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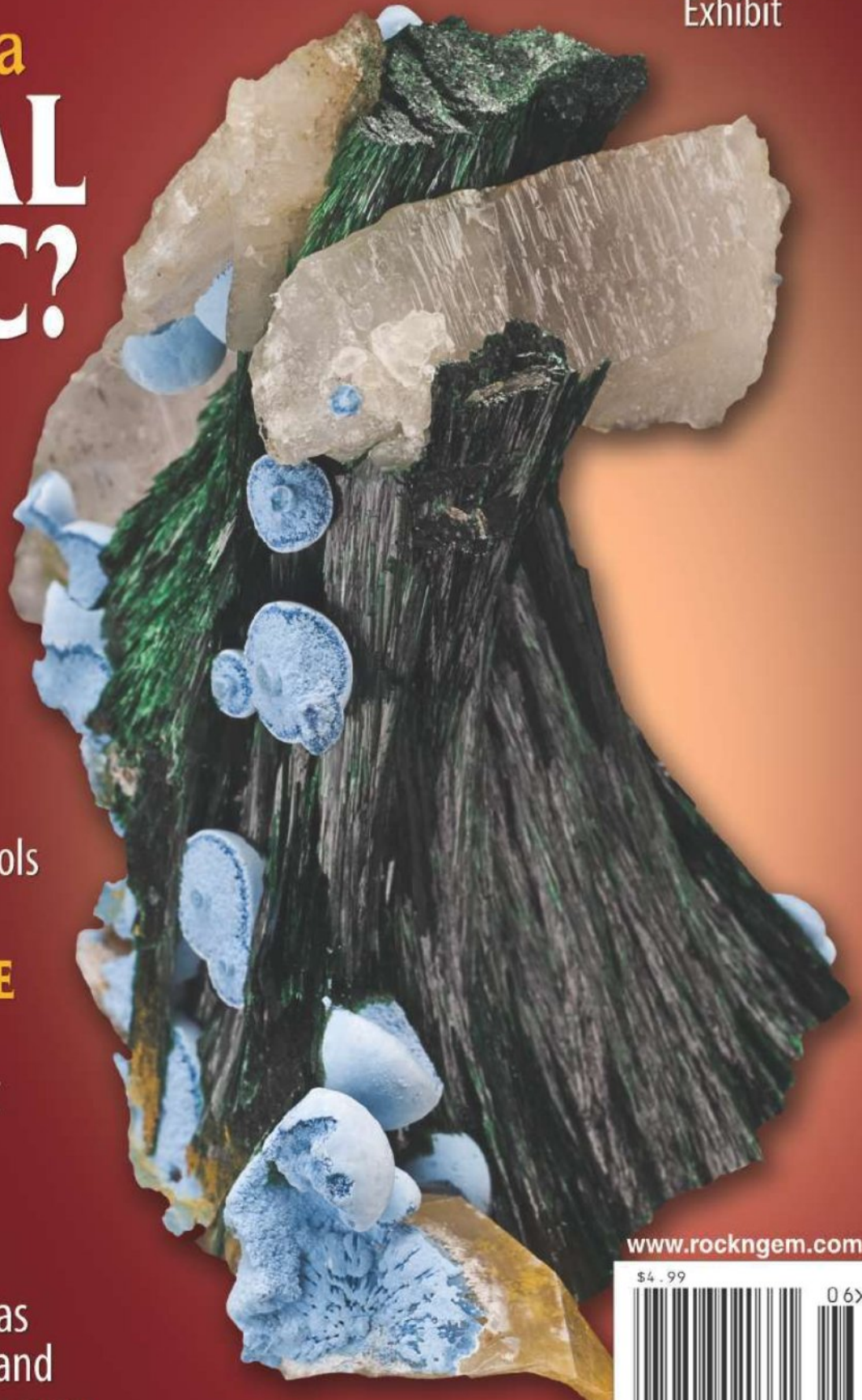
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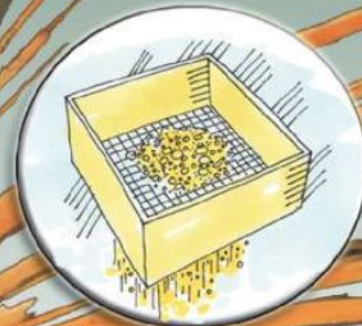
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Rock & Gem

Volume 40, Number 06

June 2010

ON THE COVER

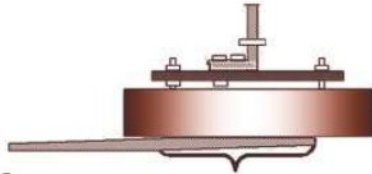
Malachite from Africa seems destined for classic status. In this 6.2-centimeter-high specimen from Kaokoveld, Namibia, blue partial hemispheres of plancheite formed on a dark-green sub-parallel group of malachite fibers with partial quartz crystals. (Jeff Scovil photo/Marcus Budil specimen)

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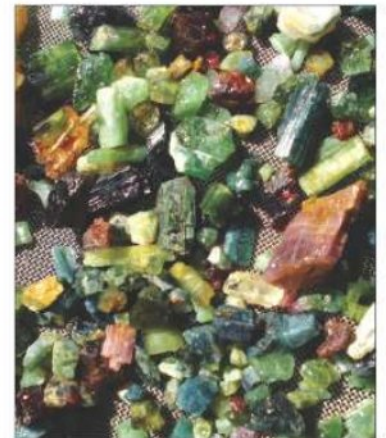
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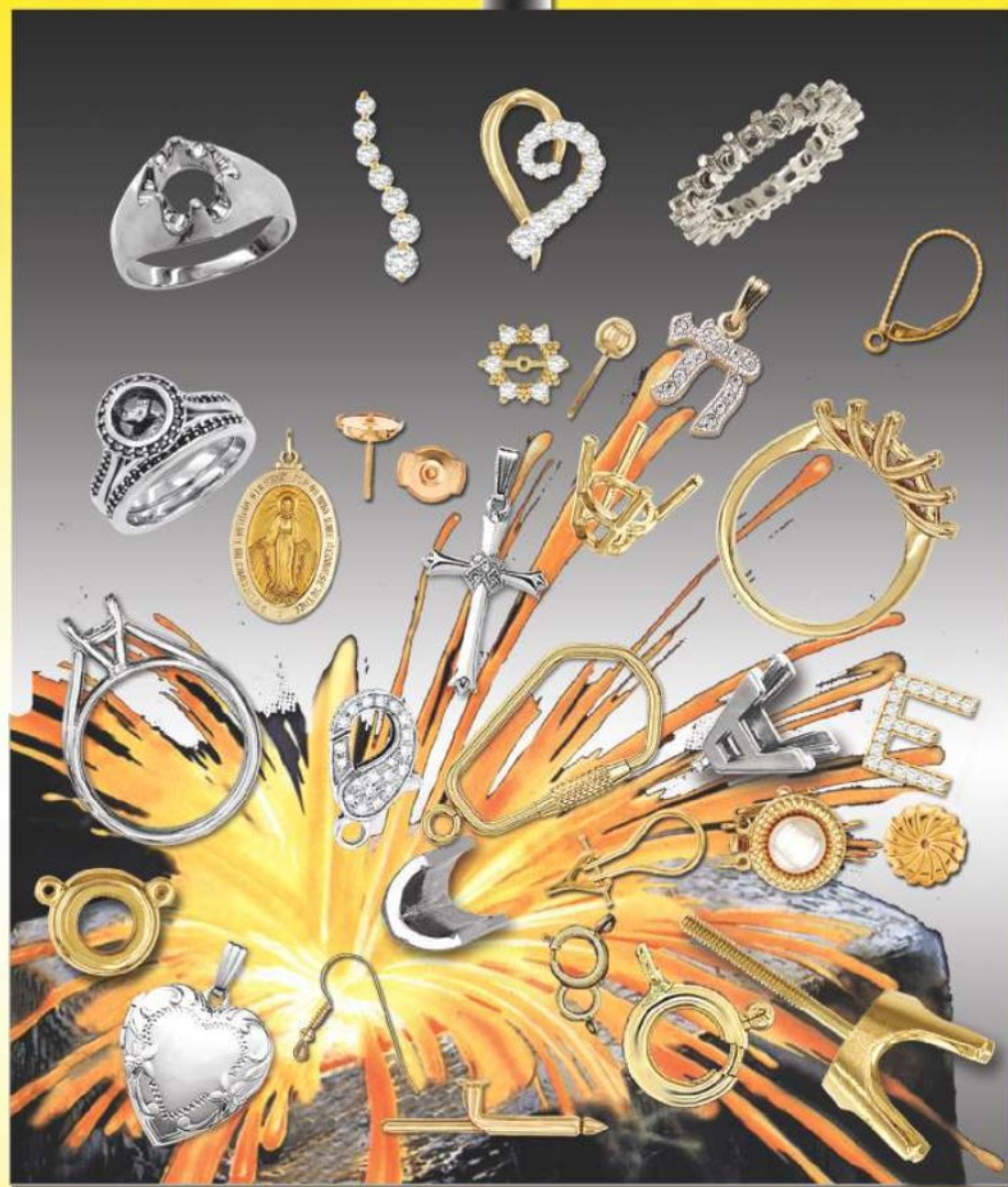
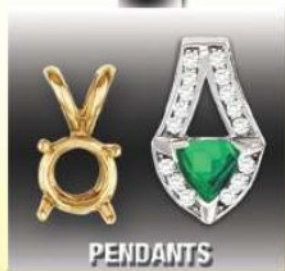
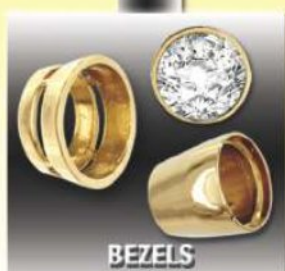
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Rockhound Responsibility

AFMS "Code of Ethics"

- I will respect both private and public property and will do no collecting on privately owned land without permission from the owner.
- I will keep informed on all laws, regulations or rules governing collecting on public lands and will observe them.
- I will, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.
- I will use no firearms or blasting material in collecting areas.
- I will cause no willful damage to property of any kind such as fences, signs, buildings, etc.
- I will leave all gates as found.
- I will build fires only in designated or safe places and will be certain they are completely extinguished before leaving the area.
- I will discard no burning material—matches, cigarettes, etc.
- I will fill all excavation holes which may be dangerous to livestock.
- I will not contaminate wells, creeks, or other water supplies.
- I will cause no willful damage to collecting material and will take home only what I can reasonably use.
- I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.
- I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and will leave all collecting areas devoid of litter, regardless of how found.
- I will cooperate with field-trip leaders and those in designated authority in all collecting areas.
- I will report to my club or federation officers, Bureau of Land Management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.
- I will appreciate and protect our heritage of natural resources.
- I will observe the "Golden Rule", will use Good Outdoor Manners and will at all times conduct myself in a manner which will add to the stature and Public Image of Rockhounds everywhere.

I think that says it all. Happy rockhounding!



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1-0609K	Tumbler with Grit Kit (Rock Polishing)	10 lbs	\$84.55
1-0609J	Tumbler with Stainless Steel Shot & Burnishing Soap	10 lbs	\$89.25

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CRAFTSMAN OF THE MONTH

I call my project 'Rock Carving for Cheap Carpenters,'" says Gene Denu, of Wolfeboro, New Hampshire. "Since I don't have diamond-tipped equipment or other sophisticated jewelry-making gear, alternative projects come to mind. I do have a good complement of wood-working equipment. The desire to make something (New Hampshire winters can be long and confining) led me to try carving talc, the softest mineral on the Mohs scale with a hardness rating of 1.

"Using talc (soapstone) reduces the equipment need to tools that almost everyone has around the house. Soapstone is easily worked. A little care is required, however, since it can be scratched readily, even with a fingernail. It comes in light, pleasing colors, is fairly reasonable in cost, and is readily available in artist supply stores if you don't have a quarry nearby. Mine was purchased by the pound, delivered in random small block size, and was a combination of white, gray, light green, and blue. For bigger projects, you can order large blocks, but the cost per pound goes up directly with block size. I let the block size and my imagination dictate the projects: making a vase base and two candleholders.

"The first step is to rough out the shape by cutting the talc with almost any saw in your shop. Although power saws are reported to work easily, I took a cautious approach and used a hacksaw. It worked very well. The only careful cut is for the base, which



should be perfectly flat. Then I roughly shaped the pieces with a coarse surform rasp. The next tooling step was to drill the vase and candle holes. I first bought an inexpensive vase at a "big box" store and picked a standard candle size. I used spade bits, which provide a good, flat bottom, and a drill press to ensure verticality. Working slowly, you can sense the bit hitting any harder impurities (the sound and feel will change). Stop and use a small chisel or nail setter to clear any small impurities before proceeding. This will prevent damage to the drill bit. I made the holes 1 to 1½ inches deep.

"The final shaping was done with standard woodworking sandpaper. I used both a small electric sander and hand sanding, starting with 60 grit, then 100, 200, and finally 600 grit to finish the project. I added two coats of semigloss varnish to improve the shine and add some protection. I glued flat cork sheet, available at any hardware store, to the bottoms of the pieces. The finished vase holder measures 4½ inches by 2½ inches by 2½ inches, with a 1¾-inch-diameter hole. The candleholders are 2 inches by 2 inches by 3 inches and 4 inches by 2 inches by 1½ inches, both with 7/8-inch-diameter holes. Since talc's density is similar to that of quartz and feldspar, the vase and candleholders stand firmly and present no danger of tipping. They are in constant use in our home." ♦



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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JUL. 16, 17, 18	SAN RAFAEL, CA
JUL. 17 & 18	SANTA MONICA BEAD FAIRE
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JUNE 2010

4-5—PRICE, UTAH: 4th annual show, "Castle Country Rock, Fossil & Mineral Show"; Braun Lapidary, CEU Silversmith Lapidary & Wire Wrapping Classes; Jennifer Leavitt Student Center, College of Eastern Utah, 536 North 300 East; Fri. 10-7, Sat. 10-7; free admission; rocks, fossils, minerals, jewelry, metal detectors, equipment, beads, displays, door prizes; contact Patrick Braun, P.O. Box 236, Ferron, UT 84523, (435) 384-2211; e-mail: pbraun@cskyw.net

4-6—LAS VEGAS, NEVADA: Business-to-business gem trade show; Gem & Lapidary Wholesalers Inc.; Bally's Las Vegas Hotel & Casino, Pacific Ballroom, 3645 Las Vegas Blvd. S; Fri. 10-6, Sat. 10-6, Sun. 10-3; contact G&LW, P.O. Box 98, Flora, MS 39071-0098, (601) 879-8832; e-mail: info@glwshows.com; Web site: glwshows.com

4-6—PUYALLUP, WASHINGTON: Show; Puyallup Valley Gem & Mineral Club; Fruitland Grange, 112th St. and 86th Ave. E; Fri. 12-6, Sat. 10-6, Sun. 11-4; contact Mark Baumann, (253) 756-8636; e-mail: djbmeb@earthlink.net

4-6—SAN MATEO, CALIFORNIA: Show; International Gem & Jewelry Show Inc.; San Mateo County Event Center, 2495 S. Delaware; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.Intergem.com

4-6—TULSA, OKLAHOMA: Show, "Gem Faire"; Gem Faire Inc.; Expo Square/Central Park Hall, 4145 E. 21st St.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

4-6—WAUSEON, OHIO: Show; State Line Gem & Mineral Society; Fulton County (Ohio) Fair Grounds, 8514 SR 108, Ohio Turnpike Exit 34; Fri. 12-7, Sat. 10-7, Sun. 11-4; free admission; MSHA mine safety class Sat., (\$30 includes book), soapstone carving class (\$15 includes soapstone), beaded jewelry class, demonstrations (cabochon cutting and polishing, flint knapping, silver casting), micro mounts and sand, fluorescent minerals, wire wrapping, spool knitting, faceting, glass fusing, kids' grab bags, silent auctions, door prizes, raffle; contact Doris Brzezicki, 419 N. Broad St., Adrian, MI 49221, (517) 263-1669; e-mail: rychar@tc3net.com; Web site: www.angelfire.com/mac/rock-club/

5—DELTA, COLORADO: Show; Delta County Rock Wranglers; Heddles Recreation Center, 530 Gunnison River Dr.; Sat. 9-5; free admission; dealers, exhibits, door prizes, family activities; contact Harry W. Masinton, (970) 856-3861

