenon of impact metamorphism.

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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California: A Mineral Treasure Trove

This Wild Western State Has More Than Gold!

Story and Photos by Bob Jones

ention the state of California to a mineral collector and gold immediately comes to his mind. A gem collector, on the other hand, might think of the state gem, benitoite, or tourmaline. And if you could mention California to an old-time prospector of the 1850s, he might even mention mercury after telling you his latest gold adventure. Talk about California's minerals to a rock geologist and you might get a different answer: serpentine, the state rock. To most rockhounds, cutting material like jasper, agate, jade, chert, or an assortment of quartz hardstones comes to mind. Such is the variety of gems, minerals and rocks in this Western state.

There is a problem with California's state rock. It seems it has been identified as a health culprit and a bill has been filed in the California legislature asking for a vote to declare California's serpentine a health hazard! It seems some folks think it could be

a source of asbestos, and you know what a pariah of the mineral world that fibrous stuff has become. Time will tell whether California's state rock will be tossed back onto the dumps and replaced by a different, innocuous—for now—rock.

California is certainly well known for gold and its gem tourmaline. Benitoite is almost as famous and is certainly much prized by mineral collectors. Not so well known are the many industrial minerals the state has produced. If you are old enough, you'll remember the television program "Death Valley Days", hosted by Ronald Reagan, among others, and presented by the Pacific Coast Borax Co., with the company's trademark 20mule team in the opening sequence. There really were such things, though I'm not sure those wagons loaded with borates always had 20 mules pulling them along to the nearest railhead. I do know the deposits of borates in California's Mojave Desert have produced some quite lovely minerals: colemanite, tincalconite, borax, and ulexite, that magical "TV rock" that kids love to gaze into.

On exhibit in the Smithsonian Institution is this superb example of a Blue Cap tourmaline from the Tourmaline Queen mine.

Ulexite is found in the Boron, California, borate deposits. It is a fibrous sodium, calcium borate that forms in long, fibrous needle crystals that lack color. When they occur in tight bundles, the ends of these fibers can be polished, which allows the fibers to

act like natural fiber optics by transmitting an image of the object or text placed under it. How many millions of kids have been thrilled when they looked into a TV rock?

Those same borate deposits also produce a nice crystallized mineral called colemanite. Formed in monoclinic, colorless crystals, this mineral is a major ore in the borate deposits around Boron. Crystals can be an inch or longer, sharp and clear. Sometimes, they even line the interiors of borate geodes.

Another borate mineral worth mentioning is howlite, a snow-white massive material. Howlite is not an important ore but has "gem" value; cauliflowerlike nodules of howlite can be sliced, dyed blue to resemble turquoise, and foisted off on unsuspecting buyers. The one good thing about howlite is that a snow-white

TOP: America's finest axinite crystals have come from the new Melones Dam site in California.

CENTER: Black neptunite crystals occur alongside benitoite at the Benitoite Gem mine in San Benito County, California.

BOTTOM: Colorless colemanite is one of the important industrial minerals to come from the Boron, California, pit.

slice provides artists with a wonderful and inexpensive porcelaneous "canvas" upon which to draw wonderfully artistic scenes, often with a western theme.

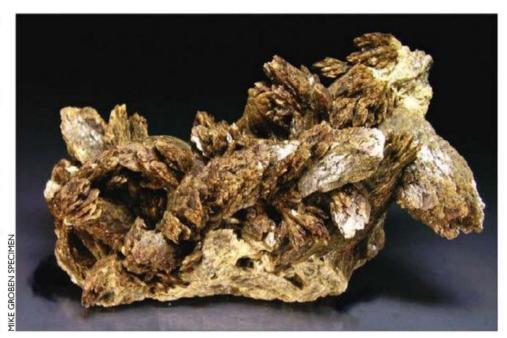
Much can be written about benitoite, California's state gem. Its unique crystal form is difficult to identify. It is the only mineral that is hexagonal with a trigonal axis of symmetry and a plane of symmetry perpendicular to that. That complicated form was predicted, but remained unknown until benitoite was discovered in the early 1900s.

The benitoite deposit is a classic example of an accidental discovery. The discovery occurred when a prospector looking for mercury deposits came upon small blue crystals on the white slope of a hillside. He collected them thinking they were diamonds! Prospectors knew that mercury would readily amalgamate with gold and that several mercury deposits had been found in the area of New Idria, California, deposits that produced mercury needed in the Sierra Nevada gold fields. Mercury from these local sources was less expensive than mercury from sources in Mexico.

While serpentine, the California state rock, is hanging on by a fiber, benitoite's title of state gem is not being challenged, though anyone who wants to collect benitoite may have trouble. The region in which benitoite occurs has been closed to public access for an environmental study. Guess what they are studying? Asbestos! Fortunately, the anti-serpentine bill, SB 624, died in committee, but you can bet it will resurface in some form, keeping the future of collecting in the area in doubt.

The gray rock found at the benitoite locality is called crossite and is a form of glaucophane, a metamorphic rock that can occur in fibrous, columnar or granular form. Though crossite is not a form of asbestos, any fibrous or granular metamorphic rock like crossite or glaucophane is suspect by environmentalists, and this puts access to the deposit at risk.

A prospector named Jim Couch was searching for mercury when he came across

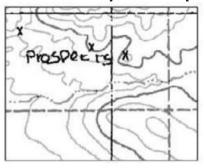






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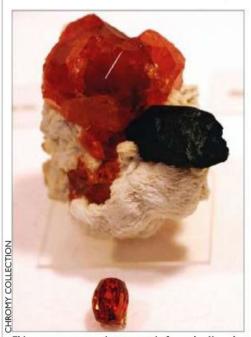
California: A Mineral Treasure Trove from page 35

a snow-white hillside dotted with sparkling blue. He investigated and found small, bright-blue, unidentified crystals. They proved to be a mineral new to California, benitoite. Countless articles have been written about this lovely sapphire blue mineral. It actually ranges in color from deep blue to opaque gray with included crossite. It occurs with black neptunite crystals in white natrolite, which is etched away to expose the crystals. The matrix is a gray-blue crossite, a type of metamorphic rock similar to serpentine. Does that mean the benitoite deposits might be closed by environmentalists? Who knows?

The fibrous crossite matrix is cause for concern because of the current movement to eliminate all forms of serpentine as California's state rock. Crossite is associated with actinolite, one of the minerals in asbestos! The question now is, if serpentine is thrown out as the state rock, will that trigger an attempt to close the Benitoite Gem mine?

Though benitoite is the most eagerly sought mineral at the mine, formerly known as the Dallas Gem mine, neptunite occurs here in choice, lustrous black crystals. They are easily identified by their square cross section and are almost always jutting up from the white natrolite. Neptunites are common at the Benitoite Gem mine and form in terminated crystals that can be 2 inches long or longer and are usually lustrous.

Naturally, gold has been the premier economic mineral for California. Do you



This gemmy spessartine garnet is from the Hercules mine, near Ramona, California.



Kunzite is one of California's most sought after collector pegmatite gems.

think 19-century California's population would have exploded the way it did had gold not been found in 1848? The only other mineral I can think of that could have stirred such a rush is diamonds, which are only rarely found in this state.

The impact of the California gold discovery actually hit the entire Western United States. While people flooded to California by sea from the west and by land from the east, disappointed argonauts headed east into the Rocky Mountains and the desert states.

While crystallized gold is a great mineral to collect, thanks to modern mineral mining, most collectors prefer-and can afford-gem treasures from the gem pegmatites of Southern California. Everyone knows what an assortment of wonderful species can be found in Southern California's pegmatite mines. They produce gem elbaites, superb kunzite crystals, choice pink morganites, choice gem spessartite garnets, superb quartz and feldspar crystals, and an assortment of non-gem species, including cassiterite, stibiotantalite and stilbite. Seldom do you hear any mention of lepidolite mica, one of the finest minerals to be found in the region, which forms a matrix upon which the pegmatite

Lepidolite mica is usually a lovely pink to pink-violet color, though it can lose its color upon prolonged exposure to sunlight. It is a potassium, lithium aluminosilicate, fluoride hydroxide—quite a complicated chemistry! It is sometimes found in thick crystal books that are easily split, as are most micas.

This pink mica is common in lithium pegmatites and is closely associated with gem crystals of elbaite. One delightful type of lepidolite comes from the Stewart Lithia mine in the San Bernardino Range, at Pala (San Diego County), California. Lepidolite is so abundant here it was actually mined as an ore of lithium. The lepidolite is of-

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SUNDAY:

Dr. Federico Pezzotta, Curator of Mineralogy at the Museum of Natural History, Milan, Italy, presents "Mineral Adventures from Madagascar". Social Hour 6:30 p.m., Presentation 7:30 p.m.





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California: A Mineral Treasure Trove from page 36

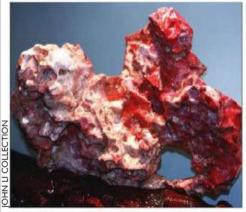
ten shot through with slender, bright-pink elbaites in a great and showy combination. The abundance of this elbaite-lepidolite material is significant enough that the mine has produced specimen material consistently since 1884, when it was discovered.

California tourmaline was first found in the Mesa Grande area in the 1880s. Like so many other gem minerals, the Mesa Grande crystals were discovered by locals who had no idea of their value. That soon changed, and mining for gem tourmalines began.

One of the more productive pegmatite mines in Southern California has been the Himalaya mine at Mesa Grande. By the late 1800s, lovely pink crystals were being shipped from California to China for carving. More importantly for modern collectors, the Himalava mine was operated in the latter part of the 20th century, producing thousands of crystals, both loose and on matrix. While production from the early years was sent to China, the modern production has entered the world gem market and is available to all collectors. Thanks to Bill Larson, a co-owner and the chief operator of the Himalaya, and his partners, my son Evan and I were invited to dig out a gem pocket, the results of which filled two 5-gallon buckets with crystals!

While the Himalaya produced countless tourmalines of the variety elbaite, the elbaites that stirred the most excitement and are considered California's finest were found in 1972 at the Tourmaline Queen mine. The Queen had been located in 1903, but its finest elbaites were not unearthed in quantity until 1972. Now known as "blue cap" tourmalines, these lovely pink crystals, some of them up to 6 inches long, have a thin, bright-blue termination zone, or cap.

Not all San Diego County pegmatite mines are well known for tourmalines. The



One of the rare gems California has produced is cinnabar-rich myrickite.



California's state gem, benitoite, can be faceted into breathtaking blue gems.

Pala Chief mine, for example, produced some of this country's best spodumene, variety kunzite. These loose, swordlike crystals are 2 or 3 inches wide crystals and have a choice violet color.

The Little Three pegmatite mine at Ramona, California, has been a sporadic source of fine blue topaz crystals, probably the best ever found in California. Today, you'll only see such crystals in museums and private collections. The Little Three mine is well known for its remarkably fine gemmy, orange spessartite garnets, which have an exceptional trapezohedral shape with 24 faces. The nearby Hercules mine and a couple other smaller pegmatites have also produced garnets.

Among the minerals found in California is a variety of axinite, the name for a group of calcium, manganese, iron, borosilicates. Axinites form a series, with pure ferroaxinite as one end member and manganoaxinite as the other.

Manganoaxinite has been found in France and Japan, and recently at Dalnegorsk, Siberia, in California, and at other sites. Ferroaxinite has also been found in the same deposits! This is no mistake, as manganese and iron can interchange in the axinite chemistry, resulting in either manganaxinite or ferroaxinite. Visually, there is no way to distinguish one from the other, so the minerals from a given deposit are tested to determine the dominant species.