5—MURFREESBORO, ARKANSAS: Show, "Crater Gem & Mineral Show"; Crater of Diamonds State Park; 209 State Park Rd.; Sat. 8-4; free admission; gems, minerals, jewelry, diamond search area adults \$7, children \$4; contact Margi Jenks, 209 State Park Rd., Murfreesboro, AR 71958, (870) 285-3116; e-mail: margaret.jenks@arkansas.gov; Web site: www.craterofdiamondsstatepark.com

5-6—BIRMINGHAM, ALABAMA: 37th annual show, "Tannehill Gem, Mineral, Fossil, & Jewelry Show"; Alabama Mineral & Lapidary Society; Tannehill Ironworks Historical State Park, 12632 Confederate Pkwy.; Sat. 9-5, Sun. 9-5; adults \$3, seniors and ages 6-12 \$2, kids under 6 free; door prizes, children's activities, educational exhibits, demonstrations; contact Gene Blackerby, 155 Hwy. 69, Chelsea, AL 35043, (205) 807-6777; e-mail: gene@lapidaryclub.com; Web site: http://lapidaryclub.com

5-6—COEUR d'ALENE, IDAHO: Show; North Idaho Mineral Club; Kootenai Co. Fairgrounds and Event Center, Kathleen and Government Way; Sat. 9-5, Sun. 10-4; contact Warren Price, P.O. Box 1643, Hayden, ID 83835; e-mail: genuniegems@gmail.com

5-6—GLENDDORA, CALIFORNIA: Show; Glendora GEMS; Goddard Middle School; 859 E. Sierra Madre; Sat. 10-5, Sun. 10-4; free admission; dealers, demonstrations, displays, door prizes; contact Bonnie Bidwell, 1010 E. Mountain View, Glendora, CA 91741, (626) 963-4638; e-mail: ybidwell2@aol.com

5-6—MARION, KENTUCKY: Show; Ben E. Clement Mineral Museum, Fohs Hall, Walker St.; Sat. 9-5, Sun. 11-5; free admission; mineral digs, museum tours, vendors, speakers, silent auctions, door prizes, children's activities; contact Tina Walker, P.O. Box 391, Marion, KY 42064, (270) 965-4263; e-mail: beclement@kynet.biz; Web site: http://clementmineralmuseum.org

5-6—VIROQUA, WISCONSIN: Show; Coulee Rock Club, Viroqua Rotary; Viroqua Jr. High School Gym, 100 Blackhawk Dr.; Sat. 10-5, Sun. 10-4; free admission; contact Gary Krause, 606 E. Court St., Viroqua, WI 54665, (608) 637-2574; e-mail: garykrause@yahoo.com; Web site: www.garysrockshop.net

6—FT. LAUDERDALE, FLORIDA: Show, "Rings & Things BeadTour"; Rings & Things; Sheraton - Cypress Creek, 555 NW 62nd St.; Sun. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, P.O. Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

8—TAMPA, FLORIDA: Show, "Rings & Things BeadTour"; Rings & Things; Clarion, 2701 E. Fowler Ave.; Tue. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, P.O. Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

10—JACKSONVILLE, FLORIDA: Show, "Rings & Things BeadTour"; Rings & Things; Clarion Hotel Airport Conference Center (Ballroom), 2101 Dixie Clipper Rd.; Thu. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, P.O. Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

10-12—PARK HILLS, MISSOURI: 13th annual swap and sale; Mineral Area Gem & Mineral Society; Greater St. Louis Association of Earth Science Clubs; Missouri Mines State Historic Site, Hwy. 32; Fri. 9-6, Sat. 9-6, Sun. 9-5; free admission; rocks, minerals, fossils, lapidary; contact Lloyd E. Marler, (573) 431-2951, or Missouri Mines State Historic Site, P.O. box 492, Park Hills, MO 63601, (573) 431-6226

11-12—REDWOOD FALLS, MINNESOTA: Show and sale; New Ulm Gem & Mineral Club, Minnesota Inventors Congress; Redwood Area Community Center, 901 Cook St.; Fri. 11-6, Sat. 11-6; club displays, grab bags, jewelry, rocks, amethyst, demonstrations, door prizes; contact Ruth Hacker, P.O. Box 37, Morgan, MN 56266, (507) 249-3811

11-13—ALBUQUERQUE, NEW MEXICO: Show, "Gem Faire"; Gem Faire Inc.; New Mexico State Fairgrounds, 300 San Pedro NE; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

11-13—HOUSTON, TEXAS: Show; International Gem & Jewelry Show Inc.; Reliant Center at Reliant Park, 1 Reliant Park; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.Intergem.com

11-13—OVERLAND PARK, KANSAS: Show; International Gem & Jewelry Show Inc.; Overland Park Convention Center, 6000 College Blvd.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.Intergem.com

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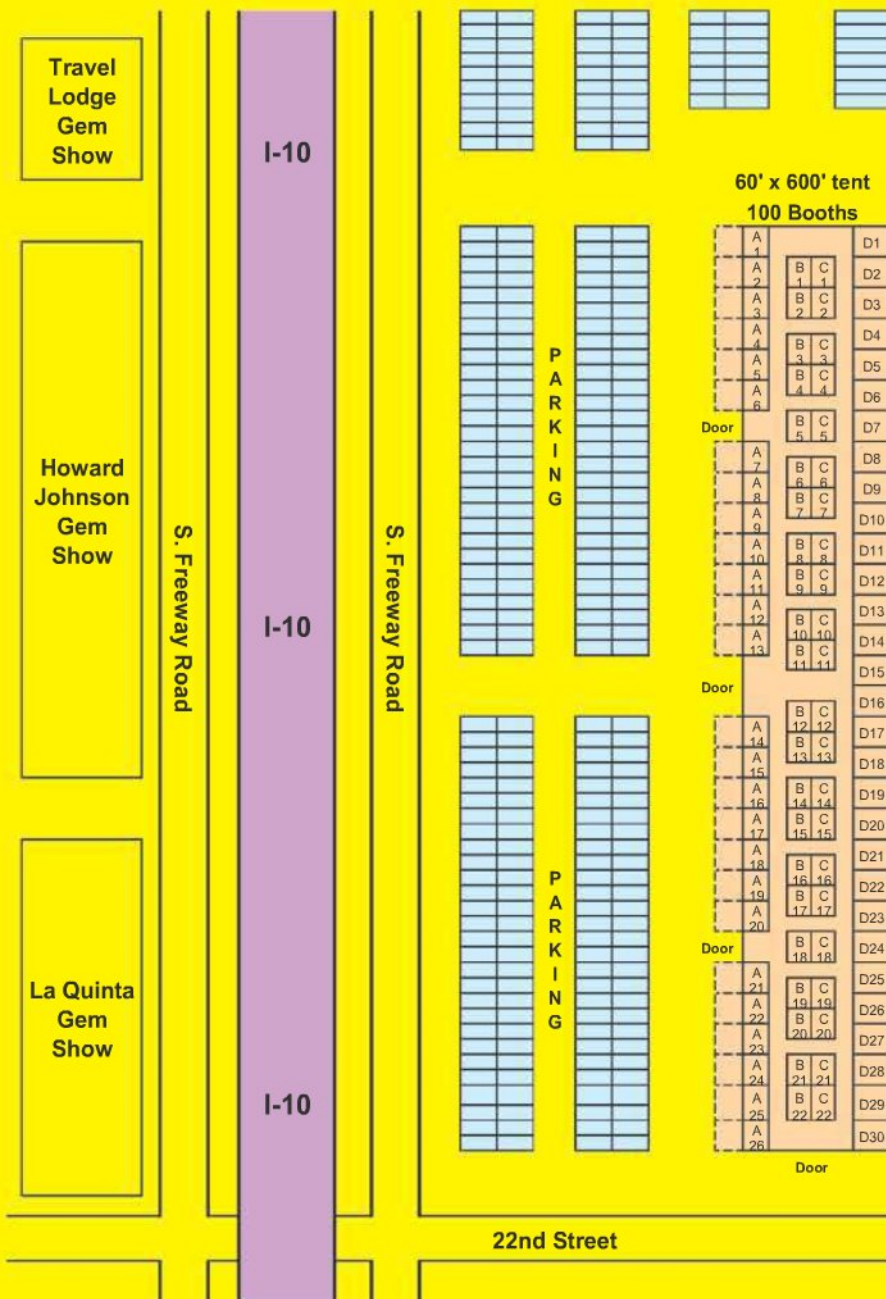
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Modern Mineral Classics

PART III: They Belong in Every Good Collection

Story and Photos by Bob Jones

Once I started describing recently mined mineral specimens that may end up as classics, the list seemed to develop a life of its own! Collector preference will have an influence, but the quality of the specimens as they are mined will determine those species that will achieve classic status in the future. In this part, I'll describe five more species: adamite and wulfenite from Mexico, cavansite from India, malachite from Africa and Mexico, and barite from South Dakota.



The cavansite that is coming from India is a stunning sky blue, and its tiny crystals form spherical or radiating clusters on white to creamy stilbite.

Before the discovery of adamite at the Ojuela mine in Mapimi (Durango), Mexico, this hydrous zinc arsenate was a little-known, almost nondescript mineral from Chile and several other sources. Since the Ojuela mine finds, one other source, Tsumeb, Namibia, has produced collector-quality specimens. However, for sheer quantity and outright beauty, nothing rivals the Mexican mineral.

I'm not sure when adamite was first reported as a collector mineral. Mineralogy books as late as 1929 do not even list Mapimi as a source for the mineral. Though it was undoubtedly known to occur there by that time, it was simply considered an ore of zinc.

The mines at Mapimi were not operating during the Depression, but mining ramped up when World War II started. As the war wound down, so did formal mining at Mapimi. That's when the local miners formed a cooperative and began serious specimen mining. Among the collectible species they recovered were quantities of adamite. In ensuing years, huge quantities of this superb green mineral was available for collectors. It was not unusual for me to buy superb specimens of adamite for as little as \$2 per pound! All one had to do was go through dozens of old dynamite boxes or cardboard flats and select the better pieces, weigh them out, and pay the wholesale dealer. Times have certainly changed! Mapimi is producing only a very limited number of average specimens now.

The better adamites are a brilliant green. The crystals develop in tightly packed, usually rounded, almost reniform clusters completely covering the brown iron oxide matrix. Single crystals, which are usually a much lighter color, can reach an inch or more. Complete fans and balls of the mineral were frequently found during Mapimi's halcyon days.

While the lime green color was dominant, bluish green and even light blue specimens were not uncommon. The color seems to be influenced by the amount of included copper ions. The light-green adamites also fluoresce a brilliant green due to included uranium salts. As the color trends toward blue green, the response diminishes, since copper is a quencher of fluorescent response.

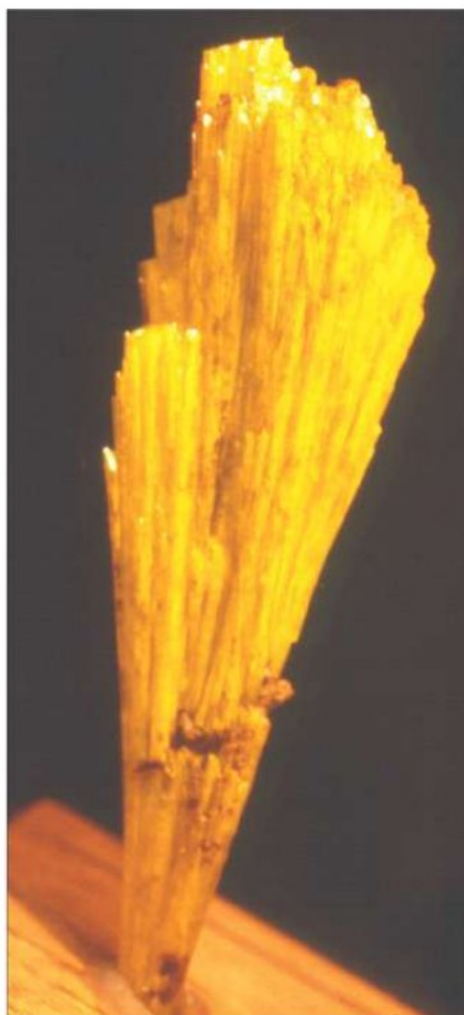


Some of the more recent adamite found is a lovely violet color; crystals are almost colorless at the base, shading into a light to rich violet at the tips. This color is due to included manganese ions. The number of such specimens has always been very limited, so they always command high prices. Adamite, because of its remarkable color, excellent quantities, and superb form, is surely going to persist as a classic in the future.

While we're not sure about adamite, there is no question about when cavansite first appeared as a serious collector mineral. It was first noted in a shipment from India in 1974. The mineral had been reported as insignificant specimens occurring at sources in the volcanics of Oregon prior to that. The specimens from India are very noteworthy, for they are a stunning sky blue, the tiny crystals forming spherical or radiating clusters. Given that most minerals from volcanic environments lack color, the vibrant blue of cavansite is a real treat for collectors.

Since 1974, efforts at the Wagholi quarry, near Poona, India, have produced marvelous quantities of choice specimens of these blue clusters on white to creamy stilbite.

Cavansite is one of those minerals whose name was devised from its chemical composition. It is a calcium, vanadinite, silicate, with the standard -ite suffix to indicate it is a mineral. Studies have shown the lovely blue color is probably due to its vanadium ions, so the mineral is self-coloring.



TOP LEFT: The violet color seen in some recently mined adamite from Mapimi, Mexico, is due to included manganese ions.

TOP RIGHT: Fifty-foot malachite and 30-foot lapis columns grace St. Isaac's Cathedral in St. Petersburg.

LEFT: The largest cluster of legrandite to be found at Mapimi in the late 1970s now resides in the American Museum of Natural History.

BELOW: Bright-orange blades of wulfenite from the San Francisco mine are enhanced by white barite blades.



Barite crystals from the Elk Creek area of South Dakota were already known when the rockhound hobby exploded after World War II. They are still among the more popular barites found in America, where the mineral is almost ubiquitous. Barites, some of them exceptionally fine, are found in a variety of environments at several Colorado localities. In central Connecticut, huge white blades of the mineral were mined as ore, and it has been found in other New England states. In Georgia, barite is an important industrial ore. The Elk Creek barites, however, are the loveliest among those cited, and they have been the most accessible to rockhounds until recently. Anyone could obtain permission to go to the area to dig up and break the huge septarian nodules in which it occurs.

The South Dakota septarian nodules have to be hammered open, sometimes very vigorously. This may reveal cavities lined with fine yellow calcite crystals on which lovely, gemmy, amber-colored barites formed. The yellow calcite is quite attractive, as it fluoresces a strong creamy yellow. The barite also fluoresces a bluish white with persistent phosphorescence.

The problem with the Elk Creek barites is where they occur, deep inside the hard nodules. Breaking into these masses requires effort and, unfortunately, barite has perfect cleavage in three different directions. Often, a broken nodule reveals a lovely pocket with the barite crystals already cleaved from the shock of hammering. In most cases, a simple repair will get the barite back where it belongs and the specimen will be none the worse for the necessary treatment.

The amber-colored barites grow randomly in the nodular pockets. Some lie

down on the calcite, while others are free standing. They range in size from under an inch to giants as much as 6 or 7 inches long, depending on the size of the pocket in which they developed.

In recent years, the local ranchers decided to exercise more control over the growing problem of collecting in the Elk Creek area. They have granted collecting privileges to commercial interests, which precludes individual rockhounds from hunting and digging up nodules. So far, the results of organized mining for barite has not dramatically increased the supply of these lovely beauties. There is little doubt that a small supply of these barites will continue to emerge through the years. However, the considerable quantity of Elk Creek barites already available ought to give collectors an incentive to search out a specimen of this potentially classic mineral.

The Ojuela mine wowed the collector world by pouring thousands of wonderful adamite specimens into the marketplace. Oddly, this was only a prelude of an even more exciting find that was made in that same mine around 1960: small, interesting, but not spectacular, yellow crystals of legrandite. This happened when the water level dropped enough for miners of the local cooperative to get into the lower levels of the mine where the legrandite would be found. The mineral was probably known to be present long before that time, but it was perhaps ignored during diligent ore mining. Once fair specimens were found, the miners made a concerted effort to find more. The results were, to say the least, stunning. Flat after flat of choice yellow sprays of legrandite, some with crystals well over an inch, began to reach the surface.