California boasts some of the best axinites ever found in America. Luckily, axinite in fine crystals occurs in California's gold country. One appropriately named place is Coarsegold (Madera County), where excellent, large, cinnamon-brown, chisel-shaped blades that can be over an inch long in hand-size clusters were found. Unfortunately, the exact location of this axinite source was not recorded. Another source near Springville (Madera County) also went unrecorded.

For modern collectors of California axinites, the most important source of this lovely mineral has been in a spillway dug for use as an overflow channel servicing New Mel-



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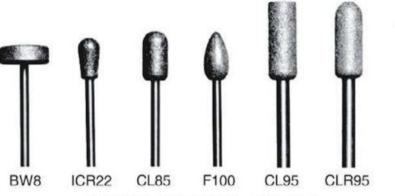
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California from page 38



California's Eagle's Nest mine has produced superb specimens of crystallized gold.

ones Lake, near Copperopalis (Calaveras County), another gold country site.

During the construction of the New Melones Dam in the 1970s, crystals of ferroaxinite were found. Tests have since shown that these crystals, like other axinites, contain some manganese, but not in sufficient quantity to exceed the iron content.

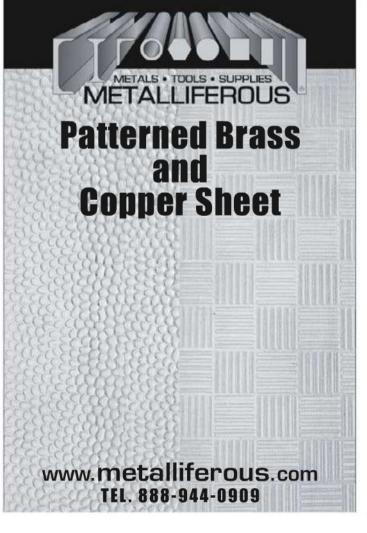
When the building of the spillway commenced in 1981, small pockets of ferroaxinite were exposed and these magnificent crystals were collected. Naturally, since the site was an active government construction zone, the activity was not sanctioned. Collectors were undeterred by regulations, however, and they managed to do some serious collecting, often having to stand in waist-deep water to dig into pockets of lovely brown to violet axinites. The crystals they sought formed nice clusters up to 6 inches across, had the classic chisel shape, and were generally very sharp-edged. Some crystals were gemmy at the tips and some crystals had included actinolite or albite.

The gemmy crystals showed the typical pleochroic color change when the crystals were rotated slowly. Associated with the axinites, along with the actinolite and albite, was paleogroskite, a fibrous silicate that usually matted in appearance and white.

Along with the minerals described herein, California has produced countless tons of wonderful quartz-variety minerals, including agate, jasper, chert, chalcedony, jade, a variety of idocrase called californite, and a host of hardstone varieties. Far too many localities yield semiprecious massive minerals to list them here, but there are useful guides and references still available.

One extremely useful reference is *Gemstones of North America*, by John Sinkankas (Van Nostrand Reinhhold). First published in 1959, *Gemstones* gives very detailed information on a host of minerals, with California well featured. This reference was revised in 1979. A 1997 revision was published by Geoscience Publishing. All these versions of John's excellent text are still very useful. Copies of out-of-print books are often available from book dealers like Rocks of Ages, P.O. Box 674, Pacitas, NM 37043; e-mail: rxofages@flash.net.





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Kansas Pop Rocks

Western Kansas is dominated by the Niobrara Chalk, which was laid down in the Late Cretaceous Period. These chalk beds are most famous for the giant fish, reptile, and clam fossils that weather out of them. In those same chalk beds, however, a unique type of pyrite specimen is formed that is locally known as "pop

rocks". The local kids traditionally threw them into bonfires, as the heat would cause the iron sulfides to become unstable and the rocks would explode. Shrapnel would shoot out, often injuring the kids, but it was considered "manly" to stand close to the fire!

It is believed that the pop rocks formed when pyrite crystallized around a nucleus of a fossil bone, shell or tooth in an ever-expanding nodule. The fossil is usually completely replaced by the pyrite. Kansas pop rocks are unique specimens in the world of common pyrite. No two are exactly alike, and across the roughly 10-mi. by 30-mi. area in which they're found, the nodules in each deposit have a unique shape. Smooth ones and highly crystallized ones are sometimes found in the same horizon, with no obvious reason for the dual structure.

All have a radial symmetry in the crystal structure, but otherwise they can be everything from perfect balls to cubes, and miniature spaceships to meteorite shapes. Sometimes, a fossil protrudes out of the side. I have a 2-ft. clam shell that has one embedded directly in the shell. They range from "jewelry" size (about 1cm) to 20lb. monsters, which is the largest I've seen.

perfect pop Rare. rocks sell for big dollars as metaphysical stones, as they do emanate energy, and people sensitive to that energy value them as healing stones. Pop rocks have been found as far away as the Louisiana Delta and were probably traded by Native Americans, who may have valued

All of Western Kansas is private land, and all the land on which pop rocks are found is posted. Unfortunately, fossils have been poached and sold on the open market, so access to this land is limited to leaseholders. The supply of pop rocks is dwindling; the dry conditions in Western Kansas don't al-

low much weathering, which exposes the stones. Each year, I find fewer and fewer stones as I walk the canyons looking for fossils. They will probably continue to weather out for centuries, as the Niobrara Chalk is extensive, but I can never find enough for dealers who wish to purchase these stones.

them as shaman stones.

-Greg Sweatt

Wire Wrapping

Lapidaries who cut and polish cabochons or facet gemstones can't rest there. They need a setting for the stone so it can be worn as jewelry. Some lapidaries buy pre-made settings, also called findings, but these come in standard shapes and sizes. A lapidary with an oddly shaped cabochon won't find a pre-made setting for it. She could learn metalsmithing skills and create her own settings, but there's another way.

Wire wrapping is the art of using wire made of precious or common metal to create a jewelry setting for a stone. Lapidaries often use wire wrapping to create a secure setting, while showing off as much of the stone—front and back—as possible. Beads and rough rocks, like a geode half, also work well with this medium.

The wire is formed along the contours of the stone and twisted to secure the hold. Additional twisting of the wire creates decorative loops and curves that add to the beauty of the setting. The designs can be very simple or very elaborate, according to the lapidary's skill level.

Wire wrapping is suitable for any kind of setting you can imagine: a pendant or brooch, a bola tie, even a ring. The tools needed are relatively few: a beginner's kit includes spools of fine silver or gold-filled wire, cutters to snip the wire into the required lengths, and a variety of pliers (chain-nose, round-nose, flat-nose, etc.) to shape the wire.

Getting started in wire wrapping is generally less expensive than metalsmithing and doesn't require any dangerous equipment or chemicals. Beginners of any age can master the basics pretty quickly,

but learning to make more and more elaborate designs will challenge you for years to come.

-Lynn Varon

CORRECTION

The January 2011 Quiz prize will be an introductory rock collection-not a Belomo loupe—donated by Amateur Geologist.



42 www.rockngem.com

California Minerals Crostic Puzzle

To solve the crostic puzzle, write the answers to the clues in the numbered lines to the right, one letter per line. Refer to the letter of the clue and the number of the line to find the right square for each letter. (Example: A 45 = C, A 36 = R, A 15 = Y, etc.) Fill in all the letters to reveal the secret message. One word is filled in to get you started.

CLUES WORDS

A.	Mineral form	C	R	Υ	S	Т	Α	L
		45	36	15	23	4	29	47

- B. Keokuk state 33 24 42 37
- C. Yellow citrus 61 16 32 9 30
- D. Far away 31 13 39 1 60 25 11
- F. Twin constellation 26 8 28 43 34 56
- G. Male rabbit 12 46 18 3

- H. Long pencil mark 38 48
- I. Hardness scale
- K. Water dweller 10 53 44 5
- M. Short laugh

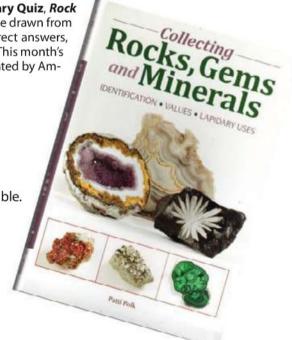
D		1	I	2	G	3			Α	4 T	К	5	L	6	I	7	F	8			С	9	K	10			D	11	G	12	D	13	T	14					
А	Y	15	С	16	В	17	G	18	Е	19			J	20	Е	21	Е	22	228	23 S	В	24	D	25			F	26	L	27	F	28							
	A	29	С	30	D	31			С	32	В	33	F	34	Н	35		36 R	Е	37	Н	38			D	39	М	40	J	41	В	42			F	43	К	44	
А	С		G	46	А	47 L	Н	48	Е	49	T	50	J	51	L	52	K	53	М	54			J	55	F	56	Н	57	Е	58	Е	59	D	60	С	61	J	62	

The Quiz is open to U.S. residents 17 and younger. Mail your answers to **February Quiz**, **Rock & Gem magazine**, **P.O. Box 6925**, **Ventura**, **CA 93006-9899**. Five winners will be drawn from the valid entries received by **Feb. 31**, **2011**. Valid entries must include the correct answers, the entrant's name, age and address, and the signature of a parent or guardian. This month's prize is a copy of the book *Collecting Rocks*, *Gems and Minerals*, generously donated by Amateur Geologist (www.amateurgeologist.com; see ads on pages 29 and 46).

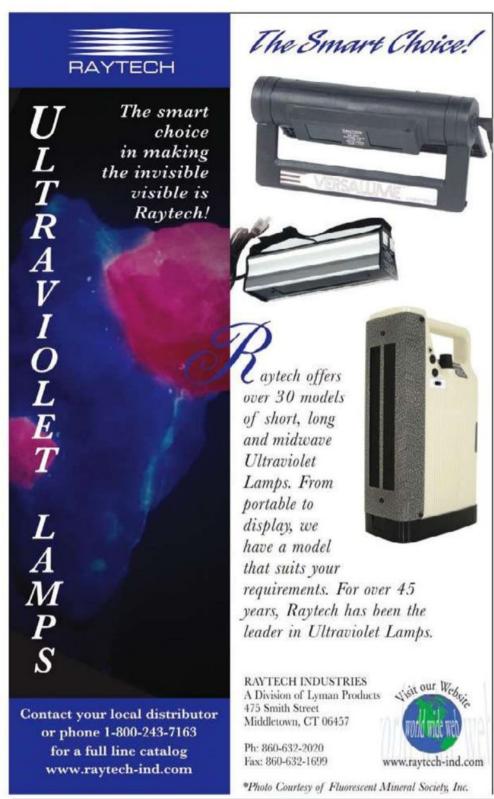
The Quiz

- 1. Kansas pop rocks are a type of _____ specimen.
- 2. Pop rocks explode because the _____ in them become unstable.
- 3. The nucleus of a pop rock is believed to be a _____ .
- 4. Wire wrapping is the art of using wire to make jewelry settings, also called _____ .
- 5. Three types of wire-wrapping pliers are _____ , ____ and ____ .

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



February 2011 43





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Show Dates from page 28

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, ages 12 and under free; 30 dealers, minerals, gems, crystals, beads, metaphysical healing tools; contact Jerry Tomlinson, P.O. Box 1371, Sausalito, CA 94966, (415) 383-7837; e-mail: jerry@crystalfair.com; Web site: www. crystalfair.com

MARCH 2011

4-6—DEL MAR, CALIFORNIA: Show; Gem Faire Inc.; Del Mar Fairgrounds/Bing Crosby Hall, 2260 Jimmy Durante Blvd.; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire. com; Web site: www.gemfaire.com

4-6-LARGO, FLORIDA: 41st annual show and sale; Suncoat Gem & Mineral Society; Minnreg Bldg., 6340 126th Ave. N., between 66th St. and US19 N, south of Ulmerton Rd.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$5 (three days), Web site coupon, students \$4, children under 6 free; dealers, club sales, finished and un-finished gems, jewelry, beads, minerals, equipment, tools, magazine back issues, prize drawings, displays, grab bags, lapidary demonstrations, beading and wire wrapping; Suncoast Gem & Mineral Society, P.O. Box 13254, St. Petersburg, FL 33733-3254; Web site: www.sgams.com

4-6-RICHMOND, INDIANA: 38th annual show: Eastern Indiana Gem & Geological Society; Wayne County Fairgrounds, 861 N. Salisbury Rd.; Fri. 10-6, Sat. 10-6, Sun. 11-4; adults \$4, seniors (60+) \$3, students (7-18) \$1, children 6 and under free; jewelry, minerals, fossils, crystals, dealers, demonstrations, displays, silent auctions; contact John LaMont, (765) 647-4894, or Dave Straw, (765) 966-4249

4-13-IMPERIAL, CALIFORNIA: Annual show, "California Mid-Winter Fair and Fiesta"; Imperial Valley Gem & Mineral Society,, IV Expo, 200 E. 2nd; Fri. 12-10, Sat. 12-10, Sun. 12-10, Mon. 4-10, Tue. 4-10, Wed. 4-10, Thu. 4-10, Fri. 4-10, Sat. 12-10, Sun. 12-10; contact John Pyle Jr., P.O. Box 1721, El Centro, CA 92244, (760) 562-3453; e-mail: Jp.IVgms@att.net; Web site: http://ivgms.tumblr.com

5-6-ARCADIA, CALIFORNIA: Show; Monrovia Rockhounds Inc.; LA County Arboretum, Ayres Hall, 301 N. Baldwin Ave., 1 block south of 210 Fwy.; Sat. 9-4:30, Sun. 9-4:30; adults \$8, seniors and students \$6, children \$3; more than 10 dealers, minerals, gems, jewelry, beads, findings, fossils, club geode cracking, Grab Bags, Treasure Wheel, Dino Dig, Fossil Find, prize drawings, grand prize raffle; contact Jo Anna Ritchey, 224 Oaks Ave., Monrovia, CA 91016, (626) 359-1624; e-mail: joannaritchey@gmail. com; Web site: www.moroks.com

5-6—BIG SPRING, TEXAS: 42nd annual show; Big Spring Prospectors Club; Howard County Fair Barn; Sat. 9-5, Sun. 10-5; free admission; gems, minerals, jewelry, dealers, demonstrations, displays, spinning wheel, hourly prizes, jewelry repair, stone setting; contact Jerald Wilson, 707 Tulane, Big Spring, TX 79720, (432) 263-4662, or Lola Lamb, (432) 263-3340

5-6-CALDWELL, IDAHO: 57th annual show; Owyhee Gem & Mineral Society; O'Conner Field House, 2200 Blaine; Sat. 10-6, Sun. 10-5; adults \$3, children under 11 free; dealers, jewelry, gems, minerals, beads, exhibits, fluorescent minerals, dinosaur fossils, educational displays, lapidary demonstrations, faceting, wire wrapping, silversmithing, cabbing; contact Carolyn Roberts, 50 N. Robinson Rd., Nampa, ID 83687, (208) 466-6191; e-mail: ncrobertsrp@msn.com;

5-6-ISSAQUAH, WASHINGTON: Show; East Kingco Rock Club; Pickering Barn, 1730 10th Ave. NW, across from Costco; Sat. 10-6, Sun. 10-5; free admission; dealers, gems, jewelry, silent auction, games, raffle, door prizes, demonstrators, displays; contact Norma McDonald, P.O. Box 2203, Redmond, WA 98073, (206) 612-3113; e-mail: eastkingco@ gmail.com; Web site: www.eastkingco.org

5-6-NEWARK (STANTON), DELAWARE: 48th annual show; Delaware Mineralogical Society; Delaware Technical and Community College, Churchmans Rd. (Rte. 58), I-95 Exit 4B; Sat. 10-6, Sun. 11-5; adults \$6, seniors \$5, juniors \$4, children under 12 free with adult; mineral, lapidary and fossil exhibits, museum displays, dealers, minerals, fossils, gems, jewelry, lapidary supplies, door prizes, large specimen raffle, lapidary demonstrations, children's booth, club lapidary work and specimens for sale; contact Wayne Urion, (302) 998-0686; e-mail: wurion@aol.com; Web site: www. delminsociety.net

continued on page 48



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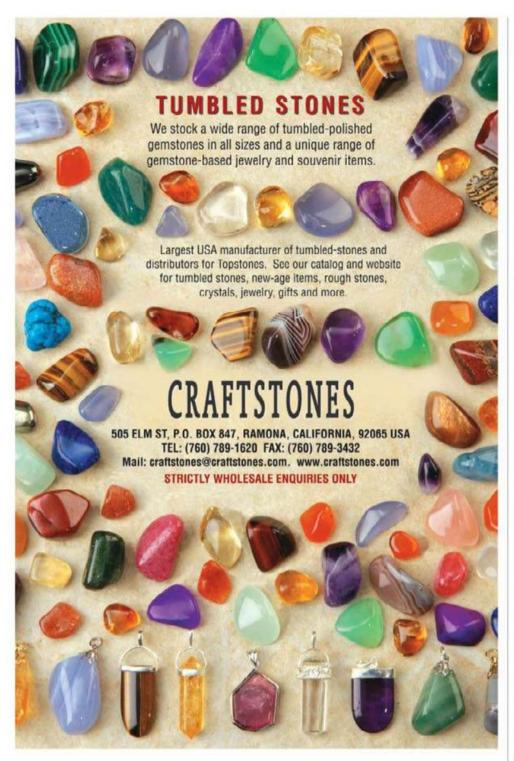
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Show Dates from page 44

MARCH 2011

5-6—POMPANO BEACH, FLORIDA: Retail show; Intergalactic Bead & Jewelry Shows; Emma Lou Olson Civic Center, 1801 N.E. 6th St.; Sat. 10-5, Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

5-6—VENTURA, CALIFORNIA: 49th annual show; Ventura Gem & Mineral Society; Ventura County Fairgrounds, 10 W. Harbor Blvd.; Sat. 10-5, Sun. 10-4; club member displays, gems, minerals, fossils, lapidary art, demonstrations, lapidary arts, jewelry making, door prizes, silent auctions, "Country Store", dealers, children's activities; free admission; contact Andy Anderson, (805) 987-0043; e-mail: lillianander son@juno.com; Web site: www.vgms.org

11-13—COTTONWOOD, ARIZONA: Show, "Verde Valley Gem Mineral & Jewelry Show"; Mingus Gem & Mineral Club; Verde Valley Fairgrounds, 800 E. Cherry St.; Fri. 9-5, Sat. 9-5, Sun. 10-4; adults \$2, children 13 and under free with paying adult; more than 30 vendors, door prize raffles, educational displays, extensive children's area; contact Sarah Knowles, P.O. Box 1284, Cottonwood, AZ 86326; e-mail: Mingusgemandmineralclub@gmail.com

11-13—FT. MYERS, FLORIDA: Show; Frank Cox Productions; Harborside Convention Center, 1375 Monroe St. (downtown); Fri. 1-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frank cox@comcast.net; Web site: www.frankcoxproductions.com

11-13—HILLSBORO, OREGON: 53rd annual show; Tualatin Valley Gem Club; Washington County Fairgrounds, 873 NE 34th Ave., on Cornell Road, across from Hillsboro Airport; Fri. 0-6, Sat. 10-6, Sun. 10-5; contact Roy Woo, P.O. Box 641, Forest Grove, OR 97116; e-mail: rwoo12648@gmail.com

11-13—KANSAS CITY, MISSOURI: 50th annual show, "Greater Kansas City Gem & Mineral Show"; Association of Earth Science Clubs of Greater Kansas City; MCC-BTC Exhibition Hall, 1775 Universal Ave. (I-435, Front Street Exit); Fri. 9-8, Sat. 10-7, Sun. 10-5; adults \$6, 5-12 years \$2; or Bruce Stinemetz, (816) 795-1641; e-mail: brucestinemetz@ att.net; Web site: www.gemshowkc.org

11-13—LOGAN, UTAH: Show and sale; Cache Geological & Archeological Society; Riverwoods Conference Center, 600 S. Main; Fri. 10-7, Sat. 10-7, Sun. 10-5; free admission; door prizes, club displays, demonstrations, dealers, handcrafted jewelry, silent auction, fossils, crystals, mineral specimens, rough rocks, slabs, grab bags, kids' activities, taceting rough, artifacts; contact Gary Warren, (435) 720-1775; e-mail: rock hunter1@hotmail.com

11-13—PLEASANTON, CALIFORNIA: Show; Gem Faire Inc.; Alameda County Fairgrounds, 4501 Pleasanton Ave.; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

11-13—VICTORVILLE, CALIFORNIA: 35th annual tailgate; Victor Valley Gem & Mineral Club; Stoddard Wells Rd., 12 miles east of I-15; Fri. 9-5, Sat. 9-5, Sun. 9-5; rough materials, gems, jewelry, findings, equipment, Sat. field trip, silent auctions; contact VVGMC, (760) 243-2330, or Brett Ward, (760) 954-4323; Web site: www.vvgmc.org

12—BATON ROUGE, LOUISIANA: 2nd show, "Rockin' at the Swamp"; Baton Rouge Recreation Commission; Bluebonnet Swamp Nature Center, 10503 N. Oak Hills Pkwy; Sat. 9-4; adults \$5, children \$4; activities, displays, rocks, gemstones, minerals, fossils, vendors, exhibits, rough and polished mineral specimens, fossils, geode-busting station; contact Claire Coco, 10503 N. Oak Hills Pkwy, Baton Rouge, LA 70810, (225) 757-8905; e-mail: ccoco@brec.org

12—SKOKIE, ILLINOIS: 62nd annual silent auction; Chicago Rocks & Minerals Society; St. Peter's United Church of Christ, 8013 Laramie Ave., across from the Skokie Public Library at Oakton; Sat. 6-9; free admission, children must be accompanied by an adult; rocks, minerals, crystals, fossils, handmande jewelry, lapidary treasures, books, magazines; contact Jeanine N. Mielecki, (773) 774-2054; e-mail: jaynine9@aol.com; Web site: www.chicagorocks.org

12-13—CHARLOTTE, NORTH CAROLINA: Retail show; Intergalactic Bead & Jewelry Shows; Metrolina Tradeshow Expo, Bldg. B, 7100 Statesville Rd.; Sat. 10-5, Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage

beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

12-13—FILER, IDAHO: 60th annual show; Magic Valley Gem Club; Twin Falls County Fairgrounds, U.S. Hwy. 30, east side of Filer; Sat. 9-6, Sun. 9-5; contact Harold Waggoner, (208) 423-9668, or Shirley Metts, (208) 423-4827; e-mail: rmetts@cableone.net

12-13—KLAMATH FALLS, OREGON: Annual show; Rock and Arrowhead Club; Klamath County Fairgrounds, 3531 S. 6th St.; Sat. 9-5, Sun. 10-4; Petrified Wood; contact Jennifer Zimmerlee, (541) 545-6773; e-mail: jlazys@hotmail.com; or Marv Stump, (541) 882-8341

12-13—SAN MARINO, CALIFORNIA: Show, "Tournament of Gems, Rocks to Art"; Pasadena Lapidary Society; San Marino Masonic Center, 3130 Huntington Dr.; Sat. 10-6, Sun. 10-5; free admission; demonstrations, display cases, dealers; contact Marcia Goetz, 755 W. Dike St., Glendora, CA 91740, (626) 260-7239; e-mail: joenmar1@verizon.net