TOP: This African malachite was carved to highlight the color patterns in the gem. The variations in the shades of green are due to differences in the grain size of the malachite.

CENTER: Small calcite crystals decorate this lovely example of botryoidal adamite.

RIGHT: Los Lamentos, Mexico, is famous for its bright-orange, blocky crystals of wulfenite.



EVAN JONES COLLECTION

Finally, in the late 1970s, I had a call from Susie Davis, a friend who is well known as a dealer in Mexican minerals. She told me she had just come out of Mexico with a legrandite I would not believe. The specimen turned out to be what *Rock & Gem* later named the "Aztec Sun", a choice pair of radiating sprays, each about 5 inches long, attached to each other in opposite positions. This marvel of hydrous hydrate of zinc arsenate was later followed by a 10-inch narrow spray of yellow beauty that has been called the "Indian Club" by some. The Aztec Sun now resides in the Houston Museum of Science, and the Indian Club in the New York Museum of Natural History.

Collectors were not left out of this discovery. Hundreds of superb yellow sprays of legrandite were mined in ensuing years, and this made it one of the more popular, valuable, and eagerly sought minerals from the Ojuela mine. I suspect that every owner of one of these rare and beautiful zinc arsenates would agree that these specimens qualify as modern classics!

With adamite and legrandite well on the way to being classic in stature, you'd think Mexico had done well. But there is more to come. The number of sources for wulfenite in Mexico probably approaches 100, including Mapimi. Of these, just two have produced wulfenite of exceeding beauty and in very gratifying quantities.

The Erupción mine, at Los Lamentos (Chihuahua), has been the source of bright-orange pseudocubic crystals that are among the sturdiest wulfenites found anywhere. The San Francisco mine, near Cucurpe (Sonora), has produced some of the best—if not the best—wulfenites ever found. Granted, the wulfenites from the Red Cloud mine in Arizona are considered the world's finest by most. Some, including this writer, however, would argue that the from the San Francisco specimens, marvelous bright-orange to orange-red wulfenites associated with rich red mimetite, at least rival, and may even surpass, the Red Cloud specimens for beauty.

The Erupción mine wulfenites are distinctly different from all other American and Mexican wulfenites, but they do resemble the wulfenites from the classic wulfenite locality at Bleiberg, Austria. Each of these sources has yielded orange tabular crystals that look like a sandwich, with a darker internal zone in each crystal between outer layers of brighter orange. The Austrian crystals are more yellow than orange, tend to be paler, and often have serrated edges.

The Los Lamentos wulfenites occurred on a white calcite onyx matrix, so the orange crystals stood in stark, very attractive contrast. Some crystals reached well over an inch on an edge. They were mainly tabular, with some crystals actually taking on a perfect cubic shape. The quantity of these

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Editor Bob Jones, flanked by José Covrig and Bill Panczner, stands outside the San Francisco mine, near Cuicupe, Mexico, before going underground to photograph the mine's wulfenite pockets.



Most minerals from volcanic environments lack color, so lovely blue cavansite created quite a stir.

sturdy beauties is considerable. One year during the Tucson Show, 50 to 60 flats of crystal groups were sold. Wholesalers had thousands of specimens for sale in Tucson over a period of 10 or more years.

That so many superb Los Lamentos wulfenites are still around is a tribute to the quantity mined. The fact that they are sturdy enough to resist damage helps specimens persist. This is not the case with the wulfenites from the San Francisco mine, which developed as thin, brittle, tabular crystals in large groups. The finest color seen in them is a rich orange, bordering on reddish. Accompanying these beautiful blades, a few of which exceed 2 inches on an edge, are small bright orange-red to red mimetites showing up on the visible matrix between the blades. The mimetite also formed along the edges of some wulfenite crystals. Some red mimetite developed suspended within the transparent wulfenites, a remarkable association of two colorful secondary lead minerals.

Not all the San Francisco mine wulfenite is bright orange. Many large crystal groups are bright yellow. In fact, you can see a re-assembled crystal pocket in the Earth Science section of the Arizona-Sonora Desert Museum in Tucson. These crystals are from a crystal-lined pocket taken from the San Francisco mine and reinstalled in the mine tunnel at the museum.

Other wulfenites from the San Francisco mine are a very fine yellow with thin, stark-white barite blades clustered on and with the yellow wulfenites. As beautiful as these wulfenites are, they are eclipsed by the phenomenal orange-red wulfenites with red mimetite from the San Francisco mine, which are certainly the finest wulfenites ever found in Mexico and perhaps

the world! Both the San Francisco and Erupción mines must be considered as pending classics.

The last mineral to be described here is the toughest one to pin down to a specific locality. Malachite occurs in so many places and in such wonderful amounts and forms it is impossible to narrow the list of sources to one source that could be considered classic in the future. For example, the mines of Bisbee, Arizona, produced spectacular malachite-after-azurite pseudomorphs. Some of these green beauties are up to 4 inches long and in randomly positioned clusters of great appeal. Tsumeb, Namibia, also produced wonderful malachites after azurite, but the azurites tended to be blocky, rather than bladed and prismatic like the Bisbee crystals, and the pseudomorphs retain this form.

Then there are Russian deposits that produced multiton masses of banded malachite, which was made into stately columns, huge vases, table tops, doors, wall panels, and a huge assortment of objets d'art that grace many stately homes and palaces. Such beauty leaves us breathless.

All these malachites are worthy of collecting, and I've only listed a few sources, mainly ones that are no longer producing. Fortunately, vast deposits of banded malachite have been opened in Central Africa and are still being mined. I challenge anyone to number the tons of gorgeous banded malachite that have come from Africa in the last two decades! I really doubt that even the companies mining the material can report an accurate weight.

Go to any major show or any small club show, and you'll see all sorts of banded green malachite objects. Some are shelf décor like a green corn cob or a banded

egg, but top lapidary artists like Nicolai Medvedev use green malachite in copious amounts with other more valuable gemstone material like precious opal, lapis lazuli, and rhodochrosite to create remarkable objets d'art.

African malachite comes from a region once called the Roan antelope area. Copper deposits were known there in the early part of the 20th century, and mining commenced before World War II. It was not until the 1960s, however, that huge quantities of malachite began to be unearthed. Mines in Zaire began to yield an assortment of rare to common species, including torbernite, plancheite, cuprosklodowskite, carrollite and cuprite. Oddly, little azurite has emerged from this vast region, but fine gem malachite makes up for the lack of the blue copper carbonate.

For the specimen collector, the recently opened Milpillas mine in Sonora, Mexico, has stunned the world with what may be the most beautiful malachite pseudomorphs after azurite ever mined. Azurite crystals 2½ inches high and nearly as wide have been replaced by chatoyant green malachite, which has a breathtaking velvet luster and bright shimmer. Plates of such pseudomorphs as much as 8 inches across have been mined, and the mine is still producing!

The mineral species just described will most likely be considered classic at some point in the future. They are not the only ones now available. Any fine species that is found in some quantity might fit the criteria in the future. So follow your instincts when it comes to selecting specimens for your collection. If you like it, you are on the way to having a modern classic in your collection. 💎

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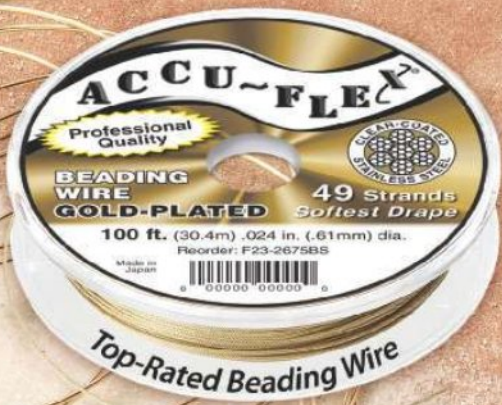


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S HOP TALK

by William A. Kappeler

Dop Like a Pro



The lowly dop stick is arguably the ugly duckling of the lapidary world. Surrounded by machines that are gleaming masterpieces of design, engineering and manufacturing, with digital readouts, diamond wheels, and shining paint jobs, the sad little dop stick, looking for all the world like a cutoff from an old broomstick, hides under its glob of greenish wax, embarrassed by its shabbiness. After all, would Rolls Royce use a piece of broomstick for a gearshift lever? Would Rolex use a piece of an old garter for a watch strap? Would a diamond pendant be hung around someone's neck by a used shoestring?

It is true that a glimmer of hope appeared awhile back when some lapidaries began using aluminum rods for dop sticks and cyanoacrylate glue to replace the dop wax, but let's face it: the new stick was just an aluminum broomstick. Why couldn't a dop stick be beautiful as well as functional? That must be what Andy Kolkind was thinking when he designed his new CabStar Ergonomically Shaped aluminum dops for use with cyanoacrylate glue.

Andy's dops are beautifully machined with smooth curves to fit the fingers and small flutes to provide a gripping surface. They are also light as a feather and long enough so that the user's fingers can be kept at the most comfortable distance from the stone. To enhance the look even more, they are anodized in a very nice shade of blue.

The face of the dop is concave, with just a 1/32-inch rim for the cyanoacrylate glue. To remove the stone, the dop is placed in a small jar of acetone. Holes in the concave area of the head allow the acetone to attack the inner area of the rim, as well as the outside, thus shortening the removal time. I was also able to remove a stone in about 10 minutes by putting the dop stick in the kitchen freezer. (This could be a plus for those of you who don't like to mess with chemicals or are allergic to them.) If you still like dop wax, you will be happy to know that you can use these sticks with that medium, too.

Andy is selling sets of three small dop sticks (3/16 inch, 1/4 inch and 3/8 inch) or three large dop sticks (1/2 inch, 5/8 inch and 3/4 inch), or a full set of all six. For prices, where to buy, etc., see his Web page, www.cabstarpro.com.

Well, as beautiful and comfortable as Andy's new dop stick might be, it can't make

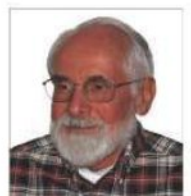
that perfect cabochon for you (a pity, but true). Now and then, I get a question about that pesky flat spot on the dome of the cab that most of us have encountered at least once in our careers. The worst problem is that, as our eyes get older, it gets harder and harder to see. You may think it has disappeared—that is, until the final polish.

Of course, that's the worst time to find it, since you have to go back to the sanding or grinding steps to get rid of the little beast. The best time to get rid of it, is at the end of the initial grinding step. That little flat spot is just the remains of that great big flat spot that was originally the top of the slab; you just quit grinding too soon.

There are a couple of tricks to try if you are having a problem with flat spots. First, try sneaking up on the flat by grinding from the girdle to the top in a sweeping motion, working all around the stone. Use a magnifying glass, if necessary, to ensure that you can see the scratch pattern crossing the top. You can also use the cross-grinding method, in which you grind the long way on the stone, then switch and grind across. If the side-to-side scratches eliminate the lengthwise scratches, you are on the right track. Try the same trick in the sanding stages.

Finally, you can resort to the felt pen trick. Just cover the face of the stone with ink using a black felt pen. Then when you sand, you can see what you are missing by the black spot(s). If all else fails, you can glue a rhinestone on the flat and pretend that you planned it that way. 💎

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NORTH SULPHUR RIVER FOSSILS

Easy Fossil Hunting in Northeast Texas

Story and Photos by Robert Beard

Texas is a fascinating state for anyone with an interest in geology. In addition to its rich oil and gas heritage, it has a wide variety of geologic terrains, which is not surprising for such a vast state. There are some outstanding opportunities for mineral and fossil collectors in these terrains, but they come with a catch: nearly all of the land in Texas is private.



Bivalve impressions are common and easy to find in many of the Upper Cretaceous rocks on the banks.



The parking area of the Pete Patterson Fossil Park on state Route 34 has a canopy, which provides useful protection against the Texas sun and hailstorms.



CENTER: The "Pete Patterson Fossil Park" sign welcomes visitors to the parking area.

BOTTOM: Coiled white ammonite fossils can be found on the surfaces of some of the rocks along the riverbank.

This is often hard to understand if you are coming from New Mexico or other nearby states that have an abundance of public land. Once you cross into Texas, there is no Bureau of Land Management (BLM) land or National Forest land, and many of the mountains that look so inviting for hiking are off limits unless you have permission from the landowner. Fortunately, there are still many sites that rockhounds can access for mineral and fossil collecting.

An interesting and accessible fossil collecting site in northern Texas is located on the North Sulphur River, approximately 1.7 miles north of Ladonia in Fannin County, Texas. This locality is one of those listed in *Gem Trails of Texas*, Eighth Revised Edition, by Brad L. Cross (Gem Guides Book Co., 2001). In the fall of 2007, I was planning a trip to Dallas, and I always check this book whenever I come to Texas to determine if I may be near any interesting collecting site.

In his summary of the locality, Cross noted that the North Sulphur River has "produced some extremely nice fossils, petrified wood, and occasionally prehistoric artifacts" (pages 104-105). From Cross' description, it appeared to be both accessible and a productive site.

I also did some Internet research before my trip to the region. Running a Yahoo! or Google search on "North Sulphur River fossils" brings up a lot of hits, far too numerous to list here. The fossils that can be found here include bivalves, ammonites, shark teeth, and mammal bone and teeth fragments. The bivalves, ammonites, and shark teeth are found in Upper Cretaceous sedimentary rocks, while the mammal fossils are found in Pleistocene sediments that overlie the Upper Cretaceous rocks.

On my trip to Dallas, I only had one day available for fossil hunting. I had a two-wheel-drive vehicle, but this is generally fine for most sites in central and east Texas, as you are likely to be limited to road and stream cuts due to the restrictions on private land access. I left Dallas driving east on Interstate 30 to state Route 50, which I took north to Ladonia.

Driving anywhere in Texas often takes a long time, and although the route is generally straight and flat, you have to allow enough time. I soon realized that I had to get some lunch before I went to explore the fossil collecting area. The only restaurant I could find that was open was Gloria's Kitchen, and I had an excellent burger and fries. Although it is small, I definitely recommend this restaurant as a meal stop. The address is 103 Paris Street in Ladonia.

I left Ladonia driving north on state Route 34. I crossed the bridge over the North Sulphur River in approximately 1.7 miles, just as described in *Gem Trails*. Immediately north of the bridge, on the west side of the road, is a parking area. A sign on the west side of the parking area says, "Pete Patterson Fossil Park, Ladonia, Texas, North Sulphur River Fossil Haven".

Pete Patterson was a state representative in northern Texas, and I assumed that he was the park's namesake, but I was unable to find any information to verify this. I appreciated this effort at identifying and promoting this area as a fossil-collecting locality, as this eliminated any questions I had about the land status. The park developers also built a small parking canopy on the south side of the parking area, which provides some good shade. The area was deserted, and there were no indications of any fee boxes or documents that you needed to sign at the parking area to access the fossil collecting site. I do not know whether Mr. Patterson still runs for office, but if I could vote in Texas, he would almost certainly get my vote for supporting this fossil collecting site.

I began by walking onto the state Route 34 bridge to review the riverbed and determine my collecting strategy. At the time of my visit, the river was nearly dry, and right away I knew that I would likely be able to see many exposures and it would be relatively easy to hike along the dry riverbed. If the river had been full of water, this trip could have been a bust.

The North Sulphur River is a very wide river with a broad, flat bottom and steep banks. I had no idea how often it would



TOP LEFT: The North Sulphur River has a broad, straight channel, and flood waters both expose and destroy more fossils every season.

TOP RIGHT: Excellent, large hand samples of sedimentary rock containing bivalve fossils are easy to find along the North Sulphur River.

ABOVE: A set of concrete stairs provides excellent, easy access to the fossil-collecting zones from the parking area.

flood, but on the day of my visit it was late summer with no threat of thunderstorms, so I was confident that flash flooding would not be an issue.

Access to the river is gained via some large steps built on the north bank of the river, on the west side of the highway. It was a good thing these steps were constructed; the banks are so steep that access, as well as egress, is almost impossible elsewhere along the sides of the river.

As soon as I was in the riverbed, I began to look at the rocks. They were mainly bedded siltstones and claystones, and these were undoubtedly the Upper Cretaceous sediments. I had hoped that I would see lots of fossils right away, but the rocks looked barren at first glance. I walked upstream, which in this river was west, and looked for signs of bedded fossils and signs of fossil collecting, such as broken rocks and rocks that had obviously been placed atop other rocks when sorting collectible materials.