12-13—SPRECKELS, CALIFORNIA: Show, "Parade of Gems"; Salinas Valley Rock & Gem Club; Spreckels Veteran's Hall, 5th St. and Llano St.; Sat. 10-5, Sun. 10-5; free admission; demonstrators, cab making, bead enameling, youth beading and rock painting, fluorescent display, rock bags with prizes, "wheel of fortune," raffles, free drawings, auction, dealers, jewelry, beads, fossils, craft supplies, minerals, crystals; contact Karen Jones, P.O. Box 668, Soledad, CA 93960, (831) 678-0337; e-mail: kenkaren0337@att.net

12-13—TURLOCK, CALIFORNIA: 45th annual show; Mother Lode Mineral Society; Turlock Fairgrounds, 900 N. Broadway; Sat. 10-6, Sun. 10-5; adults \$5, children 12 and under free with adult; minerals, rocks, beads, jewelry, fossils, dinosaurs, fluorescents, tools, books, educational material, large children's area, 40 vendors, 80 exhibits, 20 demonstrations, jewelry making, lapidary arts, gold panning, rock sale, fluorescent tent, speakers (Bob Jones, Dr. Gregg Wilkerson), fossil display, life-size T-rex skull; contact Bud & Terry McMillin, (209) 524-3494; e-mail: terry.mcmillin@yahoo.com; Web site: www.turlockgemshow.com

18-20—ALBUQUERQUE, NEW MEXICO: 42nd annual show, Treasures of the Earth"; Albuquerque Gem & Mineral Club; Creative Arts Center Bldg., State Fair Grounds, EXPO NM (San Pedro entrance); Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$1 Fri., \$3 Sat. and Sun., kids 12 and under free; more than 40 dealers, displays, door prizes, silent auctions, mineral and gem identification, juniors' booth, live wolf, geode cracking, faceting demonstration, gold panning and more; contact Paul Hlava, (505) 255-5478; e-mail: paulhlava@g.com

18-20—HICKORY, NORTH CAROLINA: 41st show, "Unifour Gem, Mineral, Bead, Fossil and Jewelry Show"; Catawba Valley Gem & Mineral Club; Hickory Metro Convention Center, I-40 Exit 125; Fri. 9-6, Sat. 9-6, Sun. 10-5; adults \$4, children and school groups free; contact Baxter Leonard, 2510 Rolling Ridge Dr., Hickory, NC 28602, (828) 320-4028; e-mail: gailandbaxter@aol.com

18-20—HILLSBORO, OREGON: Show; Gem Faire Inc.; Washington County Fairgrounds, 873 NE 34th Ave.; Fri. 12-6, Sat. 10-6, Sun. 10-5; \$7 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

18-20—JACKSON, MICHIGAN: 49th annual show; Michigan Gem & Mineral Society; Jackson County Fairgrounds, 200 W. Ganeson St.; Fri. 10-7, Sat. 10-7, Sun. 10-5; jewelry, minerals, fossils, dealers, demonstrations, silent auctions, geode cracking; contact John LaMont, (765) 647-4894, or Dan Hovater, (517) 518-1045

18-20—SPANISH FORK, UTAH: 52nd show, "Spring Parade of Gems"; Timpanogos Gem & Mineral Society; Spanish Fork Fair Grounds, 475 S. Main St.; Fri. 10-7, Sat. 10-7, Sun. 10-5; free admission; displays, dealers, jewelry, fossils, equipment, Mr. Bones, door prizes, touch table, rock sales, kids' grab bags, Wheel of Fortune, instructions on polishing rocks, metal detectors, lapidary equipment, demonstrations, faceting, knapping, wire wrapping, beading, fluorescent mineral display, silent auction; contact Keith Fackrell, 2295 East 700 South, Springville, UT 84663, (801) 489-7525; e-mail: krfackrell@msn.com; Web site: http://timprocks.weebly.com

19-20—BAKERSFIELD, CALIFORNIA: 10th annual show, "Rendezvous"; Lewis M. Helfrich; Kern County Shriners, 1142 S. P. St.; Sat. 9-5, Sun. 9-5; free admission; free drawings, demonstrations, sphere making, cabochon making, silversmithing, wire wrapping, grab bags, Wheel of Fortune, raffle, silent auction, General Store, dealers, rocks, fossils, gems,

continued on page 58



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RHODOLITE GARNET, fine cut, 4 mm round, \$2.50 each, 2.5 mm	round \$.80 each
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MEXICAN OPAL, fine cut, orange, 4x6 mm oval	
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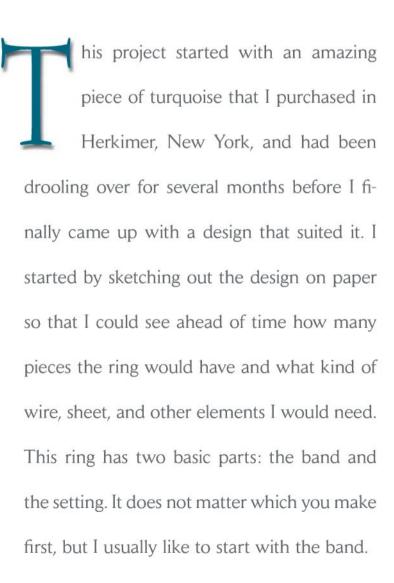
February 2011 49

PROJECT:

TURQUOISE RING by Hand

Fabricate This Simple Setting in Silver

Story and Photos by Austin Moore





TOOLS:

- Rawhide mallet
- Ball peen hamme
- Acetylene torch
- · Soldering board
- Soldering tweezers
- Vise
- Ring mandrel
- Smooth-jawed pliers
- Jeweler's saw
- Dremel tool with bits
- Hand drill and ³/₃₂-in. bit
- · Buffing wheel
- Stainless steel shot[†]
- Tumbler[‡]

*Optional

MATERIALS:

- 25mm x 50mm turquoise cabochon
- 5mm x 2mm rectangularsterling silver wire
- 1/8 in. x 26 gauge fine silverserrated bezel wire
- 26 gauge sterling silver sheet
- 12 gauge square sterling silver wire
- Silver solder (hard, medium, soft)
- Flux
- Dickling acid
- Cardboard
- Wet/dry sandpaper
- Polishing rouge

INSTRUCTIONS

Secure the ring mandrel in a bench vise so that you can use both hands. Bend the 5mm by 2mm rectangular wire around a metal ring mandrel by hammering it with the rawhide mallet. The mallet is hard enough to bend the metal, but will not leave a mark on it.

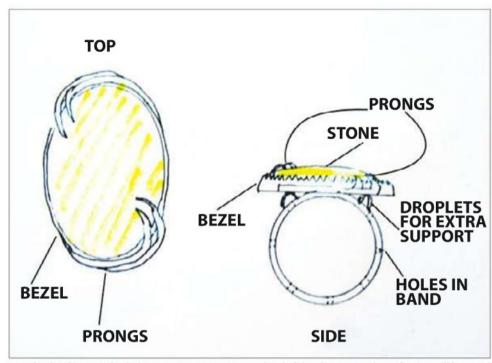
Note: Most ring mandrels have the ring sizes marked on them. To make a size 11 ring, start by bending the wire around the size 10 mark on the ring mandrel. When you hammer the ring to round it out after soldering, it will stretch and move up the mandrel about one full size.

Bend the wire until it wraps a quarter turn past itself. Pinch the wire tightly against the mandrel with your fingers and mark the point of overlap with a pencil. Cut the wire at this mark with the jeweler's saw.

File the sawn ends smooth and square so that when the circular bend is complete, the ends will meet up in a smooth joint. It is important that they are flush because the solder will not fill large gaps.

Before all soldering operations, apply a thin layer of flux to the entire piece, making sure that the flux gets into the joint; the solder will not flow where the flux was not applied. Using a soldering board to protect your workbench, hold the ring in a pair of soldering tweezers and set a small piece of hard solder on top of the joint. (Hard solder melts at a higher temperature, so you start with it. When you use medium solder in a later step, the hard solder will not melt.)

Use an acetylene torch to heat the piece evenly. The tip of the blue flame is the hottest, so keep that part a good inch away from your work. The flux will bubble and then dissipate as you heat the silver; this may dislodge the piece of solder from its



Start by sketching out the design on paper so you can see ahead of time how many pieces the ring will have and what kind of wire, sheet, and other elements you will need.



Hold the ring in a pair of soldering tweezers and set a small piece of hard solder on top of the joint.



With a $\frac{3}{2}$ -in. drill bit, drill seven evenly spaced holes in the ring band. The eighth, undrilled hole lies over the soldered joint.



To make the bezel, lay the stone on a smooth, flat surface and wrap the fine silver bezel wire around it tightly.

February 2011 51

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Make a TURQUOISE RING by Hand from page 51

resting place. Use a small soldering pick to move the solder back into place as you continue to heat the metal. Just before the solder melts, bring the flame to the opposite side of the joint so that the solder will flow into the joint, toward the flame. Solder will always follow the heat!

Remove the ring from the very hot soldering tweezers using a pair of copper tongs and dunk it in a bath of mild acid, which we metal smiths call "the pickle". This will clean off all of the extra flux and any other residue from the soldering operation. I use copper tongs because steel tongs will react with the acid and end up copper plating the silver ring.

Always clean your piece after each soldering operation. Slide the soldered ring back onto the ring mandrel and hammer it with the rawhide mallet to round it into a near-perfect circle. File the edges of the solder joint smooth.

This design calls for seven drilled holes spaced evenly around the ring band at 45-degree intervals. The eighth hole, which you will not drill, will lie on the soldered seam. Use a ruler to divide the ring in equal halves from top to bottom and side to side, then into equal quarters between these points. At each spot, make a mark on the face of the ring band with a pencil or permanent marker, being careful to center them.

Clamp the ring down in a vise with a piece of cardboard on either side to keep the vise from leaving a mark. Use a pointed metal stamp to make a small dent in each hole mark to help guide the drill bit. Use a hand-held drill with a ³/₃₂-in. metal drill bit to carefully drill each hole. Then use a round metal burr in a Dremel tool to rout out the top portion of each hole. This looks great and helps clean up the hole.

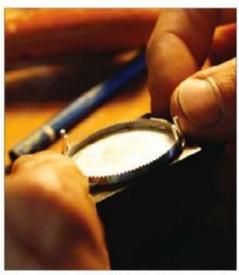
The inside of the ring will need to be sanded and smoothed. Start with a fine file and move through 220, 400, 600 and 1000 grit sandpaper to achieve a good shine on the silver. Use wet/dry sandpaper instead of wood working sandpaper.

To make the bezel, lay the stone on a smooth, flat surface and wrap the bezel wire around it tightly. Mark where the wire overlaps, cut it, and file the ends smooth. Pickle and solder, as with the ring, but be careful, as the bezel wire is much smaller and more delicate. After soldering, place the bezel around the stone and tap it lightly with the rawhide mallet all the way around to "set" it against the stone and cause it to retain its shape once the stone is removed.

Place the bezel on the 26 gauge silver sheet and cut out a piece that is slightly larger than the bezel with the jeweler's saw. Be sure to flatten out the sheet after cutting. When soldering the bezel to the backing plate, use a metal mesh platform so you can heat the piece from above and below.



When soldering the bezel to the backing plate, use a metal mesh platform so you can heat the piece from above and below.



Using pliers, bend the right ends of the prong wires back so that they stick up from the table.



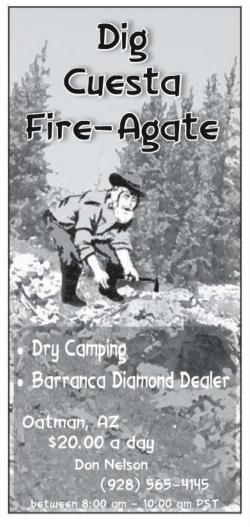
During soldering, the flux will bubble. Use the pick to push things back into place.

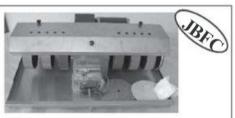
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	(Pink, Yellow, Brown, Champ)	1-10 pointer	2cts	\$1200	\$199
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11.	Burma Ruby	3-5mm round	20cts	\$2400	\$199
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13.	Emerald	½-2cts	10cts	\$1300	\$199
14.	Padparadscha Sapphire	½-1ct	10cts	\$2400	\$199
15.	Yellow Sapphires	½-1ct	10cts	\$2000	\$199
16.	Yellow Sapphires	1-3cts	10cts	\$4000	\$399
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19.	Fancy Topaz (Mixed Shapes)	½-5cts	100cts	\$1400	\$199
20.	Tanzanite AA+TO AAA				
	(Oval, Trillion, OCT)	1-3cts	20cts	\$9000	\$1500
21.	Swiss Blue Topaz	½-3cts	300cts	\$1800	\$299
22.	Rhodolite/Peridot	½-3cts	200cts	\$1200	\$199
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24.	White Topaz	½-5cts	400cts	\$1400	\$199
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After soldering, trim off the excess base metal, then file and sand the edges smooth. If the solder joint is clean, it will be invisible once the silver is polished!

Cut two 40mm-long and two 48mm-long pieces of 12-gauge square sterling silver wire for the prongs. Make a pencil mark 10mm from the right end of each wire. With the bezel backing resting on the table, hold the end of one long wire against the bottom of the bezel wire 1cm down the left side from the top of the oval. Using your fingers, bend the wire to the right to match the curve of the bezel wire. The wire will tend to spring back, so you may have to bend it in a slightly tighter radius to allow for this. Set one of the shorter wires on top of the first wire with the left ends flush and form it along the curve of the bezel cup with the mallet.

Using pliers, bend the right end of each wire back at a 90-degree angle at the pencil mark so that they point up from the table. Repeat this step to make a set of prongs for the other end of the bezel cup. File and sand both ends of the prong wires into a flattened point to help keep them from catching on clothing when the ring is worn. Arrange the prong pieces in place and ensure that they fit tightly, then solder them in place with medium solder.

Before soldering the ring to the bezel, file a flat spot on the side of the ring over the soldered joint. During each soldering step, remember to use a lower temperature solder so that you don't melt the solder from a previous step.

Give the ring a final sanding, starting at 220 grit and running through 220, 400, 600 and 1000 grit. After sanding, I like to tumble polish using polished stainless steel shot. This will do several things: The ring will be further cleaned, and the repeated impact of the shot against the ring will work harden the ring, making it stronger, stiffer and shinier. After you remove the ring from the shot, rinse it and clean the shot.

Give the ring a final polish, first with Tripoli, then with black rouge, which leaves an excellent final shine. The ring is now ready to have that huge piece of turquoise set in it! Put the ring in the vise, using cardboard to protect it. If the bezel has been pushed inward during polishing, spread it back out with a polished steel pusher.

Turquoise is thin and brittle, so carefully set the cab in the bezel rather than forcing it in. Use the bezel pusher to tighten the bezel wire against the stone. Use a small ball peen hammer with a polished head to tap the prongs toward the face of the stone. Once they are close, switch to a set of smooth-jawed pliers to squeeze the prongs down until they rest lightly against the face of the stone. The result is a beautifully crafted, handmade turquoise ring!



Filing a flat spot over the soldered joint of the ring provides a larger area of contact for soldering.



Use the bezel pusher to tighten the bezel wire against the stone.



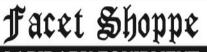
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FF THE DOP

Buying Used Faceting Machines

I received a phone call from a leading manufacturer of faceting machines who urged me to write about new faceting machines vs. used ones. This person has noticed, as have I, that many used, old and obsolete faceting machines have come on the market in recent months and have sold or auctioned at prices nearly as high as that of a brand-new machine. Often times, these are not a good value in the long run and the buyers are unhappy.

The sellers of the used faceting machines may be the original owners or resellers who bought the machine at an estate sale and know nothing about faceting or the machine. If the manufacturer of the machine is still in business, he inherits—through no fault of his own—an unhappy customer who will run his product down to others.

Some machines are obsolete now, like Lee machines. They were great in their day, but their day has long since passed and no support, parts, accessories or manuals are readily available for them. They were made when standards for stones were much different and modern abrasives generally weren't available to hobbyists. They weren't designed for GemCad-type diagrams and diamond cutting or polishing wheels.

I've seen well-used Ultra-Tec machines sell for \$2,000, which appeared to be a good deal because they came with a desk, grinding and polishing wheels, and some rough. Unfortunately, after the buyer took lessons, they learned the grinding and polishing wheels were junk, the desk ended up going to the landfill, and all that rough turned out to be useless. Then they discovered they had to send the machine in for factory repair. By the time they were done fixing problems, they had spent a little more than \$400 over the cost of a brand-new machine.

Used machines can be a good value if you do your research before you spend your money. First, have an experienced faceter who is completely impartial look over the machine. If you can't find an impartial person in your area, get the model and serial number off the machine and telephone the manufacturer to discuss the machine and the price. Manufacturers will usually tell you whether it is a good buy or not, as they know you will talk down their product if you're not satisfied.

Many faceting machine manufacturers have improved their machines in one way



or another over the last several years. Anyone looking at an older Facetron machine should buy it at a low price so they can afford to send it in and have it brought up to date and still be ahead of the price of a new machine. Otherwise, you'd be better off buying a new machine to begin with.

Faceting isn't like cabochon cutting. I can build a reasonably good cabochon machine from an old motor and miscellaneous parts. Faceting requires the faceter to have some knowledge and skill, but the machine must also be accurate and repeatable. I began faceting after I bought an old, worn-out machine with bad bearings and loose parts. I learned the hard way about the importance of a sound faceting machine. I tried just about every machine on the market before I settled on a brand. I don't regret owning one of each, since I got to know the different manufacturers and their products. I think they're all nice people and good machines, but a faceter has to choose the machine that suits him best.

My advice is to take lessons to learn faceting before buying any machine and talk to several faceters, dealers or manufacturers to see which one gives you the best feeling for long-term support. Perhaps some dealers will offer a demonstration session. If you do your research, I can almost guarantee you'll be happy with your machine purchase for a long time and never regret your choice.

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@zoom internet.net.



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19-20—SEATTLE, WASHINGTON: 57th annual show; North Seattle Lapidary & Mineral Club; Lake City Community Center, 12531 28th Ave. NE; Sat. 10-5, Sun. 10-5; free admission; junior activities, demonstrations, club member displays, grab bags, Rockosaurus rides, Rockhound Dinner, dealers, door prizes; contact Susan Gardner, 15428 62nd Ave. NE, Kenmore, WA 98028, (425) 483-2295; e-mail: sgardner3@mindspring.com; Web site: www.NorthSeattleRockClub.org

19-20—VALLEJO, CALIFORNIA: Show, "Spring Bling"; Vallejo Gem & Mineral Society; Solano County Fairgrounds, 900 Fairgrounds Dr., County Bldg.; Sat. 10-5, Sun. 10-5; adults \$5, children under 14 free with adult; gems, jewelry, minerals, fossils, beads, findings, hourly door prizes, silent auction, "wheel of fortune", grab bags; contact Dan Wolke, P.O. Box 706, Vallejo, CA 94590, (707) 644-9764; e-mail: vgms01@yahoo.com; Web Site: www.iwired.org

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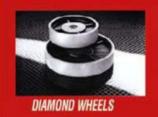
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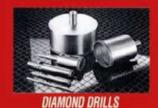


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OPALIZED PLANT FOSSILS CORAL PSEUDOFOSSILS

Collecting Opportunities Near Rincon, New Mexico

Story and Photos by Robert Beard



This pseudofossil has a wavy appearance and, while it may be different than many of the other rocks at the site, it still resembles coral.

Southern New Mexico offers great rockhounding opportunities, and many unique sites can be found just off the main highways. An interesting site that makes for a good combination field trip is located just east of Interstate 25 near Rincon. I say "combination" because the speci-

mens that can be collected from two distinct localities are very different, but the sites are so close to each other that it only makes sense to visit them both in the same trip.

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.

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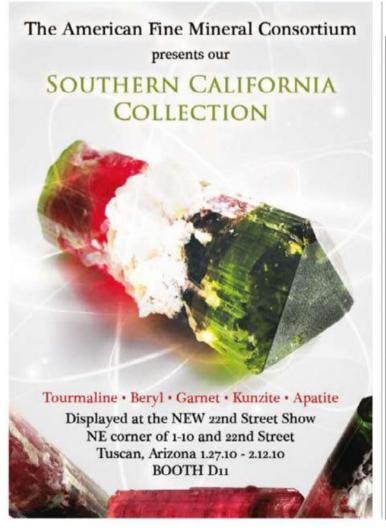
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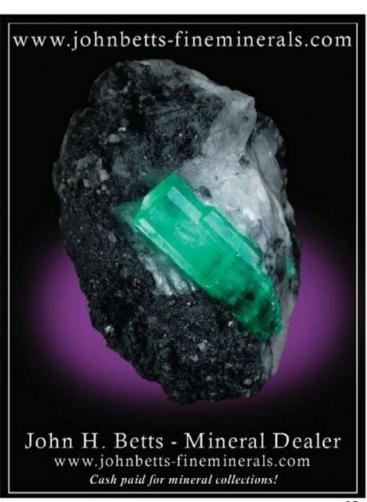
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By Paul B. Downing, Ph.D.



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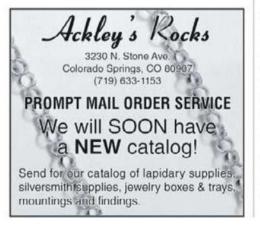
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OPALIZED PLANT FOSSILS and CORAL PSEUDOFOSSILS from page 62



This pseudofossil has holes that make it resemble coral, but the matrix is all sandstone.



This piece of the opalized plant fossils has some yellow and light-orange opal.

This field trip features a small ridge with opalized plant fossils and a larger area with sandstone pseudofossils of coral. Pseudofossils are rocks that resemble fossils, but are not actually fossils. The opalized plant fossils contain an abundance of roots and tubers that have been replaced by white opal and chalcedony, while the sandstone pseudofossils bear a remarkable resemblance to fossil corals. The sites are on U.S. Bureau of Land Management land, and are very easy to get to if you are on I-25 and traveling through southern New Mexico.

I first learned of the opalized plant fossil locality when visiting nearby quarry with barite mineralization in 1999. After collecting at the barite deposit, I took a short drive up the dirt road that leads northeast and noticed a small parking area with a white ridge on the northwest side and several pits. Anytime you see something that appears to be prospecting pits, it is worth checking out. People had spent considerable time in this area, as evidenced by the trash, tire marks, and pits. A short walk up to the ridge revealed that its rocks were white silicified sediments with an abundance of fossilized stems, tubers, roots and grasses.

Over the years, I periodically returned to this area to collect when traveling down I-25, and was generally pleased with the specimens that I found. The fossil plant fragments were distinct, and the geologic environment, which appeared to be an inactive hot spring



The opalized plant fossils occur in white rocks and consist of stems and tubers.



The openings and patterns on the surfaces of the sandstone rocks give the appearance of coral.

deposit, encouraged me to keep looking to see if I could find any colored opal. The best colors I could find were a light translucent orange, but the fossilized vegetation was quite attractive and many of the pieces I found were very nice display pieces.