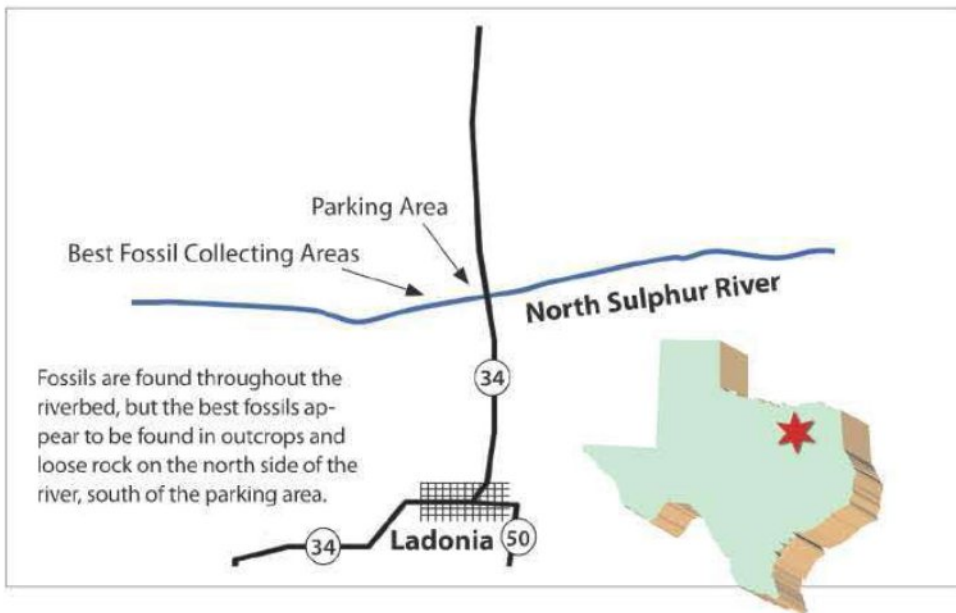
I came to a broken up area of rocks on the north bank, and it was obvious that some collectors had worked this area. I soon saw that some broken rocks bore the shell impressions of bivalves, and they were relatively abundant. The best way to reveal them seemed to be to find rocks with some weak bedding planes and split them open by tapping them with a hammer. The rocks are relatively soft and were quite easy to open. Unfortunately, this also made them quite fragile, and I had to be careful when I put some of the pieces in my daypack.

I continued walking along the riverbank looking for fossils. It became extremely hot and fortunately I had brought lots of water. The sun reflects strongly off the light-gray rocks in the river, so if you visit this site, bring lots of sunscreen and a hat.

I came across more areas with broken rock and found some small ammonites in the rocks. These were very interesting, as you could see some neat coiled patterns, and the white of the fossil contrasted well with the gray host rock. Many of these ammonites were small and it was difficult to trim the rocks with a hammer without risking damage to the fossil.

It would have been very easy to stay at this outcrop and continue working the rocks for fossils, but I wanted to investigate the area further. The riverbed was nearly dry and the rocks were well exposed, and it seemed like there could be many more areas with good collecting. I continued walking west and could see the bridge for Farm Road 2990 in the distance. It soon became apparent that I was not going to see anything that would be very different if I continued west, so I turned around and walked east back to state Route 34. I looked hard for fossils in the bed of the river, but it seemed like the outcrops in the riverbed did not have many fossils. I suspected that they had been scoured and broken apart by the water.

Unfortunately, I was unable to find any shark teeth or mammal fossils, and I did not find any the petrified wood or prehistoric artifacts that were mentioned in *Gem Trails of Texas*. I looked in what I believed to be



the Pleistocene outcrops along the riverbanks, but did not have any success, nor did I observe any loose teeth or bones in the riverbed. The best collecting seemed to be of the bivalves and ammonites, which I found in the Upper Cretaceous outcrops along the banks and near the state Route 34 bridge. The most productive outcrops were on the north side of the river. In fact, I did not find any good fossils in outcrops along the south bank of the river. I also investigated the area east of the state Route 34 bridge, but did not find many more significant areas of fossils.

I also collected GPS coordinates for the site. You do not need them to find this site, but they can still be useful. These are referenced using the North American Datum 83 and World Geodetic System 84 (NAD83/WGS84), and are in the degree-decimal minute format:

Parking Area: 33° 27.424'N, 95° 56.553'W

Outcrop with bivalves and ammonites: 33° 27.361'N, 95° 56.635'W

While doing some post-trip research for this article, I learned that the North Sulphur River locality, like many of our best localities, may soon be gone forever. The Upper Trinity Regional Water District is planning to construct a reservoir, to be known as Ralph Hall Lake, in the North Sulphur River just north of Ladonia. The planned reservoir will completely inundate the collecting localities on the river. The lake is still in its planning stages, and updates are posted at the Upper Trinity Regional Water District's Web site www.lakeralphhallinfo.com. Local opposition to the project is documented at www.lakeralphhall.org.

The wide bottom of the river is also not an entirely natural feature. According to an article by Wendy Flowers of the Flower Mound *Leader* (www.dentoncountywater.com/articles/FMLLeader-3-31-05.html), in 1929, farmers wanted modify what was

then a meandering stream, with a gradient of only 6 inches per mile, for irrigation purposes and channeled it into a straight waterway. The new gradient was 5 to 6 feet per mile, and this caused faster-moving water to erode the sides of the channel and cut the river into a ravine more than 50 feet deep and several hundred yards across. This exposed much more of the sediments and made the area the great fossil-collecting locality it is today. Ironically, the plans for Ralph Hall Lake, another unnatural feature, will almost certainly wipe out this site.

The potential for this part of the North Sulphur River to become a lake serves notice that if you want to visit this collecting site, it is probably scheduled for sooner rather than later. Most local fossil collectors undoubtedly are aware of this site, but if you are not from Texas and have the chance to come to the Dallas area, this site is well worth the trip. It offers outstanding access and you are guaranteed to come back with some interesting fossils. With luck, you may even find some of the more unique fossils, such as the shark or mammal teeth. However, if you are like me, you will be more than satisfied with some of the excellent bivalves and ammonites that you can find in the North Sulphur River. ♥

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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Show Dates from page 10

JUNE 2010

11-13—RALEIGH, NORTH CAROLINA: Show; Frank Cox Productions; State Fairgrounds, 1025 Blue Ridge Rd.; 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

12—KENT, CONNECTICUT: 8th annual show; Connecticut Antique Machinery Association, Danbury Mineralogical Society; museum grounds, 1 mile north of Kent on Rte. 7; Sat. 9-4; free admission; rocks, minerals, fossils, jewelry, buy and trade, new mining museum exhibits; contact Connecticut Antique Machinery Association, (860) 927-0050; Web site: www.ctamachinery.com

12—NORCROSS (ATLANTA), GEORGIA: Show, "Rings & Things BeadTour"; Rings & Things; Holiday Inn Select - Peachtree Corners, 6050 Peachtree Industrial Blvd. NW; Sat. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, P.O. Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

12—SKOKIE, ILLINOIS: 3rd annual show, "Geode Fest"; Chicago Rocks & Minerals Society; St. Peter's United Church of Christ - Gymnasium, 8013 Laramie Ave.; Sat. 1-5; free admission; geodes from Iowa, Missouri, Indiana, Mexico, Brazil, etc.; geode cracking, dealers, educational exhibits, mineral inclusion identification; contact Craig Heinze, (847) 584-8637; e-mail: cheinze@flash.net; Web site: www.chicagorocks.org

12-13—BARTO, PENNSYLVANIA: 3rd annual show, "Pennsylvania Prospector Mineral and Fossil Show"; Joshua Sloan; Jake's Flea Market, 1380 Rte. 100; Sat. 7-1, Sun. 7-1; free admission; free mineral samples and identification for kids and teachers; contact Joshua Sloan, P.O. Box 118, Bally, PA 19503, (484) 241-5490; e-mail: josh@paprospcator.com; Web site: http://PaProspector.com

12-13—CARTERSVILLE, GEORGIA: Show, "Rockfest"; Tellus Science Museum; 100 Tellus Dr.; Sat. 9-5, Sun. 10-4; adults \$12, seniors \$10, students and children \$8, museum members free; dealers, gems, minerals, fossils, jewelry, children's activities, mineral identification, demonstrations; contact Michelle Pate, 100 Tellus Dr., Cartersville, GA 30120, (770) 606-5711; e-mail: michellep@tellusmuseum.org; Web site: www.tellusmuseum.org

12-13—SAN FRANCISCO, CALIFORNIA: Show, "San Francisco Crystal Fair"; Pacific Crystal Guild; 99 Marina Blvd.; Sat. 10-6, Sun. 10-4; admission \$6; contact Jerry Tomlinson, (415) 383-7837; e-mail: sfxtl@earthlink.net; Web site: www.crystalfair.com

13—CHARLOTTE, NORTH CAROLINA: Show, "Rings & Things BeadTour"; Rings & Things; Renaissance Suites Hotel (Terrace Ballroom), 2800 Coliseum Centre Dr.; Sun. 2-6; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, P.O. Box 450, Spokane, WA 99210, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

14—DURHAM, NORTH CAROLINA: Show, "Rings & Things BeadTour"; Rings & Things; Hilton Durham, 3800 Hillsborough Rd., near Duke University; Mon. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

15—SPOKANE, WASHINGTON: Show, "Rings & Things BeadTour"; Rings & Things; Holiday Inn - Richmond Central, 3207 North Blvd.; Tue. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

16—McLEAN, VIRGINIA: Show, "Rings & Things BeadTour"; Rings & Things; Best Western Tysons Westpark Hotel (Tyson's 1 and 2), 8401 Westpark Dr.; Wed. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

17—TIMONIUM, MARYLAND: Show, "Rings & Things BeadTour"; Rings & Things; Holiday Inn Timonium, 9615 Deereco Rd.; Thu. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, P.O. Box 450, Spokane, WA 99210,

continued on page 28

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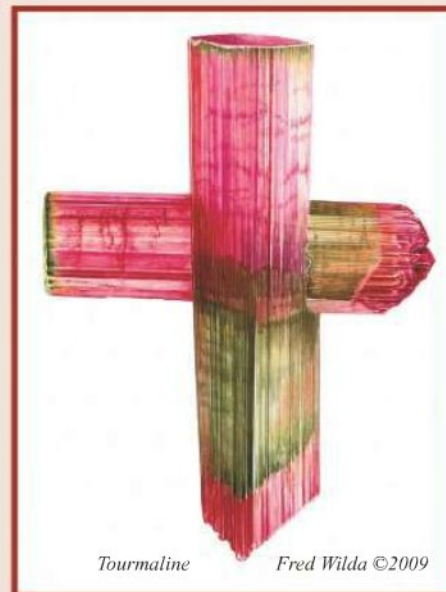
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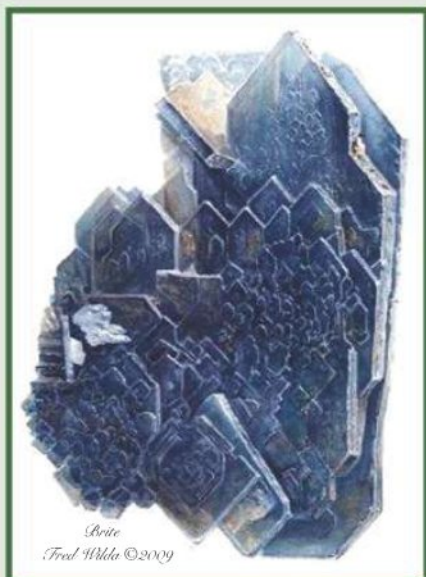


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ROCK SCIENCE

by Steve Voynick

The Clock in the Rock

An unusual geological exhibit of a single zircon crystal is currently making the rounds of selected museums and universities throughout North America, Europe and Australia. Measuring just two human hairs in width, the crystal is admittedly not much to look at, but its diminutive size belies its great geological significance. This tiny crystal, obtained from a gneiss sample collected in Western Australia's Jack Hills, is the oldest known object on Earth. Its age is 4.404 billion years, meaning it crystallized not long—geologically speaking—after the Earth itself was formed some 4.6 billion years ago.

This estimated age of 4.404 billion years has a probable error of just 0.002 percent (plus or minus 8 million years). Accurately measuring the age of this crystal was accomplished by radiometrically dating the traces of uranium that are trapped within it.

Until the discovery of radioactivity in 1896, geological events could be only dated relatively. But by 1907, when researchers first began using radiometric methods to date rocks in absolute terms, they had proved that geologic time involved not thousands but hundreds of millions of years.

Radiometric dating is based on known rates of atomic decay, a spontaneous, energy-emitting process in which radioactive elements and isotopes are transformed at precise rates into new elements and isotopes. Decay rate is expressed in terms of "half-life," the time required for a particular radioactive isotope to lose 50 percent of its radioactivity. Most isotopes have short half-lives of just several years or even several days. A few, however, have extremely long half-lives. The longest, a remarkable 4.5 billion years, is that of the uranium-238 isotope.

When igneous rocks solidify from magma, radioactive isotopes are present in uniform ratios. By measuring these ratios in a mineral sample, geophysicists can determine the extent of atomic decay and thus calculate when the sample crystallized.

Radiometric-dating methods make use of various radioactive isotopes, notably those of carbon, potassium and argon, to date materials at several thousands to hundreds of millions of years. But the key to dating materials that are billions of years old is the 4.5 billion-year half-life of uranium-238.

In order to be valuable in dating, the uranium-238 isotope must be trapped within durable crystals that can survive extremely long periods of weathering. Zircon crystals have



Zircon usually contains sufficient quantities of the uranium-238 isotope to allow radiometric dating of its age.

great durability and, because of zirconium's affinity for uranium, zircon crystals almost always contain measurable traces of uranium. Sometimes the amount is so great that zircon crystals undergo metamictization, a process in which internal radiation degrades the crystal lattice, alters colors, and decreases hardness, density, and index of refraction. Because zircon is relatively abundant, widely distributed, and durable enough to survive billions of years of weathering and even high-grade metamorphism, it is an extraordinary tool for dating very old rocks.

Study of the 4.404 billion-year-old zircon crystal from Western Australia suggests that Earth's crust formed much earlier than was previously believed. Based on high oxygen-isotope ratios and enriched levels of rare-earth elements trapped within the crystal, scientists now theorize that Earth had already separated into different types of crust at the time this crystal was formed. The zircon's probable parent rock was granite that had formed from melted continental-crust sediments. Moreover, the element and isotope ratios in the zircon suggest that this parent rock was emplaced when oceans already existed. The probably transient nature of these early oceans may have allowed life to evolve and vanish several times before it finally became established.

Geophysicists are steadily painting a clearer picture of Earth's earliest days and refining the estimate of when life first appeared, thanks to uranium-238, the "clock in the rock".

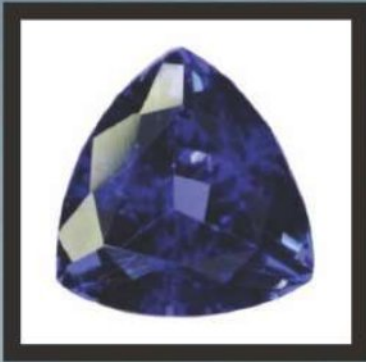
Steve Voynick is a science writer, mineral collector, former hardrock miner, and the author of books like *Colorado Rockhounding* and *New Mexico Rockhounding*.