In the summer of 2008, I was researching sites for additional collecting and came across a reference in *New Mexico Rockhounding*, by Steve Voynick (Mountain Press Publishing Co., 1997), that referenced fossil corals just east of Rincon. The description of the location seemed very close to the area in which I had found the opalized plant fossils. I was in New Mexico for only a brief time and had one more morning into which I could squeeze an additional collecting trip to the mountains. I decided to check the area out, as it seemed very accessible and I was interested in the potential for fossil coral.

I was staying in the El Paso area, so the drive north to the locality was only an hour or so. *New Mexico Rockhounding* simply says to take the Rincon Exit from I-25 and take a small track that leads into the low hills and washes to the east. For this trip, it is important to note that Rincon is Spanish for "turn". This particular section of I-25 is actually nearly east-west, as the highway turns to avoid the mountains. So, while *New Mexico Roundhounding* refers to the east, the small track is actually better described as being on the north side of I-25.

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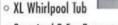
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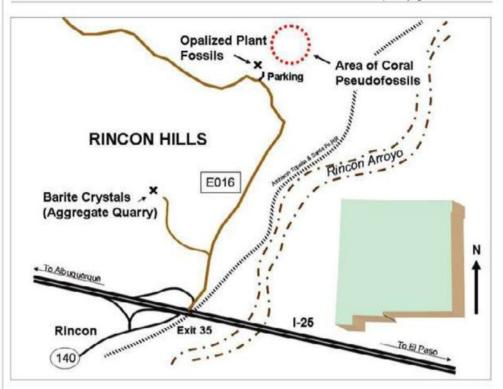
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OPALIZED PLANT FOSSILS and CORAL PSEUDOFOSSILS from page 64



I had a four-wheel-drive vehicle, but for this trip a two-wheel-drive vehicle would be fine. I took the Rincon Exit (I-25 Exit 35) and turned north (left) onto the unpaved road at the end of the exit ramp. I passed the first left, which heads to the quarry with the barite mineralization, and continued up the road for approximately one mile.

The only substantial parking area on this road was at the same place we encountered the opalized sediments back in 1999. The site is easy to spot, as it is on the right side of the road, and it is one of the few locations along the road at which you can easily and safely pull off and park. Just as in my previous visits, I noted that the site had lots of litter, broken glass, cans, shell casings, and old electrical appliances. Trash that is left in the desert stays in the desert.

Since this spot was one of the only places to park and it seemed to fit the description in New Mexico Rockhounding, I parked there and got ready for a short hike into the hills. This area is particularly brutal in the summer months, as it faces slightly south and nearly all of the area is exposed to sun. Shade is nonexistent and you have to be very careful to not become overheated or dehydrated. Even though it was a very short walk, I made certain to bring plenty of water.

I walked into the hills and watched the ground for collectible rocks. New Mexico Rockhounding has a picture of the "coral", which is best described as pieces of sandstone up to 12 inches long with patterns of large holes that penetrate into the rock. It was not long before I found pieces that resembled the piece on page 103 of the book.

This was one of the strangest localities I have ever seen. The rocks had corallike structures, but were formed in non-calcareous sandstone. Generally, corals and similar marine fossils form in complexes of limestone, and while some corals can be formed in carbonate sands, I had never seen coral structures preserved in sandstone like this.

The hills were relatively easy to walk around, but you certainly had to be careful of cacti and wary of rattlesnakes. Some areas were full of the rocks with holes and corallike structures. The rocks resembled halysite and favosite corals, as the holes sometimes formed a chain or roughly angular pattern. In some cases, the patterns had crenulations that resembled those in brain coral. I collected some very nice pieces and I had to be extremely selective about what I kept, as I was limited to what I could take in my checked luggage on my flight back to Pennsylvania. This locality is almost impossible to over collect, as the hills are practically made of the corallike rocks.

On my way out, I collected some more samples of the opalized plant materials and focused on finding pieces with orange silica and distinct plant structures. Again, it was relatively easy to find some good pieces.



Nearly all of the white rocks in the center foreground contain some opalized plant fossils.

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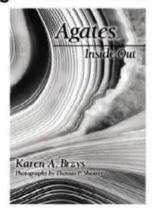
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OPALIZED PLANT FOSSILS from page 66



The brown sandstone rocks have distinct patterns that at first glance resemble the structures in corals.

While this area has certainly been picked over by collectors, it has an abundance of opalized plant fossils and does not appear to be an exhausted site by any means.

After I returned to Pennsylvania, I reviewed the geology of the area in more detail. The area is summarized in detail in "Geology of the Rincon Quadrangle, New Mexico", by William R. Seager and John W. Hawley (New Mexico Bureau of Mines and Mineral Resources Bulletin 101, 1973). It can be purchased through the New Mexico Bureau of Mines and Mineral Resources at http://geoinfo.nmt.edu/publications/bul letins/101/. The Bureau is an excellent resource for geologic information, and I have found its publications extremely helpful when evaluating potential collecting sites.

The geologic map in Bulletin 101 indicated that the area of the rocks at both the opalized sediments and the corallike rocks are within the Camp Rice Formation. The Camp Rice Formation was deposited during the Early to Middle Pleistocene, and consists of alluvial deposits of sand, gravelly sand, gravel, sandstone and conglomerate. It is part of the Santa Fe Group, which consists of mainly sedimentary rocks that were deposited within the large basin that developed as the Rio Grande rift split New Mexico apart. Some volcanic ash beds also are found within the Camp Rice Formation, which indicates that volcanic activity deposited ash as the sediments were deposited. These volcanic ash beds can often be useful as marker beds to map the stratigraphy of an area.

The opalized plant materials are specifically mentioned in Bulletin 101, but their origin is not discussed in detail. However, a New Mexico Geological Society Field Conference Guidebook, "Las Cruces Country II", covers a field trip to the area. The field conference was held in 1998, and the guidebook is available for purchase at http://geoinfo.nmt.edu/publica tions/nmgs/guidebooks/49/.

Fortunately, I have this guidebook in my personal library and was able to review the field trip log. The field trip to the opalized sediments was on the third day of the con-



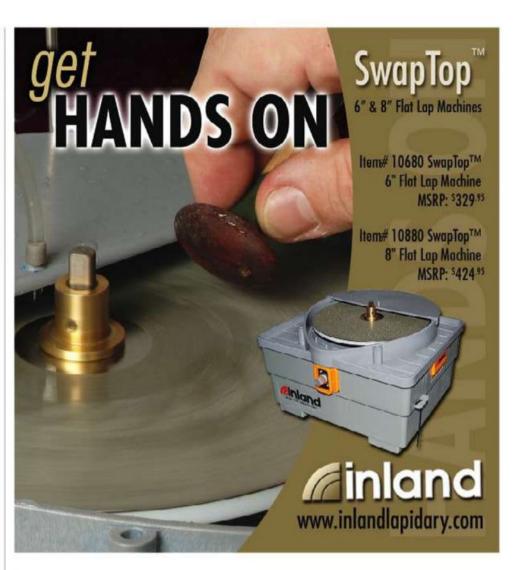
The crenulated patterns resemble the structures in halysite and favosite corals.

ference, and the area is listed as Stop 2 in the guidebook. The accompanying article to the field log describes a geothermal exploration well that was completed in the area. James Witcher, who co-authored the field log, described the area of the opalized sediments as "a distal remnant of a siliceous sinter complex fed by hot springs discharging from the East Rincon Hills fault zone" (p. 38). The geothermal activity, combined with the silica leached from the volcanic ash beds, likely provided a mechanism to replace the organic plant material with silica, and this resulted in the formation of the opalized plant fossils.

However, I was unable to find any mention of the corallike structures in any of the publications on the area. All of the information indicates that the area consists of sediments from the Camp Rice Formation and, given the Pleistocene age, lack of marine rocks, and the conglomerate-sandstone materials that make up the coral-like rocks, I had to conclude that these were not fossil corals, but pseudofossils.

The patterns in the rocks may have formed from some type of unusual weathering or depositional environment. I checked the corallike rocks with hydrochloric acid, and while some of the rock reacted with the acid, which indicated that it had some calcareous material, most of the rock did not react with the acid. The red-brown color of the rock indicates that some of the cement that bound the sediments may contain iron oxides, and some silica cement, perhaps from the nearby hot spring deposits, may also have been present. The unusual patterns in the rock may have formed as the iron, silica or calcareous cement was leached out of the rocks at different rates. Regardless of the fact that they are not fossil corals, they are still among the strangest sedimentary structures I have ever seen, and they are well worth collecting.

To get to the site, take Interstate 25 to Exit 35. After you come off the exit, turn left (north) onto Road E016; I do not recall whether there is a road sign with this number. (It will be a left turn whether you are



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OPALIZED PLANT FOSSILS from page 68



Rockhounds have dug out many pieces of the opalized plant fossils, but many remain for collectors.

coming from I-25 north or south, based on the configuration of the exit ramps.) Continue approximately 0.9 mile on this gravel road and look for a parking area on the right side of the road. At this parking area, you will also see a low ridge with white outcrops and small pits. This is the area of the opalized plant fossils, and the "coral" rocks are in the hills just to the east.

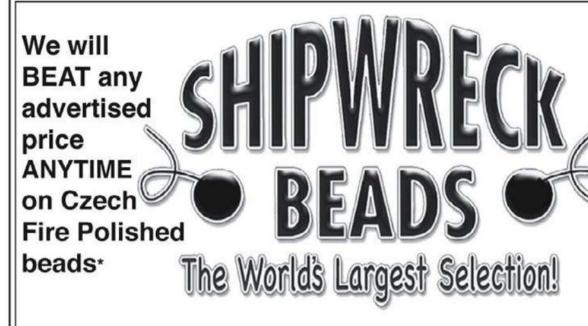
For reference, I collected the following coordinates in the field; I later checked them using aerial photographs from Google Earth (www.google.com). All coordinates are referenced using the North American 83 and World Geodetic System 84 (NAD83/WGS84) datum, and are in the degree-minutes-seconds format:

Opalized Plant Fossils (on ridge): 32° 41′ 25.67″N, 107° 03′ 04.65″W Coral Pseudofossils (general area): 32° 41′ 30.17″N, 107° 02′ 58.29″W

I also checked the site for active mining claims using the GeoCommunicator (www. geocommunicator.gov). The site and surrounding area did not contain any active or former mining claims, and is all managed by the U.S. Bureau of Land Management. You shouldn't have any problems with access.

Information on BLM land status in the region can be obtained through the Las Cruces district office by calling (575) 525-4300 or visiting www.blm.gov/nm/st/en/fo/Las_Cruces_District_Office.html. Bear in mind, however, that district personnel may not be familiar with these sites. The best way to check on collecting status prior to a trip is to review the district Web site for news releases about road closures, site closures due to fire or flooding hazards, or other issues that may impact access or permission to collect at an area.

These sites are well worth a trip if you are driving through southern New Mexico, and you do not need four-wheel drive. Bring plenty of water if you are there in the summertime, as it gets very hot. You should have no problem finding lots of opalized plant fossils and "corals", and I also recommend a stop at the barite crystal locality. Few places, even in New Mexico, offer such a wide variety of easily collectable rocks on BLM land within a single exit ramp of an interstate highway.



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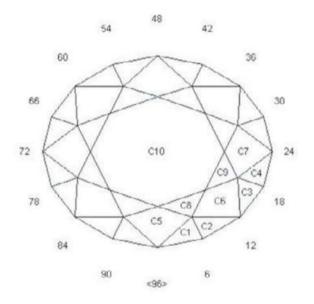


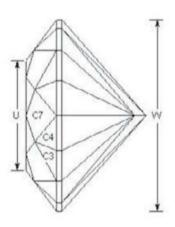
Faceters are welcome to submit their original designs for publication. Mail materials to Many Facets Submissions, *Rock & Gem* magazine, 290 Maple Ct., Ste. 232, Ventura, CA 93003.

Here is a high-performance oval design for use with any synthetic or natural material. The design is easy to cut and cuts quickly for a fancy cut. Anyone with basic faceting skills and a reasonably good machine should have no difficulty cutting this design. My goals in making this design were 1) to make it easy to cut; 2) to create ratios that produce accurate size without the use of a pre-form; 3) to select angles that work for any material and not sacrifice optical performance; and 5) to achieve better optical performance than most ovals provide and eliminate bowtie and other undesirable optical phenomena. After a number of revisions, I believe this design meets all my objectives.

I designed this soon after the announcement of the engagement of Prince William to Kate Middleton as a tribute. These designs offer outstanding optical performance with no bowtie effect and can be cut in any material from opal to cubic zirconium without any angle changes.

-Jim Perkins

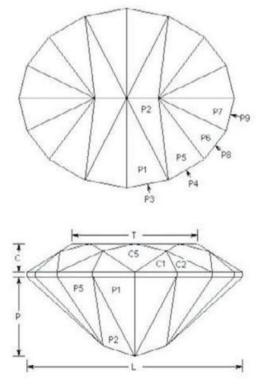






21st Century Brilliant Oval (12 X 10) My Tribute to Prince William & Kate Middleton C.A.D. BY Jim Perkins, jimperkins@zoom internet.net © December 2010 Angles for R.I. = 1.770 53 + 16 girdles = 69 facets 2-fold, mirror-image symmetry 96 index L/W = 1.200 T/W = 0.695 U/W = 0.570 P/W = 0.439 C/W = 0.158 Vol./W³ = 0.262

PAVILION			
P1	41.80°	03-45-51-93	Create a center point.
P2	40.80°	06-42-54-90	MP @ center point.
P3	90.00°	03-45-51-93	Set size; polish girdle.
P4	90.00°	08-40-56-88	MP @ P2 - P3
P5	42.10°	08-40-56-88	MP @ P2 - P3
P6	43.00°	14-34-62-82	MP @ P2 - P5
P7	42.90°	20-28-68-76	MP @ P5 - P6
P8	90.00°	14-34-62-82	MP @ P4 - P5
P9	90.00°	20-28-68-76	MP @ P6 - P8
CROWN			
C1	43.70°	03-45-51-93	Set girdle depth.
C2	42.60°	08-40-56-88	Set girdle.
C3	40.30°	14-34-62-82	Set girdle.
C4	38.80°	20-28-68-76	Set girdle.
C5	36.30°	96-48	GMP
C6	35.10°	11-37-59-85	GMP
C7	32.00°	24-72	GMP
C8	20.10°	05-43-53-91	MP @ C1 - C2
C9	19.40°	17-31-65-79	MP @ C3 - C4
C10	0.00°	Table	MP @ C5 - C6 - C7



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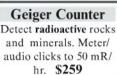
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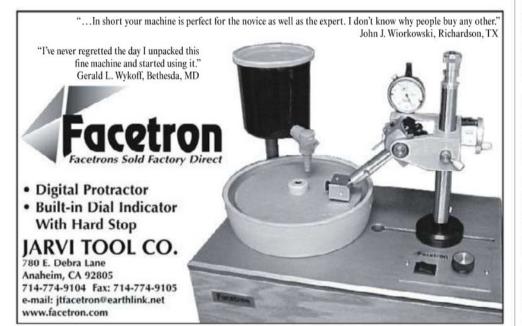


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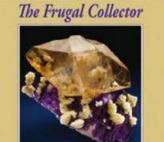


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26-27—PORT ANGELES, WASHINGTON: 1st annual show; City of Port Angeles; Vern Burton Community Center, 308 E. 4th St.; Sat. 9-7, Sun. 10-5; contact Cindy Lou Kochanek, City of Port Angeles, Recreation Division, 308 E. 4th, P.O. Box 1150, Port Angeles, WA 98362, (360) 417-4550; e-mail: ckochane@cityofpa.us

26-27—ROSEVILLE, CALIFORNIA: 49th annual show; Roseville Rock Rollers; Roseville (Placer County) Fairgrounds, 800 All America City Blvd.; Sat. 10-5, Sun. 10-4; adults \$6, seniors (60+) \$5, kids 12 and under free; more than 35 vendors, crystals, gold, geode cracking beads, gemstones, fossils, polished stones, handcrafted jewelry, opal, world-class mineral specimens, tourmaline, sunstones, amber, mineral identification, "Kids' Junction", demonstrations, silent auctions, more than 40 exhibits, raffle, lapidary shop open house; contact Gloria Marie, (916) 216-1114; e-mail: gloriarosevillerockrollers@gmail. com; Web site: www.rockrollers.com

26-27—SAYRE, PENNSYLVANIA: 42nd annual show; Che-Hanna Rock & Mineral Club; Athens Twp. Volunteer Fire Hall, 211 Herrick Ave.; Sat. 9-5, Sun. 10-5; adults \$3, students \$1, children under 8 free; club demonstrations and displays, dealers, fossils, minerals, gems, junior activities, minimine, geode cutting, Carnegie Museum and Paleontological Research Institute displays; contact Bob McGuire, P.O. Box 224, Lopez, PA 18628, (570) 928-9238; e-mail: uvbob @epix. net; Web site: www.chehannarocks.com

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N THE ROCKS

Investors vs. Collectors

My trip to Beijing, China, to study the Mineral Treasures of the World exhibition (see article on p. 12) brought me to the realization that our hobby has finally reached a schism, a distinct split! I'd been aware of this division for some years. After all, Paul Desautels, the revered curator of Gems and Minerals at the Smithsonian, had frequently said that fine minerals should be treated and valued as antiques, and over the last few years, a part of the mineral hobby has taken those words to their

logical conclusion, leaving the average collector at a loss as to how to continue adding nice specimens to an already established collection.

The Chinese exhibition was arranged around a number of themes, one of which promoted investing in minerals as a sensible idea. In this country, with Wall Street and the economy as it is, such investing has become a reality. First, understand that this split in the mineral hobby is not all bad. Investing in minerals has, inevitably, resulted in a significant infusion of money that is being used to locate and recover quantities of minerals from foreign lands and dormant mines. The result is our mineral hobby splitting into two distinctly different collector groups.

There are simple definitions for these two groups. Mineral collectors are the folks who enjoy minerals for their beauty and scientific interest. They may go out into the field to dig and enjoy the benefits of the activity in earth's wonderful environment. They study minerals to some degree and benefit from the enjoyment such effort brings. True collectors are ecstatic when they dig up a nice crystal or a choice piece of cuttable silicate. They marvel at the wonders of the natural world. They are the folks who go to shows and search the tables for a particular species or locality specimen to add to a growing and carefully chosen mineral collection for home display and study. Collectors are in the game for the long haul, often considering mineral collecting a lifelong passion!

Investors, on the other hand are transient. They don't collect, as such; they acquire



It required a huge investment, plus cooperation between mineral mining and specimen mining companies, to retrieve superb fluorites like this beauty from Africa.

minerals temporarily. They thrive on quick turnover, buy and sell, buy and sell. They are the folks who have a basic investment plan when they buy minerals. Specimens are bought and kept for a few months or a couple years, then sold when a healthy profit is apparent. Investors do not go into the field and collect. They may not even know much about the species they acquire, save for their monetary value. They troll the shows and dealers' stock, often depending on one or two dealers to help them acquire flashy, rare and superior specimens of minerals they can buy for investment. They are more concerned about future profit than anything related to the science of minerals.

There are notable exceptions to this last rule. Some investors realize the beauty and scientific value of what they have and become true collectors, much to their credit! In many cases, they preserve the very best minerals of the period, which will hopefully end up in a museum at some future date!

Mineral investors seldom catalog or keep a permanent record of a "collection", since specimen residence is relatively short. The idea is to get into a particular specimen find early, pay the price, and wait until time or scarcity jack up the value, then sell for a profit.

Do not confuse the investor with the collector who, over a long period of time, has acquired lovely specimens and now finds some of those same specimens, bought for a relatively few dollars, will now bring an outrageous price. Because of this appreciation, dealers make a practice of finding and buying older collections, which may have one or two classic or currently popular

minerals. They make what appears to be a generous offer, buy one or two treasures from the old collection, and then immediately sell for a large profit to an investor. In some cases, this is closely akin to raiding, as the owner—often a family member of the collector—is unaware of market changes and takes what seems to be a generous offer, but is in fact a fraction of the real value of the specimen!

On the other hand, the wise collector may take advantage of such a fortunate turn of market values. His

original intent was to obtain a nice specimen for study or personal interest. By selling such "good fortune" minerals, collectors may get money to buy more minerals to build the collection. Sometimes, because of circumstances like a job loss or family crisis, certain specimens must be sold at tremendous profit to satisfy a financial need. When a true collector passes away, he may leave a collection assembled out of pure interest and love of minerals, bought for reasonable amounts of money, that can now be sold for a significant profit simply because the market is inflated by today's enthusiastic investors.

Before you shake your head over this schism, be aware that there are very positive results from the dramatic increase in specimen investing. Do not be too critical of this facet of the collecting hobby. It has much to commend it. Some of the very best examples of various species have been preserved and can now be seen by the general public at a show or featured in a magazine or coffee table book full of elegant photographs.

I'm sure most collectors have done a bit of investing. It is not unusual for a collector, when possible, to buy up specimens for future use, trade, gifts or sale. I've certainly done it. The original purchase was made to acquire nice minerals, with the side intent to recoup part or all of the purchase price.

As an example, when the gorgeous yellow botryoidal mimetite from San Pedro Corallitos (Chihuahua), Mexico, hit the market back in the 1970s, I was able to buy three flats of these beauties from Susie Davis, the Tucson wholesaler who handled

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the load Benny Fenn had mined out. My intent was to keep a couple of the better pieces in my collection, trade off some of the specimens, and sell some to recoup my investment. Other specimens I simply gave away to friends and older folks in my club who were no longer able to buy much. I never intended to invest for profit, only to make my collection pay for itself, avoiding my wife's dismay of spending money on "rocks"!

Be that as it may, the investor market has a very positive impact on our hobby. Think of the successful mineral mining companies and groups that have unearthed marvelous specimens in the last couple of decades, specimens that would have been left in the ground or sent to the crusher. This happened because of significant financial investments in specimen mining ventures, a risky business at best. We only know of such ventures when they are successful and fine specimens are extracted. We don't hear of the huge investments that failed to produce a good return. When mineral min-

ing companies spend large sums of money to dig and prepare quantities of minerals, we all benefit through a flow of specimens in all price ranges and qualities. Such mining activities should be encouraged.

Another benefit from mineral mining ventures is the growing cooperation between mining companies and specimen mining groups, who contract to work around active ore mining to salvage specimens that would otherwise end up in the crusher. How can anyone think that this is not a great contribution to the science of mineralogy and the collecting hobby? I can remember when mining people considered mineral collecting a form of thievery. I even heard one mining official, standing in the exhibit hall at Tucson, declare, "Everything in this room is stolen!" Thank goodness that archaic thinking has been diminished by the posi-

tive action of mineral mining companies.

The most remarkable example of this change is the recent "Mineral Treasures of the World" exhibition sponsored by The Collector's Edge, of Golden, Colorado, and the Geological Museum of China! This event could not have happened a couple decades ago. It validates the entire concept of commercial specimen mining and ore mining companies working together!

Specimen mining requires tens of thousands of dollars in investment just to get started on a dig and, until it is successful, this same venture can continue to siphon money from the pockets of the mineral



Azurite is always a lovely mineral to collect and specimens in a full range of values can be found at local mineral shows.

mining group. Like any investment, there is no guaranteed return, only a good chance based on careful planning and study of a given deposit. It takes months of negotiations to open up an active mining operation to specimen retrieval. The goal of the venture is two-pronged: recover fine minerals and make a profit doing so. Sounds like good old American enterprise to me!