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18-20—ASHEVILLE, NORTH CAROLINA: Show, "Asheville Gem Fest"; Colburn Earth Science Museum; Pack Place Education, Arts & Science Center, 2 S. Pack Square; Fri. 10-6; Sat. 10-6, Sun. 11-5; free admission; kids' activities, silent auction; contact Felicity Green, Colburn Earth Science Museum, P.O. Box 1617, Asheville, NC 28802, (828) 254-7162; e-mail: museum.colburn@gmail.com; Web site: www.colburnmuseum.org

18-20—NEWPORT, OREGON: 47th annual show, "Rock'n the Coast"; Oregon Coast Agate Club; Yaquina View Elementary School, Multipurpose Room, 351 S.E. Harney St.; Fri. 10-6, Sat. 10-6, Sun. 10-4:30; dealers, demonstrations, displays, agate, jasper, gems, fossils; contact K. Myers, (541)265-2514

18-20—SANDY (SALT LAKE CITY), UTAH: Show, "Gem Faire"; Gem Faire Inc.; South Towne Exposition Center/Exhibit Hall 5, 9575 S. State St.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yoo Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

18-20—SANTA MONICA, CALIFORNIA: Show; International Gem & Jewelry Show Inc.; Santa Monica Civic Auditorium, 1855 Main St.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.intergem.com

18-20—WHITTIER, CALIFORNIA: AFMS/CFMS show, "Hidden Treasures"; North Orange County Gem & Mineral Society, American Federation of Mineralogical Societies, California Federation of Mineralogical Societies; So. California University of Health Sciences, 16200 E. Amber Valley Rd. (www.scuhs.edu); adults \$6, children under 14 free; Fri. 10-5, Sat. 10-5, Sun. 10-5; speakers, field trips, display cases, raffle, kids' room, demonstrations, vendors, supplies, jewelry, beads, fossils, gems; contact Don Warthen, (626) 330-8974; e-mail: odwarthen@verizon.net; Web site: www.nocgms.com

19—ESSINGTON, PENNSYLVANIA: Show, "Rings & Things BeadTour"; Rings & Things; Wyndham, 46 Industrial Hwy.; Sat. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

19-20—BUTTE, MONTANA: Annual show; Butte Mineral & Gem Club; Civic Center Annex, 1340 Harrison Ave. (exit 127 North); Sat. 10-5, Sun. 10-5; 15 dealers, minerals, gems, jewelry, fossils, displays, demonstrators; contact Pete Knudsen, P.O. Box 4492, Butte, MT 59702, (406) 496-4395

19-20—CAYUCOS, CALIFORNIA: 46th annual show; Cayucos Gem & Mineral Show; San Luis Obispo Gem & Mineral Club; Cayucos Vets Hall, 10 Cayucos Dr.; Sat. 9-5, Sun. 9-5; free admission; rocks, slabs, minerals, fossils, gems, carvings, lapidary equipment, drawing; contact Mike Lyons, (805) 610-0757; e-mail: jadestar@charter.net; Web site: http://slogem.org

19-20—POWELL, WYOMING: Show, "Wyoming Wonders"; Shoshone Rock Club, Cody '59ers; Park County Fairgrounds, 655 5th St.; Sat. 9-7, Sun. 9-4; adults \$2, ages 12-18 \$1, children 5th grade and under free with adult; contact Jane R. Neale, (307) 754-3285, Mary Ann Northrup, (307) 754-4472, or Art Schatz, (307) 548-7258

20—HANOVER, NEW JERSEY: Show, "Rings & Things BeadTour"; Rings & Things; Ramada Inn and Conference Center (Ballroom), 130 Rte. 10 W; Sun. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

21—NORTH HAVEN, CONNECTICUT: Show, "Rings & Things BeadTour"; Rings & Things; Holiday Inn North Haven, Emerald Ballroom 1, 201 Washington Ave.; Mon. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

24—ROCHESTER, NEW YORK: Show, "Rings & Things BeadTour"; Rings & Things; Monroe Community College, Brighton Campus, Bldg. #3, Monroe A & B, R. Thomas Flynn Campus Center, 1000 E. Henrietta Rd.; Thu. 12-5;

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Show Dates from page 28

JUNE 2010

free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

24-27—PRINEVILLE, OREGON: Show, "Prineville Rockhound Show and Pow Wow"; Prineville Rockhound Pow Wow Association; Crook County Fair Grounds, 1280 S. Main; Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-4; free admission; auction, field trips; contact Rich Knight, 1709 SW Hunter Rd., Prineville, OR 97754, (541) 447-5298; e-mail: richknight@yahoo.com

25-27—BLOOMINGTON, INDIANA: 45th annual show and swap; Lawrence County Rock Club; Monroe County 4-H Fairgrounds, from IN 37, go south on IN 45S for 1.2 miles, then right (west) on Airport Rd. for 0.7 mile; gems, jewelry, minerals, fossils, rocks, lapidary equipment, supplies, rockhound and prospecting supplies, 4-H project material, science project material; Fri. 10-6:30, Sat. 9-6:30, Sun. 10-4; contact Dave Treffinger, 13101 E. 250 N., Logansport, IN 47553, (812) 295-3463; Web site: www.lawrencecountyrockclub.org

25-27—NOVI, MICHIGAN: Show; International Gem & Jewelry Show Inc.; Rock Financial Showplace, 46100 Grand River Rd.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.Intergem.com

25-27—SAN DIEGO, CALIFORNIA: Show, "Gem Faire"; Gem Faire Inc.; Scottish Rite Event Center, 1895 Camino del Rio S; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

25-27—SEATTLE, WASHINGTON: Show; International Gem & Jewelry Show Inc.; Seattle Center, Exhibition Hall & Northwest Rooms, 305 Mercer St.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.Intergem.com

26-27—COLORADO SPRINGS, COLORADO: Show, "Rock Fair at WMMI"; Colorado Springs Mineralogical Society; Western Museum of Mining and Industry, 225 N. Gate Blvd.; Sat. 9-4, Sun. 9-3; adults \$5, children \$2; vendors, rocks, minerals, jewelry, children's area, rock, mineral and fossil identification, speakers, demonstrations, gold panning, metal detecting; contact Ronald "Yam" Yamiolkoski, (719) 488-5526; e-mail: info@csms.us; Web site: www.csms.us

26-27—GILSUM, NEW HAMPSHIRE: Show, "Gilsum Rock Swap and Mineral Show"; Town of Gilsum; Gilsum Elementary School, Rte. 10; Sat. 8-6, Sun. 8-4; free admission; more than 60 dealers, buy, sell or swap, beryl, quartz crystals, semiprecious stones, rocks, minerals, displays (specimens, fossils, hand-crafted jewelry); contact Rob Mitchell, Gilsum Recreation Committee, P.O. Box 76, Gilsum, NH 03448, (603) 357-9536; e-mail: gilsumrocks@gmail.com

26-27—OSAGE BEACH, MISSOURI: Osage Rock & Mineral Club; 9th annual show; The Inn At Grand Glaize, 5142 Hwy. 54; Sat. 11-5, Sun. 11-5; gemstones, jewelry, meteorites, geodes, fossils, minerals, quartz crystals, custom jewelry, cabochons, gift items, demonstrations, displays, kids' games, prizes; adults \$2, seniors (60+) and kids 10 and younger \$1; Scouts in uniform free, families \$5 maximum; contact ORMC, (417) 532-4367, or Roger Varvel; e-mail: rvarvel@fidnet.com

26-27—RAPID CITY, SOUTH DAKOTA: 30th anniversary show; Western Dakota Gem & Mineral Society; Rushmore Plaza Civic Center, 444 N. Mt. Rushmore Dr.; Sat. 9-6, Sun. 10-4; adults \$3, children under 12 free; dealers, gems, minerals, fossils, jewelry, silent auction, informational programs; contact Jamie Brezina, (605) 721-8840, or Deb Radomski, (605) 343-7850; Web site: www.wdgmns.org

26-27—STATE COLLEGE, PENNSYLVANIA: Nittany Gem & Mineral Show; Nittany Mineralogical Society; Mt. Nittany Middle School, 656 Brandywine Dr.; Sat. 10-6, Sun. 11-4; adults \$5, seniors and students \$2, children 12 and under free with adult; expert speakers, hands-on activities, demonstrations, displays, Pennsylvania mineral specimen contest, club silent auctions with kids' sections, field trips; contact David Glick, 209 Spring Lea Dr., State College, PA 16801; e-mail: xidg@verizon.net; Web site: www.ems.psu.edu/nms/

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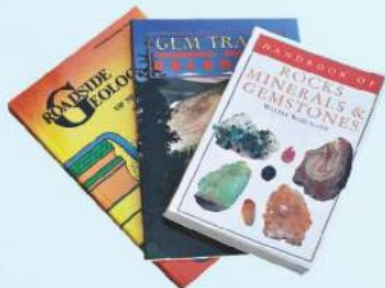
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Show Dates from page 30

JUNE-JULY 2010

30-4—MADRAS, OREGON: 61st show; All Rockhounds Pow Wow Club of America; Jefferson County Fairgrounds; free admission; swap tables, door prizes, rock toss, auction, members-only field trips daily, more than 70 vendors, jewelry, faceted gemstones, minerals, fossils, crystals, findings, equipment; contact Pauline Miller, (360) 658-8091; e-mail: paulinem280@aol.com

JULY 2010

1-4—SISTERS, OREGON: Show, "Sister's Round-up of Gems"; Oregon Gem Shows; Sister's Elementary School, 611 E. Cascade, off Hwy. 20; Thu. 9-6, Fri. 9-6, Sat. 9-6, Sun. 9-4; free admission; contact Jean Miller, P.O. Box 136, Molalla, OR 97038, (503) 829-2680; e-mail: shadow92337@molalla.net; Web site: www.ogmshows.com

2-4—FARMINGTON, NEW MEXICO: Show; San Juan County Gem & Mineral Club; Farmington Civic Center, 200 W. Arlington St.; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; door prizes, rocks, gems, minerals, Farmington Freedom Days; contact Mickie Calvert, P.O. Box 1482, Farmington, NM 87499, (505) 632-8288; e-mail: mickie2@earthlink.net

2-4—FISHERSVILLE, VIRGINIA: 23rd annual show; Treasures Of The Earth Gem & Jewelry Shows; Augusta Expoland, 277 Expo Rd. (I64 Exit 91); Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$3 (good all 3 days), children under 16 free; jewelry makers, goldsmiths, silversmiths, gem trees, wire wrap, wire sculpture, pearls, stone beads, stone setting, dealers, amber, opal, minerals, fossils, door prizes, classes; contact Van Wimmer Sr., 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

2-4—PASADENA, CALIFORNIA: Show; International Gem & Jewelry Show Inc.; Pasadena Convention Center, 300 E. Green St.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.InterGem.com

2-4—TIMONIUM, MARYLAND: Show; International Gem & Jewelry Show Inc.; Maryland State Fairgrounds, Expo Hall and 4-H Bldg., 2200 York Rd.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.InterGem.com

9-11—DURANGO, COLORADO: Show; Four Corners Gem & Mineral Club; La Plata County Fair Grounds, 2500 Main Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; jewelry, kids' activities, gold panning, jewelry making tools, gems, minerals, fossils, beading supplies, door prizes, mineral displays, raffle, silent auction; contact Bill Birza, P.O. Box 955, Durango, CO 81302, (970) 385-6850; e-mail: wcbirzzz@durangolive.net; Web site: www.durangorocks.org

9-11—INDIANAPOLIS, INDIANA: Show and sale; GemStreet USA; The Indiana State Fairgrounds, The Pioneer, Our Land Bldg., 1202 E. 38th St.; Fri. 10-6, Sat. 10-6, Sun. 11-5; fine gems, jewelry, beads, fossils, minerals; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

9-11—LIVONIA (DETROIT), MICHIGAN: Business-to-business gem trade show; Gem & Lapidary Wholesalers Inc.; Embassy Suites, Livonia/Novi, 19525 Victor Pkwy.; Fri. 10-6, Sat. 10-6, Sun. 10-3; contact G&LW, P.O. Box 98, Flora, MS 39071-0098, (601) 879-8832; e-mail: info@glwshows.com; Web site: glwshows.com

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

9-11—MARLBOROUGH, MASSACHUSETTS: Show; International Gem & Jewelry Show Inc.; Royal Plaza Trade Center, 181 Boston Post Rd. W; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.InterGem.com

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TANZANITE, blue, AAA, beautiful cut, 3 mm round brilliant	\$18.00 each
SPINEL, Burma, pink, fine cut, 2 mm round	\$ 2.99 each
BLACK SPINEL, (black diamond subst.), fine cut, 2 mm round brilliant	\$0.90 each
SILVER TOPAZ, fine cut, 3 mm round brilliant cut, \$0.75 each, 6 mm round	\$3.60 each
SKY BLUE TOPAZ, fine cut, 3 mm round	\$2.00 each
AMETHYST, dark purple, fine cut, 3 mm, round brilliant cut	\$1.25
CITRINE, gold color, fine cut, 6x3 mm marquise	\$1.99 each
GARNET, red, fine cut, 4 mm round	10 pcs for \$7.50
RHODOLITE GARNET, fine cut..... 4 mm round, trillion \$2.50 each	2.5 mm, round \$.80 each
HESSONITE, 3 mm, round brilliant, root beer color,	\$1.75 each
MEXICAN OPAL, fine cut..... orange, 4x6 mm oval \$3.00 each	yellow, 7x5 mm oval, \$2.99
ZIRCON, Cambodia, with a hint of blue beautiful 2 mm round	\$0.50 each
HELENITE, volcano stone, fine cut 5 mm rounds, red, blue, or green	\$3.00 each
TOURMALINE, cabochon, pink..... round, 4 mm \$3.50 each..... round, 5 mm \$5.40 each	

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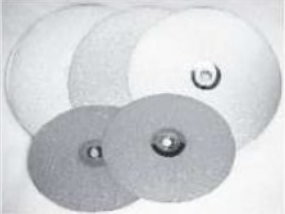
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895.00	945.00	995.00								

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ILLINOIS FLUORITE

These Deposits Enriched Our Country with Specimens and Steel

Story and Photos by Bob Jones

Where would our steel and iron industries be without the minerals of the Illinois-Kentucky fluorite district? Where would the collecting world be without the millions of fluorite specimens and other species, like barite, witherite and calcite, from this Midwest American region?

Few localities in America—or anywhere else, for that matter—have produced the quantity of well-crystallized collector specimens that has come to grass from the mines around Cave-in-Rocks and Rosiclare, Illinois, and around Marion, Kentucky, across the Ohio River. Driving around these towns some 50 years ago, one could find an abundance of fluorite specimens at stores and the homes of miners. It reminded me of driving around Hot Springs, Arkansas, years ago, where millions of quartz crystals were available. The mines are now closed, but fluorite specimens from the region are still available—not in truckloads, as in the bonanza days, but still in enough quantity to make a collector happy.



Few localities have produced the quantity of well-crystallized collector fluorite specimens that has come from the mines of Illinois. These fine, cubic crystals are coated with sparkling quartz.

Remarkably, the closing days of these immense related deposits produced some of its most beautiful examples of fluorite. These later specimens equal—and in the minds of some collectors, exceed—the fluorites from the mines of Northern England, long considered the world's standard.

The finer Illinois fluorites are perfect cubes that measure a couple inches on an edge and range in color from a gorgeous, transparent blue through lemon yellow. The more common specimens are a pale to intense violet.

If the English fluorites have an advantage over the better specimens from Illinois, it is the blue fluorescence they exhibit under ultraviolet (UV) light. This gives them top

recognition, since fluorite gave its name to the phenomenon. The Illinois fluorites are, save for some bitumen inclusions, unresponsive to UV light.

I suspect it was because they were so abundant that Illinois fluorite specimens played second fiddle to those from other localities and were treated with a cavalier attitude by collectors during the mines' most productive years. The quantity of specimens that came forth was so immense that it was taken for granted there would always be plenty of nice specimens available to choose from! This quantity was reflected in low prices. Today's advanced collectors have no such attitude; they are well aware that the finest fluorite

TOP: The faces of Illinois fluorite crystals usually show cubic growth patterns as seen here.

CENTER: These witherites have typical pyramidal terminations much like the material from the type locality, Alston Moor, England.

BOTTOM: Blue crystals, quite uncommon for Illinois, were found during operations at the Minerva mine.



crystal specimens from the world's largest deposit should be highly prized.

These immense related deposits span the Ohio River. The majority of the specimens produced came from the mines in Southern Illinois, which had the greater number of active mining operations. Since the Illinois mines out-produced the mines in Kentucky, fluorites from this district, regardless of their true source, are usually referred to as "Illinois fluorite".

Settlers in the area may have known of the fluorite veins earlier than the recorded discovery in the 1830s. Formal mining first started in Kentucky in 1835. In 1839, Illinois deposits were accidentally breached when a farmer hit a galena vein while digging a well! His discovery eventually resulted in formal and extensive mining. This rich mineralogical province did not stop producing for over 100 years, until the last mine shut down in 1995.

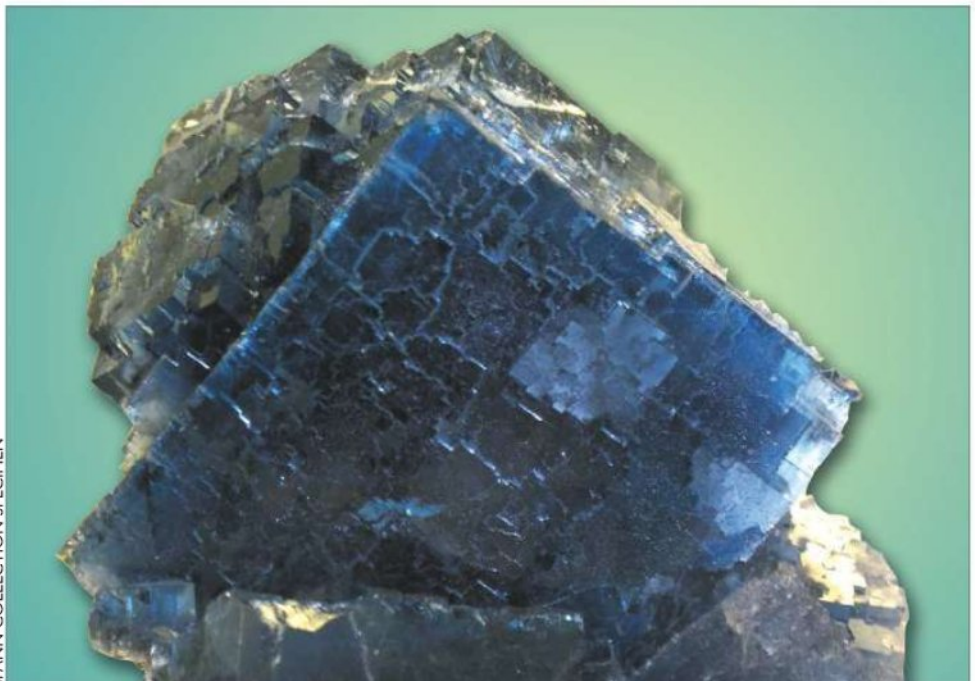
The ore that was initially mined here was galena with a minor silver content. At the time, fluorite was considered a gangue mineral, to be tossed aside as worthless. In the mid-1800s, however, the important Bessemer process of blasting oxygen through molten iron was developed. This triggered enormous growth of the iron-steel industry, and the demand for fluorite grew right along with it.

First theorized by American inventor William Kelly and perfected by English engineer Henry Bessemer, the Bessemer process revolutionized the iron and steel industries and created a great need for an effective flux. Fluorite fit the bill perfectly. The location of the Illinois-Kentucky fluorite deposits next to the Ohio River facilitated easy transport to the steel mills, so mining in the district expanded exponentially. Galena became secondary to the production of what was now the important flux ore, fluorite!

With the immense volume of steel and iron being produced during America's Industrial Revolution during the late 1800s and through much of the 1900s, you can imagine the equally immense tonnages of



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Because of its abundance in that state and its importance to industries such as steel making, fluorite was named the Illinois state mineral.

fluorite that were extracted from the deposits of southern Illinois and northern Kentucky for that industry alone! The potential for recovering great quantities of fluorite specimens was voluminous.

Scientists have yet to completely explain where all that fluorite came from. It is assumed it came into the host rock in ascending watery solutions from deep in the earth.

Without an impervious overlying rock layer to trap those solutions, the mineral-laden waters would have simply flowed out and been lost. Instead, the fluorine-rich waters were trapped in the bedded limestone and developed crystalline veins of fluorite. Where there were open seams, crystal groups developed. These deposits are now known as "Mississippi Valley-type stratabound deposits". Such mineralized sedimentary deposits trend north-south throughout the Central United States.

Eons ago, the entire Midwest was completely submerged under ocean waters. Over millions of years, simple-celled animal life absorbed calcium carbonate to form their shells and structures. After they died, their hard body parts settled on the ocean floor. Over millions of years, these calcium carbonate remains built up, layer upon layer, and were lithified into limestone. These limestone beds easily develop cracks and faults due to crustal movement. Dissolution by descending waters enlarged the openings. Into this myriad of cracks and vertical faults, solutions brought the calcium fluorite. An uppermost layer of impervious shale kept the solutions imprisoned, giving crystals plenty of time to develop.

Accounts from underground miners and collectors who were fortunate enough to venture underground during mining operations report vug after vug, open seam after open seam, loaded with crystalline and crystallized calcium fluoride. In some places, solid veins of fluorite, lacking discrete crystals, up to 50 feet thick could be mined! In other places, there were so many open seams and vugs that the question was never "Will we find any crystals?" but "How are we going to get all these specimens out of here?" The quantity of available minerals far exceeded the time and ability of the miners to extract them and carry the "take" to the surface!

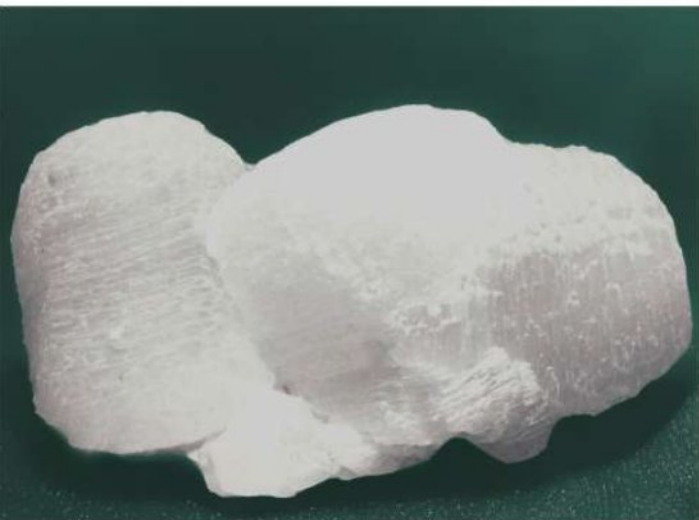
The Kentucky deposits were not as productive as those across the river, so the

quantity of specimens from this state would seem to be less. Of course, if you visit the Ben Clement Museum (www.clementmineralmuseum.org) in Marion, Kentucky, you might wish to debate that statement. It exhibits thousands of choice specimens of fluorite, with a fine supporting cast of strontianite, witherite, alstonite and benstonite, from the area's mines.

The mines of the district were centered around two towns, Rosiclare and Cave-in-Rock, located about 15 miles apart. As with many mining regions, exact locality information can be hard to come by, as miners tend to assign labels that suit them, but are not necessarily accurate! And specimens mined in one spot might emerge from a different shaft and be so named.

On a visit to the region 25 years ago, I can recall seeing so many fluorite specimens for sale I could hardly contain myself. Every porch, every shop, and every gas station had tables covered with fluorite groups, some too heavy to lift. Generally, the better specimens were in a shed or a room in the miner's house. Collectors could find more choice specimens than their bank account could afford! Fluorite from these deposits occurs as simple cubes suggesting a relatively low temperature of formation. Crystals are usually tightly intergrown on more or less flat plates. The size of the plates seems to have been governed only by the physical strength of the miner who removed them!

The mines did not produce octahedrons of fluorite. If you come across any perfect octahedrons, they are manmade. In their spare time, the miners would modify damaged crystals, taking advantage of fluorite's perfect cleavage. Holding the fluorite in one hand and a razor blade in the other, they would lay the blade flat on a thumbnail, with the fluorite protruding at an angle, and shove the blade hard against the fluorite, clipping off the corners of a cube. The result was a perfect octahedral shape. These



Note the striations on the prism faces of this domed witherite, an common species that occurred with the Southern Illinois fluorite.

"octahedrons" range in size from under an inch to 2 inches or so on an edge.

Illinois fluorites range in color from nearly colorless to almost every shade and tint you can imagine. The dominant color is violet, sometimes tinged with yellow. Blue and yellow crystals are least common and highly sought nowadays. Color zoning is also noted in many crystals.

A small problem with Illinois fluorite is that violet specimens in particular will change color upon prolonged exposure to sunlight. They darken from a soft violet to a reddish purple.

Like the origins of the solutions that brought the calcium fluoride into the limestone, the cause of color in Illinois fluorites has never been definitively traced. It may well be due to trace amounts of the rare earth elements, as is true of the fluorites found in England. Organic inclusions seem to have played a role in coloring some fluorites, especially those specimens whose color is affected by strong light.

As for crystal size, most are an inch or two on an edge, but 4-inch crystals are common enough. Specimen size goes right along with crystal size and can be quite large. Hand-size specimens are common for several reasons. As a result of fluorite's perfect cleavage and, in some cases, poor bonding to the host rock, when many pockets were opened, their crystal specimens had already broken away from the vug walls in modestly sized pieces. The largest pieces were difficult for miners to lift, so they were often broken apart along weak crystal planes. Because fluorite cleaves readily, it was no problem to reduce huge sheets of crystals to manageable sizes.

Luckily, the mining companies took a benevolent view of specimen collecting, so long as it did not interfere with production. Initially, miners could carry specimens out in their lunch buckets and pockets. Since the supply of fluorite groups seemed in-

finite, miners were content to bring modest quantities of specimens to grass on a daily basis. When they encountered a massive group or huge quantity of crystals that called for wheelbarrow transport, some of the upper-echelon staff allowed mining equipment to be used for the purpose.

In the chapter on Illinois fluorite in *America's Mineral Treasures* (Lithographie LLC, 2008, pp. 230-9), writers Alan Goldstein and Ross Lillie discuss at length what happened to miners' specimen collecting methods when fluorite values rose dramatically. They switched from the simple lunch bucket means of haulage to much more creative "lunch buckets". These are described as being large enough to carry a couple of flats of crystal specimens and were worn like a backpack!

One reason for so many fluorites being brought out was the number of mines operating, including the Crystal, Minerva #1, and Hull-Ledford mines and others around Cave-in-Rock.

In the 1950s, mining here began to taper off as the steel industry produced less steel due to foreign competition. Specimen production also tapered off. Luckily, two relatively new mines, the Denton and the Annabel Lee, began yielding not only a quantity of specimens, but some of the finest examples of fluorite ever found! Vug after vug was opened and the halcyon days of fine specimens were back again, as miners could not keep up with the yield!

Though the original ore mined in Southern Illinois was galena, for its lead and minor silver content, the quantity of galena specimens was totally eclipsed by fluorite, and to a lesser extent, by calcite.

The calcites were often found on fluorite, indicating that they developed later. The majority of crystals are white, but some are yellow and some edge toward orange-brown. Most crystals formed as tapering dog-tooth, or scalenohedral, crystals.

Along with the abundant fluorite and common calcite, these deposits also produced some exceptionally fine uncommon species: witherite, alstonite, strontianite and benstonite, all of which are carbonates. In fact, the resemblance between these deposits and their species to the much older fluorite deposits in Northern England is remarkable.

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ILLINOIS FLUORITE from page 37



The size of Illinois fluorite specimens was often determined only by the collector's ability to bring the specimen to the surface.

The mines around Wear-dale (County Durham), Eng-land, have long been sources of classic fluorites, but they have also produced a fine suite of uncommon carbonate minerals. Witherite was found at Alston Moor (Cumbria), at the Fallowfield mine, near Hexham (Northumberland), and at the Settlingstone mine (Northumber-land). A second choice carbonate that came from this region is alstonite, found at the Bromley Hill mine (Cumberland) and in Hexham.

From nearby Strontian (Argyllshire), in the North West Highlands of Scotland, sci-entists identified the uncommon carbon-ate strontianite.

This entire suite of carbonate species has also been found in the Southern Illi-nois fluorite deposits! The alstonite from the Minerva #1 mine is the first recorded find of the mineral in the United States. It occurred there as very small, steeply pyramidal crystals lacking in color or tend-ing toward gray. Alstonite is a triclinic mineral, which means some crystals are twinned, while others are pseudo-hexagonal in form. They all occur with calcite, witherite, or the uncom-mon mineral benstonite.

Witherite is the best known carbonate in this suite. A bar-ium carbonate, witherite was found in Illinois in domed crys-tals up to 3 inches across that sometimes have a lenticular shape. The side faces are deep-ly striated and look like thin, stacked plates whose edges are not aligned. Their color is com-monly white, although some-times they're pale yellow or brownish. Under the UV lamp, witherite fluoresces a lovely blue white! The mineral is fair-ly dense, so specimens can feel heavy.

The best witherite specimens are pseudo-hexagonal trillings sitting on a gray slatelike matrix. These range from 1 to 3 inches across and are very attractive.

Strontianite is sparingly found in mines at both Rosiclare and Cave-in-Rocks. It usually occurs with fluorite and calcite and is most often seen as long needles that are somewhat bladed and often have a faint pink tinge.

Benstonite was not recognized as a separate mineral until 1965. That may be because it often forms in epitaxial growths

around calcite. It tends to be white or slightly yellow, which are also common colors of calcite. Benstonite could well have been discovered long before 1965, but gone unrecognized. Under a UV lamp, it can fluoresce a very faint yellow, which may help identify it.

Barite (barium carbonate) is a fairly com-mon, but seldom spectacular, mineral from Southern Illinois. It is usually seen as white crystals, often on fluorite. The most sought after barites are those rare specimens that have pseudomorphed after witherite, re-taining the pseudo-hexagonal shape of the uncommon witherite, which is also a bar-ium carbonate.



SPANN COLLECTION

Some Illinois fluorite is gemmy enough to be faceted into gems, though its Mohs hardness of 4 makes it unsuitable for jewelry.

Gone are the days of abundant fluo-rite from the Southern Illinois area. But an e-mail from local resident Linda Price reports that one mine still operates and sells specimens. She also reports the Rosi-clare American Fluorite Museum is worth a visit. Check it out on www.kcminerals.com/american.htm. Though it no longer produces, this older prolific mineral source still offers the collector nice examples of specimens from America's and the world's greatest fluorite crystal source. No wonder the mines of Southern Illinois and their fluorites are considered classic!💎

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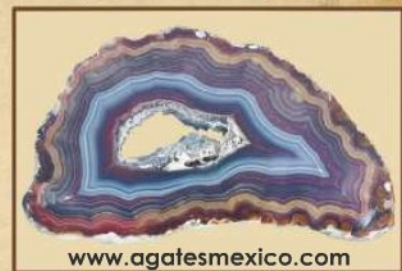


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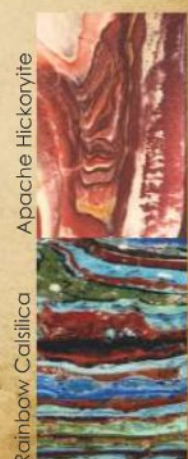
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Calcite

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Calcite, a calcium carbonate, is fun to collect! It's abundant, comes in a variety of forms, and has unique properties. Pure calcite is colorless or white, but impurities and inclusions may turn it almost any color, including yellow, pink or blue. Calcite is common and is found worldwide.

Calcite is a carbonate mineral, which means it contains the carbonate ion (CO₃²⁻). The mineral forms when carbon dioxide (CO₂) combines with water (H₂O) to create carbonic acid (H₂CO₃), which dissolves calcium (Ca) from continental rocks. The calcium carbonate precipitates out of groundwater, forming crystals in cavities, coating other minerals with a druse, or cementing rocks together.

Calcite crystallizes in the hexagonal/trigonal crystal system and takes many forms: dog-tooth crystals, butterfly twins, nailhead spar, prisms, and more. A thousand variations have been identified! Break calcite, and it exhibits perfect rhombohedral cleavage. A geometric rhomb has four sides of equal length; calcite rhombs are more rectangular and their corners have acute angles (less than 90 degrees), making them look like a box with tilted sides. Clear calcite rhombs called Iceland spar have a neat optical effect: when you look through them, the image you see is doubled! This is called "double refraction". Some calcite fluoresces under ultraviolet light and may even phosphoresce, briefly glowing after the light has been removed. Drop hydrochloric acid onto calcite, and it effervesces (fizzes).



JIM BRACE-THOMPSON PHOTO

The variety of forms and colors in calcite makes it a wonderful collector mineral.

Although it has a glassy luster, calcite is very soft (it represents the hardness 3 on the Mohs Scale) and is unsuitable as a gemstone. It has been used in optical instruments, but it's more often sold as collector specimens. Because of its abundance, you can buy nice specimens at low prices. Rocks with high calcite content, like limestone and marble, have uses in the construction industry, as ornamental stone, and in cement and mortar.