What a collector of merit does not have a fine Sweet Home mine rhodochrosite in his collection? What collector does not have something fine from Pakistan or Afghanistan brought to light by dealers who



The average collector can't afford a rhodochrosite like this magnificent one, mainly because the cost of opening and mining the Sweet Home mine was immense.

spent tens of thousands of dollars traveling and buying minerals from this dangerous South Asian continent? Do you think these specimens would be available if the price of minerals today was much the same as it was in the 1970s or '80s? I think not!

There is certainly a down side to investing in minerals. It has driven the prices of choice minerals out of the reach of the average rockhound. Collectors with a limited budget have to settle for less than the best in many cases. Yet, these same mineral mining activities bring many lesser, but nice specimens to the surface, some of which the average collector can afford!

One factor we seldom think about is the plight of many museums, especially public institutions. There was a time when they could compete with collectors for fine minerals to add to the museum's collection. Museums are almost excluded from the active mineral market today. They are often hamstrung by high prices and lack of funds. The best they can do is work out trades or seek donations in exchange for a tax write-off, but that is

not a bottomless pocketbook. Folks who visit these public institutions 20 or 30 years from now may be denied the pleasure of seeing the best of what is being mined today simply because the museum could not afford to compete with investors in today's specimen market.

The ultimate question in all this is what effect does this aspect of mineral investing have on mineral collectors and the hobby as a whole? Raising prices on minerals obviously makes it more difficult for the average collector to build a collection containing the best of the minerals avail-

able today. Yet, higher mineral values have infused large quantities of money into the mining and preservation of mineral specimens. You have to admit that the funds brought into the mineral market have made it possible for you see a greater variety of minerals in a broader range of quality and value than ever before. Old, once productive sites have been reopened and new specimens brought out, and active mining sites that were once closed to specimen mining have been opened. That is a most important plus. Therefore, the overall effect of increased specimen values and organized specimen mining is decidedly positive! We may complain about high mineral prices, but we all benefit from them!

When you visit a major mineral show these days, you are, in a real sense, walking into a temporary museum of the finest minerals be-

ing collected today. The mineral specimen market is still growing, still evolving, and where it will end up we cannot predict. But if Paul Desautels were with us today, he'd be smiling!

Bob Jones holds the Carnegie Mineralogical Award, is a member of the

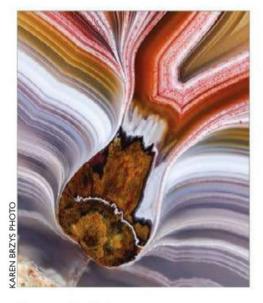
Rockhound Hall of Fame, and has been writing for *Rock & Gem* since its inception. He lectures about minerals, and has written several books and video scripts.



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ield Notes

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



Agate Article

What a delight to read Karen Brzys' article "How Do Agates Form?" in the November 2010 issue of Rock & Gem! Although my collection consists mostly of crystal specimens, I am awed by the beauty and variety of agates. Karen wrote a very informative treatise on how these natural beauties form. I can add nothing except another excellent reference. Boris Z. Kantor of Moscow, Russia, wrote a well-researched article, "New Data on the Genesis of Agates", for the English-language version of the Mineralogical Almanac (Vol. 13b, 2008). I encourage Rock & Gem subscribers to read Boris' article. The Mineralogical Almanac's Web site is www.minbook.com. Contact the magazine editors at minbooks@online.ru.

> —Douglas Toland Sagle, ID

Missing Many Facets

I have been getting Rock and Gem for a few years now and my husband and I always look forward to the faceting pattern and it wasn't in the December 2010 issue. Why not?

–Deb K. via e-mail

Rock & Gem relies on freelance submissions of faceting designs for its Many Facets column. If we do not receive any submissions, we have nothing to publish, as was the case in December. Faceters are welcome to submit their original faceting designs for consideration. Contact the editor at editor@rockngem.com for a Contributor Agreement and W9 form before submitting.

—Editor

Sneaking in Science

A giant thank you note to all of your readers: I didn't realize that one letter could do so much. I have had several responses that have shown me that people truly do care about children. In this time when math and reading are where most of the focus in education is placed, it is hard to get to a science lesson. With the help of Rock & Gem readers, we have found the ultimate sneaky way to get that science in. My class is now finding ways to read more about rocks, and sometimes minerals, from your magazine and other sources. They are becoming interested in science and, in a round-about way, geography. I am hoping this continues. Again, I just wanted to say thanks from myself and my class for the wonderful things other readers have sent to us.

> Deborah Ladd and class Eugene Field Elementary Oklahoma City, OK

Gemology Article Series

Starting in the January 2003 issue of *Rock & Gem* was a series of articles titled "Gemology: Learning the Craft", by Douglas Le Grand. I have the February, September and October issues, but am missing January, March, April, May, August and October. Is it possible to get a reprint of the entire series of articles?

–P. Mathes via e-mail

Rock & Gem does not provide reprints of individual articles; you must purchase a copy of the back issue, if it is available. Visit our Web site, www.rockngem.com, e-mail editor@rockngem.com, or telephone (805) 644-3824 ext. 129 to inquire about back issue availability.

-Editor

Missing Issue

I have usually received my subscription copy of *Rock & Gem* by this point in the month, but it has not shown up yet. What is going on?

–J. Morkunas Eugene, OR

Though it is pretty rare, magazines are sometimes lost in the mail. As soon as you realize you have missed an issue, call our subscription fulfillment service at (760) 291-1549 for a replacement copy.

-Editor

Worth the Risk?

Have you ever tried lost wax casting using silver with a cut stone already in place? I have read that one should be able to cast synthetic ruby in place, since it is able to withstand the heat during burnout, the centrifugal force of the silver casting process, and the thermal shock involved in the lost wax method. In your opinion, is this information true and do I dare attempt to do this?

I am trying to get a Christmas gift together for my mother. I made her a double Fox Tail link chain necklace as a gift several years ago and now I want to make a heart-shaped pendant to hang from the chain, with a nice ruby incorporated into the heart, for the gift this year. As usual, I have been procrastinating and I am now running out of time for the project.

Do I dare try to do this? Or should I incorporate the stone after the casting?

–Deb Mahaffey via e-mail

I have heard of people putting stones in precious metal clay and baking the combination as one piece; however, I have never heard of placing a faceted or cabochon stone in a wax model and continuing that process.

The first problem I see is that, once the wax has been burned out of the investment, the stone would be free to move about. The second problem is, if the stone did stay in place and survived the burnout and casting process, how would you polish the silver or gold around the stone once it was out of the investment? Leaving the metal unfinished would likely make for a poor looking piece of jewelry in my opinion.

—Jim Perkins Off the Dop columnist

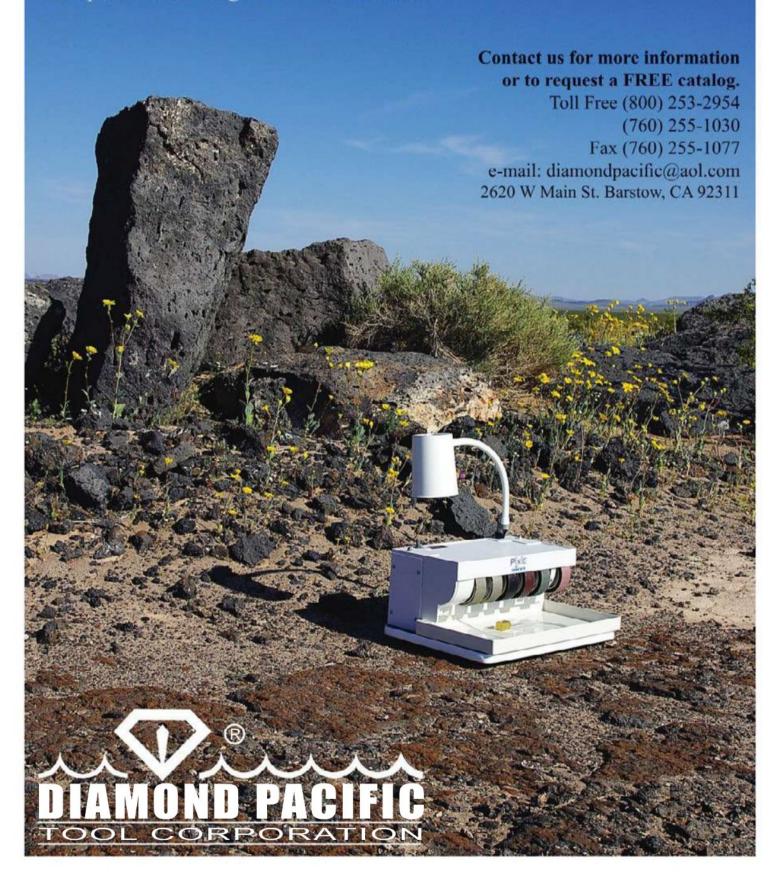
Stone-in-place casting has been done for a long time, but I sure wouldn't try this process for the first time with any stone I cared about. Some gemstones will take the heat and others won't. There are lots of Internet sites that explain the process and offer materials that are suitable for the process.

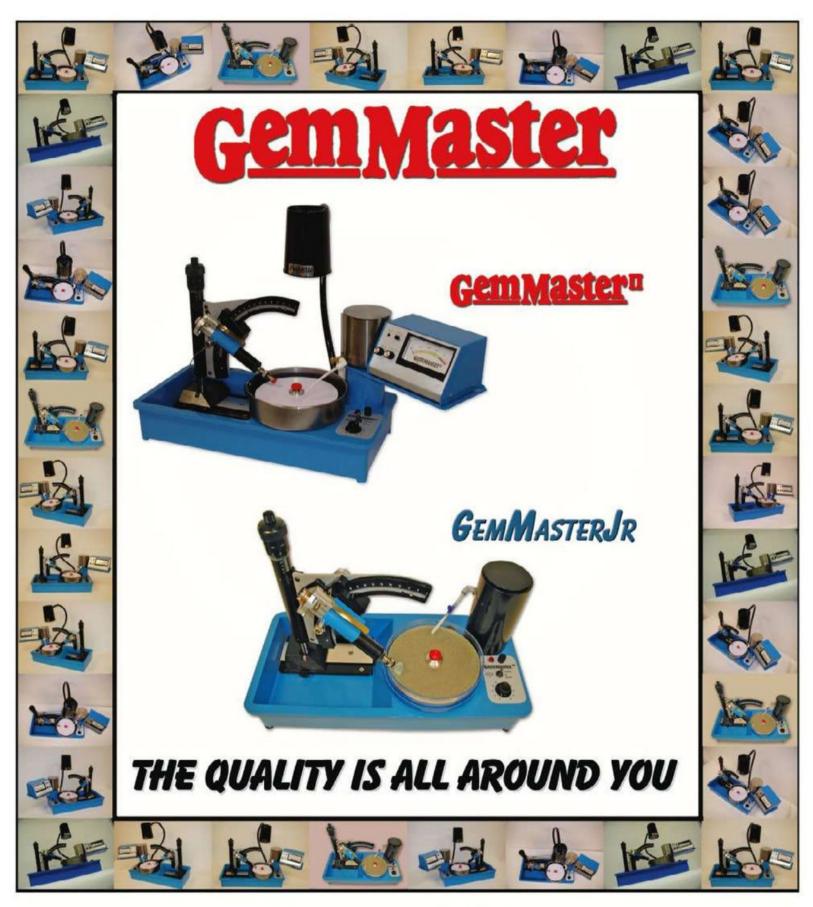
Here is a general Web site that explains the stone-in-place casting process pretty well: www.shorinternational.com/Cast StonelnWax.php.

> —William A. Kappele Shop Talk columnist

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