—Jim Brace-Thompson

Illinois' State Rockhound Symbols

One of the first minerals I ever collected was a purple "diamond" that I picked up at a rock show. Because my childhood collection was kept in a jumbled box, I soon learned my acquisition was not diamond-hard; it grew scratched and eventually was pulverized by the heavier rocks around it. My "diamond" was actually the soft mineral fluorite (Mohs 4).



JIM BRACE-THOMPSON PHOTO

A split ironstone concretion contains the fossil of a squidlike Tully Monster, Illinois' state fossil, and frames purplish cubes of the state mineral, fluorite.

Fluorite occurs in a range of colors. It crystallizes as cubes and cleaves into diamond-shaped octahedrons. For decades, southeastern Illinois was the largest producer of fluorite in the United States. Hydrothermal deposits at Rosiclare and Cave-in-Rock were mined from the early 1800s to the 1990s. Fluorite is an important industrial mineral used in steel production, hydrofluoric acid, enamel glazes, and more. As a result of its significance to the Illinois economy, fluorite was named state mineral in 1965.

Having grown up in Illinois, I recall trips when we passed conical piles of rock with steam rising from the tops. Volcanoes? No, spoil piles from coal mines that have long since closed down. During the heyday of coal mining in the Braidwood/Mazon Creek district of northeastern Illinois, ironstone concretions were culled from those piles by collectors and scientists. Collectors cracked open the concretions to reveal remains from the extensive swamps that created all that coal during the Pennsylvanian Period 300 million years ago. Usually, only the hard parts of an organism fossilize, but the concretions held the remains of ferns, worms, jellyfish and, most unusual of all, the Tully Monster (*Tullymonstrum gregarium*), named for amateur collector Francis Tully. No one knows just what this soft-bodied beastie was. Usually less than 6 inches long, it has the body of a squid, a tapered proboscis (snout) topped with a toothed pincer, and a stalked "eye-bar" jutting across its body. Unique to science and to Illinois, it became state fossil in 1989.

—Jim Brace-Thompson

DVD REVIEW:

"The New Crystal Hunters: Arkansas"

Arkansas is famous for two gemstones: diamonds and water-clear quartz in well-formed crystals. In "The New Crystal Hunters: Arkansas" (BlueCap Productions, 2010), junior crystal hunters Mark, Damien and Max try their luck at finding these and other mineral and fossil treasures at three family-friendly Arkansas locations. This 45-minute installment of "The New Crystal Hunters" is the second in the series, which takes kids into the field to discover the fun and excitement of rockhounding and mineral collecting.

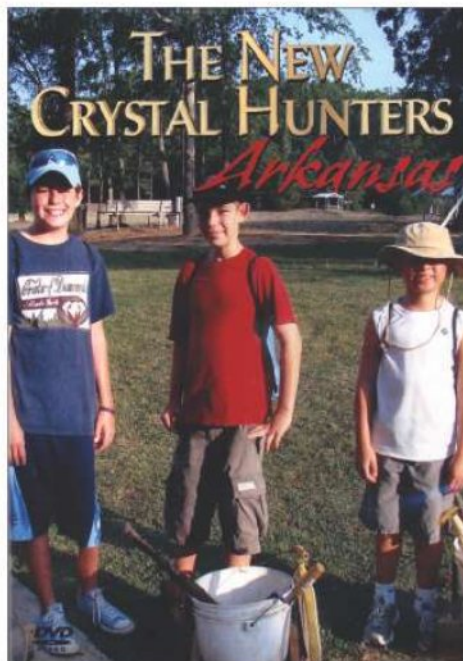
Crater of Diamonds State Park, outside Murfreesboro, is a public diamond mine, where folks pay a small fee to hunt for diamonds—and get to keep all they find. Veteran diamond hunter Glenn Worthington shares tips and demonstrates techniques for digging and screening the carbon gems, then the boys take over at the shovel and sluice. Discovering a diamond is not impossible, but it does take some luck and persistence, as Damien finds out.

The next stop is at the Ko-Do-Ha Indian Village near Murfreesboro. Here, the trio takes in some local Indian history, views excavations in the burial mounds, and, under the instruction of owner Sam Johnson, screens gem dirt to recover fossils, shark teeth, arrowheads, and semiprecious gemstones.

Then they're off to Ron Coleman's Quartz Mine in Jessieville, near Hot Springs, a spa town where visitors can enjoy the benefits of natural mineral baths. After viewing the impressive specimens in Ron's museum, the boys head for the tailings piles, where Ron explains how to identify quartz crystals in the piles of dirt. Then, viewers get to watch them pull singles and groups of water-clear quartz crystals from the red Arkansas earth. Some natural beauties are revealed once the clay has been washed off.

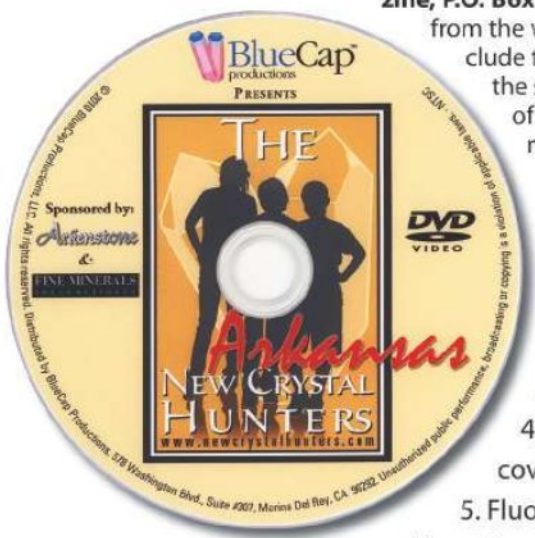
"Arkansas" is available from BlueCap Productions for \$24.99. The company is able to give away copies of the DVD to kids through the sponsorship of corporate and individual donors. Visit the BlueCap Web site for more information on the program.

BlueCap Productions, 578 Washington Blvd., Suite #307, Marina Del Rey, CA 90292, (310) 856-9882; <http://bluecapproductions.com>



Take the Quiz, Win a Prize!

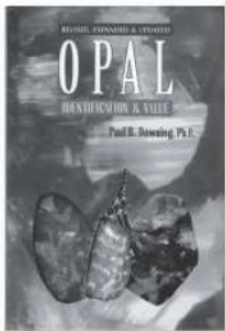
The Quiz is open to U.S. residents 17 and younger. All the questions can be answered by carefully reading *Rock & Gem Kids*. Mail your answers to **June Quiz, Rock & Gem magazine, P.O. Box 6925, Ventura, CA 93006-9899**. Five winners will be drawn from the valid entries received by **June 30, 2010**. 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 DVD "The New Crystal Hunters: Arkansas", generously donated by BlueCap Productions.



1. Yellow, pink or blue calcite owes its color to _____ and _____ .
2. Carbonate minerals contain the _____ .
3. The optical effect seen in Iceland spar is called _____ .
4. During the _____ , northeastern Illinois was covered with extensive swamps.
5. Fluorite crystallizes as _____ and cleaves into diamond-shaped _____ .

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Show Dates from page 32

9-11—SAN RAFAEL, CALIFORNIA: 2nd annual show, "San Francisco Fine Mineral Show"; FineMineralShow; Embassy Suites Hotel, San Rafael-Marin County, 101 McInnis Pkwy.; Fri. 10-6, Sat. 10-6, Sun. 10-5; contact Dave Waisman, P.O. Box 8543, Spokane, WA 99203; Web site: www.finemineralshow.com

9-11—TACOMA, WASHINGTON: 15th annual show, "Puget Sound Bead Festival"; The Bead Factory; Hotel Murano Bicentennial Pavilion, 1320 Broadway; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$7; more than 75 vendors, artists, bead merchants and artisans; glass, clay, semi-precious stones, silver, wood, and polymer beads, ancient to contemporary, more than 70 classes, jewelry making, jewelry business, glass bead making, seedbeading, wireworking, contemporary jewelry design and marketing; Teachers' Showcase, Saturday Night Bead Party; contact Melissa Lovejoy Goldman, 3019 6th Ave., Tacoma, WA 98406, (253) 572-5529 ext. 121; e-mail: Melissa@thebeadfactory.com; Web site: www.pugetsoundbeadfestival.com

10-11—BETHEL, MAINE: 49th annual show; Oxford County Mineral & Gem Association; Telstar Regional High School, 284 Walkers Mills Rd. (Rte. 26); Sat. 9-5, Sun. 10-4; adults \$2, children under 12 free; contact Hugh Chapman, (207) 836-2987, or Dennis Brown, (207) 647-2154; e-mail: oxfordcountyminerallandgemassoc@gmail.com; Web site: www.oxfordcountyminerallandgemassoc.blogspot.com

10-11—ROSEVILLE, MINNESOTA: Show; Anoka County Gem & Mineral Club; Har Mar Mall, 2100 Snelling Ave.; Sat. 10-6, Sun. 12-5; free admission; gems, minerals, jewelry, fossils, agates, collectibles; contact Martha Miss, 8445 Grange Blvd., Cottage Grove, MN 55016; e-mail: rockbiz@cs.com

16-17—MINOCQUA, WISCONSIN: 42nd annual show; Lakeland Gem Club; Lakeland High School; 9573 State Hwy. 70; Fri. 10-6, Sat. 10-5; free admission; children's activities, speakers, demonstrations, dealers, minerals, native copper, fossils, gems, jewelry, silent auctions, door prizes, silent auctions; contact Mike Schramm, P.O. Box 1337, Rhinelander, WI 54501, (715) 499-6898; e-mail: simplyliving@frontiernet.net

16-18—BOONE, NORTH CAROLINA: 16th annual show, "High Country Gem, Mineral & Jewelry Show"; Treasures Of The Earth Gem & Jewelry Shows, National Guard Family Support Group; Boone National Guard Armory, 274 Hunting Hills Ln.; Fri. 10-6, Sat. 10-6, Sun. 11-5; adults \$2 (3 days), children free; jewelry makers, goldsmiths and silversmiths from all over the US, gem trees, wire wrap, wire sculpture, pearls, stone beads, stone setting, dealers, amber, opal, minerals, fossils, hourly door prizes, grand prize; contact Van Wimmer Sr., 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: van@toteshows.com; Web site: www.toteshows.com

16-18—RALEIGH, NORTH CAROLINA: Show; Frank Cox Productions; State Fairgrounds, 1025 Blue Ridge Rd.; 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

16-18—REEDSPORT, OREGON: Show, "Treasures of the Earth"; Lower Umpqua Gem & Lapidary; Reedspport Community Bldg., 415 Winchester Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-4; contact Bill Hendrickson, (541) 271-6816; e-mail: bamoonman7@msn.com

16-18—SHARONVILLE, OHIO: Show and sale; GemStreet USA; The Sharonville Convention Center, 11355 Chester Rd.; Fri. 10-6, Sat. 10-6, Sun. 11-5; fine gems, jewelry, beads, fossils, minerals; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

17-18—ERIE, PENNSYLVANIA: 41st annual show; Gem City Rock & Mineral Society; JMC Ice Arena, 423 W. 38th St.; Sat. 10-6, Sun. 10-5; adults \$3, seniors \$2, children under 12 free; rocks, gems, jewelry, minerals, fossils, wire wrapping, findings, beads, Mini-Mine, Discovery Blocks; contact Bob Gallivan, (814) 454-6770; e-mail: gallivan@lycos.com; Web Site: www.gemcityrockclub.org/show.htm

17-18—MOOSE LAKE, MINNESOTA: 41st annual show, "Agate Days"; Carlton County Gem & Mineral Club; Moose Lake High School gym and parking lot, 413 Birch Ave.; Sat. 9-5, Sun. 9-4; dealers, Lake Superior agate, cutting materials, specimens, crystal groups, fossils, gems, jewelry, lapidary equipment, rough-rock tailgaters, door prizes, field trip info, Agate Stampede Sat.; contact Allen Hyopponen, (218) 525-7766; e-mail: willow73@cpinternet.com

17-18—NORTH CONWAY, NEW HAMPSHIRE: Show, "Saco Valley Gem, Mineral & Jewelry Festival"; Saco Valley Gem & Mineral Club; North Conway Community Center,

2628 White Mountain Hwy.; Sat. 9-5, Sun. 10-4; free admission; silent auctions, Spin-a-Gem, children's gem dig, gem, mineral and jewelry displays; contact Bob York, (603) 356-4424; e-mail: quartzhunter@aol.com

17-18—TULSA, OKLAHOMA: Show, "Treasures of the Earth"; Tulsa Rock & Mineral Society; Central Park Hall, Expo Square, Tulsa County Fairgrounds, 21st and Yale; Sat. 9-6, Sun. 10-5; adults \$6, children under 12 and Scouts in uniform free; special Scout and children's areas, club displays, special displays, silent auction, door prizes, classes, lectures, lapidary demonstrations; Wayne Mouser, 1514 S. Carson Ave., Tulsa, OK 74119, (918) 582-8700; e-mail: okyrocks@peoplepc.com; or Finis Riggs, (918) 587-4400; e-mail: Lriggs@cox.net; Web site: www.townrockhound.org

22-25—FRANKLIN, NORTH CAROLINA: Business-to-business gem trade show; Gem & Lapidary Wholesalers Inc.; Watauga Festival Center, 426 Watauga Rd. (Hwy. 441N); Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-3; contact G&LW, P.O. Box 98, Flora, MS 39071-0098, (601) 879-8832; e-mail: info@glwshows.com; Web site: glwshows.com

24—FRANKLIN, NORTH CAROLINA: 3rd annual show, "Franklin Facetors Frolic"; U.S. Faceters Guild; The Fun Factory, 1024 Georgia Rd.; Sat. 9-5; admission \$5; dealers, rough, equipment, equipment demonstrations, faceting programs, faceting instruction, door prizes; contact Roy Kersey, 637 Mize Circle, Seymour, TN 37865, (865) 368-6081; e-mail: rkersey@tds.net

24-25—FLAGSTAFF, ARIZONA: Show, "Flagstaff Jewelry, Gem, and Mineral Show"; Val Latham, Sharon Szymanski; Radisson Woodlands Hotel Flagstaff; Sat. 10-5, Sun. 10-4; contacts Sharon Szymanski, (480) 671-6191, or Val Latham, (602) 466-3060

24-25—FREDERIC, WISCONSIN: 43rd annual show; Indianhead Rock & Mineral Society; Frederic High School; Sat. 10-5, Sun. 10-4; free admission; contact Roy Wickman, (715) 357-3223, or Dan Beal, (715) 472-8809

24-25—HAMBURG, NEW YORK: Show; BeadStreet USA; The Erie County Fairgrounds, The Grange Bldg., 5600 McKinley Pkwy.; Sat. 10-6, Sun. 11-5; vintage beads, Swarovski crystals, lampwork, precious metal findings, gemstones, supplies; contact Jane Strieter Smith, (216) 521-4367; Web site: www.beadstreetusa.com

24-25—SOUTH BURLINGTON, VERMONT: 31st annual show, "Champlain Valley Gem, Mineral & Fossil Show"; Burlington Gem & Mineral Club; Tuttle Middle School, 500 Dorset St.; Sat. 10-5, Sun. 10-5; adults \$3, seniors and students (6-16) \$2, children under 6 free with adult; dealers, exhibits, lectures, demonstrations, children's activities, silent auction, door prizes; contact Kathy Howe, (802) 656-4118; Web site: www.burlingtongemandmineralclub.org

24-25—TENINO, WASHINGTON: 16th annual show, "Rock & Gem Rendez-Vous"; Washington Agate & Mineral Society, Tenino Rock Cruisers; Parkside Elementary School, Stage St. S (I-5 Exit 88, go east approximately 8 miles, turn right); Sat. 9-6, Sun. 9-5; free admission; dealers, demonstrations, door prizes, Spinning the Wheel, displays, "Oregon Trail Days Celebration" across the street; contact Daniel De Boer, 5107 Brenner Dr. NW, Olympia, WA 98502; e-mail: keylock1@live.com

25—BANCROFT, ONTARIO, CANADA: 14th annual show; Bancroft Gem & Mineral Club; Royal Canadian Legion Hall, 25 Station St.; Sun. 10-4; adults \$2, under 18 free; 25 dealers, demonstrations, live auction, silent auctions, drawings; contact Frank Melanson, (613) 332-1032; e-mail: fwmelanson@sympatico.ca

JULY-AUGUST 2010

29-1—SPRUCE PINE, NORTH CAROLINA: Show, "North Carolina Mineral and Gem Festival"; Mitchell County Chamber of Commerce; Spruce Pine Commons, Hwy. 226; Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 12:30-5; adults \$3, seniors \$1 Thu., children under 12 free; special exhibits, demonstrations, kids' events and activities; contact Patti Jensen, P.O. Box 858, Spruce Pine, NC 28777, (828) 765-9033; e-mail: pjensen@mitchell-county.com; Web site: www.ncgemfest.com

29-1—SPRUCE PINE, NORTH CAROLINA: Business-to-business gem trade show; Gem & Lapidary Wholesalers Inc.; Pinebridge Executive Inn, 207 Pinebridge Ave.; Thu. 10-5, Fri. 10-5, Sat. 10-5, Sun. 10-3; contact G&LW, P.O. Box 98, Flora, MS 39071-0098, (601) 879-8832; e-mail: info@glwshows.com; Web site: glwshows.com

continued on page 46

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June 18 - 20 Whittier, CA;
AFMS/CFMS North Orange County Gem & Mineral Society Hosting, So. Calif. University of Health Sciences; 16200 E. Amber Valley Rd.

July 16 - 17 Minocqua, WI;
Lakeland Gem Club L.T.D. Lakeland High School Hwy 70 West

July 29 - August 1 Spruce Pine, NC;
NC Mineral and Gem Festival; Pinebridge Coliseum; 97 Pinebridge Ave.

August 13 - 15 West Springfield, MA;
Martin Zinn Expos East Coast Gem, Mineral & Fossil Show; Better Living Center, 1305 Memorial Dr.

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The Online Mineral Museum (www.johnbetts-fineminerals.com/museum.htm) is a new resource for mineral collectors and researchers. The virtual museum contains 62,388 photographs of more than 30,000 mineral specimens that are fully searchable by mineral name, varietal name, or locality. The site is hosted by mineral dealer and photographer John Betts.

Betts' clear and artistic photography enhances each specimen. Some are shown from multiple angles or close up. Identification, source and size information is given for each specimen. Museum specimens are not for sale, but links back to Betts' commercial site help the user find similar specimens to purchase.

Museum visitors may look up mineral specimens in an alphabetical list, click on a country or state, or review minerals based on groups like phosphates, sulfides or pseudomorphs. A separate search page allows searching on full or partial spellings of mineral species and/or localities.

The database currently has 30,714 mineral specimens representing 1,491 valid mineral species from 149 countries. The most specimens are from Mexico (2,497) and the fewest are from Yemen (1). The most represented American state is Arizona (1,643), while the fewest U.S. specimens are from Nebraska (4). The most remote mineral locality represented is the Central Indian Ridge, located 3,300 meters beneath the Indian Ocean. There are also fluorescent minerals, diamonds and twins.

The Online Mineral Museum will be continually updated, with approximately 4,000 new mineral specimens added each year. Betts can be reached at (212) 678-1942 or jhbny@aol.com.



"Golden Treasures" Exhibit

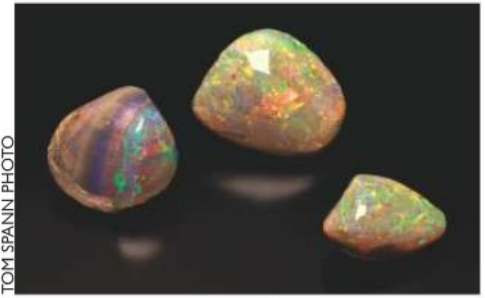
The Museum of Art and Archaeology at the University of Missouri, Columbia, has announced a new exhibition entitled "The Voyage of a Contemporary Italian Goldsmith in the Classical World: Golden Treasures by Akelo". This traveling exhibition will begin its tour in Columbia, where it will be on view June 5 through Sept. 26, 2010. Conceived and organized by the Museum of Art and Archaeology, the exhibition will subsequently travel to the Gemological Institute of America (Oct. 7, 2010–Mar. 11, 2011). Several other venues are pending.

Andrea Cagnetti, an Italian master goldsmith, who works under the artistic name Akelo (an ancient river god), creates one-of-a-kind pieces of gold jewelry and precious golden objects. Born in the town of Corchiano, some 40 miles north of Rome, Cagnetti is inspired by ancient Etruscan gold jewelry, the secrets of which had become lost over time, as well as the Etruscans' fantastic artistry and craftsmanship, which had also disappeared. His body of work is based on myths, legends and symbols deriving from an ancient and ancestral repertory. Among his accomplishments is a mastery of granulation, the technique of welding miniscule golden spheres into a decorative pattern on a metal background.

Over 25 years of practical experimentation, Akelo has mastered the materials and techniques of the ancients. He has recently published an article detailing his research on ancient jewelry techniques in the prestigious *International Journal of Materials Research* (formerly *Zeitschrift für Metallkunde*).

The first-ever museum exhibition of Akelo's work "concentrates on the artist's voyage and ultimate transcendence of the Etruscan, Greek, and Roman influences that inspire him as an artist," says museum curator and exhibition organizer Mary Pixley.

For further information about Akelo, visit the Web site www.akelo.it.



TOM SPANN PHOTO

San Diego Exhibit Glitters

The 5,000-square-foot, world-class gem and mineral exhibit "All That Glitters: The Splendor and Science of Gems and Minerals" opened May 15, 2010 at the San Diego Natural History Museum. It examines the science behind crystal formation and gem composition, the splendor of gems and the jewelry and works of art made with them, and the history of gem and mineral finds in San Diego County. The exhibit will run for two years.

As museum director for the Gemological Institute of America (GIA) in Carlsbad, California, for seven years, exhibit curator Elise Misiorowski has had vast experience in presenting exhibits and programs. She drew on her large database of contacts to obtain the loan of specimens for the exhibit from private collectors and major U.S. institutions, including the American Museum of Natural History, GIA, Harvard University Mineralogical Museum, Newark Museum, and Smithsonian Institution.

Objects on display include natural mineral crystals, exquisite jewelry, and works of art, some of which are on display for the first time ever. Gems and minerals from California, such as gold, tourmaline and benitoite, form the centerpiece of the exhibit. So many items were loaned that new ones will be rotated in from time to time, so you might want to visit more than once.

The San Diego Natural History Museum is located in Balboa Park, adjacent to the San Diego Zoo. For more information on the exhibit and admission costs, visit www.sdnhm.org or call (619) 255-0217.

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Show Dates from page 42

30-1—PRESCOTT, ARIZONA: Show and sale; Prescott Gem & Mineral Club; Prescott Gem & Mineral Club; Embry Riddle Aeronautical University Activity Center, 3700 Willow Creek Rd., Bldg 84; Fri. 9-5, Sat. 9-5, Sun. 9-4; adults \$2, children under 12 free; hand-crafted jewelry, rough rock, slabs, cabochons, beads, fossils, crystals, equipment, raffle; contact Maggi Lieber, 4855 E. Diamond Dr., Prescott, AZ 86301, (520) 831-0017; e-mail: maggiscratch@msn.com; Web site: www.prescottgemmineral.org

31-1—CUTCHOGUE, NEW YORK: 29th annual show; The Long Island Mineral & Geology Society; Cutchogue East Elementary School, Main Rd.; Sat. 10-5, Sun. 10-5; adults \$5, children under 12 free with adult; jewelry, minerals, gems, fossils, lapidary, grand door prize; contact Frank Basile, 975 Rambler Rd., Southold, NY 11971; e-mail: cypenut@optonline.net; Web site: www.limineralandgeology.com

AUGUST 2010

6-8—DALTON, GEORGIA: 19th annual show; Treasures Of The Earth Gem & Jewelry Shows; Northwest Georgia Trade & Convention Center, 2211 Dug Gap Battle Rd., I-75 exit 333; Fri. 2-7, Sat. 10-6, Sun. 11-5; adults \$3 (3-day ticket), children under 16 free; jewelry makers, goldsmiths and silversmiths size, reconstruct, repair, design or make original jewelry from customer-selected gems, stones, opals and crystals, wire wrap, wire sculpture, stone beads, pearls, stone setting, dealers, amber, opal, fossils, minerals, door prizes, grand prize, wire wrapping classes; contact Van Wimmer Sr., 5273 Bradshaw Rd., Salem, VA 24153, (540) 384-6047; e-mail: vawimmer@verizon.net; Web site: www.toteshows.com

6-8—MELBOURNE, FLORIDA: Retail show, "Summer Time Gem & Jewelry Show"; Lane Enterprise Foundation Inc.; Melbourne Auditorium, 625 E. Hibiscus Blvd., Fri. 10-5, Sat. 10-5, Sun. 10-5; adults \$4, children \$2; more than 35 dealers, gold and silver jewelry, wire wrap, findings, beads, minerals, fossils; contact Anita Lane, (321) 723-0742 or (321) 302-3660

6-8—NORTH BEND, OREGON: Show, "Nature's Wonders"; Far West Lapidary & Gem Society; North Bend Community Center, 2222 Broadway; Fri. 10-6, Sat. 10-6, Sun. 10-5; displays, jewelry, demonstrations, kids' activities, exhibits, silent auction, raffle, door prizes, dealers, faceted and rough gems, minerals, gold, silver, crystals, beads, mountings, tools; contact Rocky Pribble, P.O. Box 251, Coos Bay, OR 97420, (541) 572-8301

7—ISHPEMING, MICHIGAN: 35th annual show; Ishpeming Elks Club; 597 Lake Shore Dr.; Sat. 9:30-4:30; free admission; mineral displays, dealers, kids' area, silent auction, hourly prizes, raffle, mineral demonstrations, field trips Fri. and Sun.; contact Ernest Johnson, 1962 W. Fair, Marquette, MI 49855, (906) 228-9422; e-mail: ejohnson@nmu.edu

7-8—AUSTIN, TEXAS: Show; Austin Bead Society; Palmer Events Center, 900 Barton Springs Rd.; Sat. 10-6, Sun. 11-5; admission \$5, \$1 off with food donation; handcrafted jewelry, supplies, raffles; contact Austin Bead Society, P.O. Box 656, Austin, TX 78767-0656, or Michele Chesak; e-mail: mc hesak@gmail.com; Web site: www.austinbeadsociety.org

7-8—BETHESDA, MARYLAND: 60th annual show; Gem, Lapidary and Mineral Society of Washington, DC; Stone Ridge School, 9101 Rockville Pike; Sat. 10-6, Sun. 10-5; adults \$6, seniors \$5, children under 16 free with paying adult; gemstones, minerals, fossils, jewelry, beads, collectibles, dealers, exhibits, Crystal Cave, kids' activities, door prizes; contact Mary Bateman, 2700 S. 9th St. #203, Arlington, VA 22204-2328, (703) 521-4614; e-mail: mbate man1@verizon.net; Web site: www.glmisc.com

7-8—SAN FRANCISCO, CALIFORNIA: Show, "Golden Gateway to Gems 'In the Pink'"; San Francisco Gem & Mineral Society; County Fair Bldg. (Hall Of Flowers), Golden Gate Park, 9th Ave. and Lincoln Way; Sat. 10-6, Sun. 10-5; adults \$7, seniors \$6, child under 12 free with adult; demonstrations, jade carving, chain maille weaving, wire wrapping, bead stringing, silver metal clay modeling, cabochon cutting, California Academy of Sciences displays; contact Carleen Mont-Eton, 4134 Judah St., San Francisco, CA 94122, (415) 564-4230; e-mail: publicity@show.sfgms.org; Web site: www.sfgms.org

7-8—WATERVILLE, MAINE: 40th annual show, "Mid-State Gem & Mineral Show"; Water-Oak Gem & Mineral Society; Mount Meric School, 152 Western Ave.; Sat. 10-5, Sun. 10-4; free admission; dealers, gems, minerals, fossils, beads, jewelry, specimens, demonstrations, lapidary arts, books, magazines, educational displays, fluorescent minerals; contact Ellery Borow, P.O. Box 47, Waterville, ME 04903-0047, (207) 547-3154



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Show Dates from page 46

AUGUST 2010

12-15—BUENA VISTA, COLORADO: Show, "The Rock Show at Buena Vista: A Continental Divide Tailgate"; Contin-tail LLC; Rodeo Grounds, Gregory Rd. and Rodeo Rd.; Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; more than 120 dealers, rocks, minerals, gemstones, fossils, beads, jewelry, lapidary equipment, demonstrations (glintknapping, stone cutting, wire wrapping, beading, precious metal clay), free rock for children, door prizes, fluorescent mineral display; contact Carolyn Tunncliff, 1130 Francis #7010, Longmont, CO 80501, (720) 938-4194; e-mail: ctunncliff@comcast.net; Web site: www.coloradorocks.org

13-15—NOVI, MICHIGAN: Show; International Gem & Jewelry Show Inc.; Rock Financial Showplace, 46100 Grand River Rd.; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults \$8; open to the public, professional jewelers, artists; contact International Gem & Jewelry Show Inc., 120 Derwood Circle, Rockville, MD 20850, (301) 294-1640; e-mail: info@intergem.net; Web site: www.InterGem.com

13-15—PASS CHRISTIAN, MISSISSIPPI: Show; Harrison County Gem & Mineral Society; West Harrison County Community Center (Espy Center), 4470 Espy Ave.; Fri. 12-7, Sat. 9-6, Sun. 10-5; adults \$3, children 12 and under free; door prizes, grand prize raffle, bring your rock and stump the expert Sun.; contact Tomsey Westermeyer, 9270 Serenity Dr., Pass Christian, MS 39571, (228) 586-5279 or (229) 326-2390; Web site: tomsey@cablone.net

13-15—PORT TOWNSEND, WASHINGTON: Show; Port Townsend Rock Club; Jefferson County Fairgrounds, 4907 Landes St.; Fri. 10-9, Sat. 10-9, Sun. 10-6; contact Tom Madsen, 2915 state Rte. 20, Port Townsend, WA 98368; e-mail: tommadsen@olypen.com

13-15—VERO BEACH, FLORIDA: Retail show, "Summer Time Gem & Jewelry Show"; Lane Enterprise Foundation Inc.; V.B. Community Center, 2266 14th Ave. (corner of 23rd St. and 14th Ave. downtown); Fri. 10-5, Sat. 10-5, Sun. 10-4; adults \$4, children \$2; more than 20 dealers, gold and silver jewelry, wire wrap, findings, beads, minerals, fossils; contact Anita Lane, (321) 723-0742 or (321) 302-3660

13-15—WEST SPRINGFIELD, MASSACHUSETTS: Show, "East Coast Gem, Mineral & Fossil Show"; Martin Zinn Expositions LLC; Better Living Center, Eastern States Exposition, 1305 Memorial Dr.; Fri. 10-7, Sat. 10-7, Sun. 10-5; adults \$6, ages 12 and under free with adult; more than 200 dealers from the U.S. and abroad, door prizes, guest speakers, museum-quality exhibits, gem panning, large wholesale section, collection of Bill Larson, Pala Int'l; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax (303) 223-3478; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

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

14-15—WALNUT CREEK, CALIFORNIA: Show, "Contra Costa Crystal Fair"; Pacific Crystal Guild; Civic Park Community Center, 1375 Civic Dr. at Broadway; Sat. 10-6, Sun. 10-4; admission \$6; contact Jerry Tomlinson, (415) 383-7837; e-mail: sfxl1@earthlink.net; Web site: www.crysfair.com

20-22—BRIDGETON (ST. LOUIS COUNTY), MISSOURI: Show; Greater St. Louis Association of Earth Science Clubs; 12365 St. Charles Rock Rd.; Fri. 4-9, Sat. 10-6, Sun. 11-5; adults \$5, seniors \$4, juniors (6-17) \$2; national dealers, gems, fossils, minerals, jewelry, equipment, hourly prizes; contact Robert Morse, (636) 462-4423; e-mail: morse@centurytel.net

20-22—CARTERSVILLE, GEORGIA: Show, "Southeast Gem, Mineral & Fossil Show"; Martin Zinn Expositions LLC; Holiday Inn, I-75 and 411 NE; Fri. 10-6, Sat. 10-6, Sun. 10-5; free admission; 80 wholesale and retail dealers, open to the public; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax (303) 223-3478; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

20-22—LAKE GEORGE, COLORADO: Outdoor show; Lake George Gem & Mineral Club; U.S. Hwy. 24, next to post office; Fri. 8-5, Sat. 8-5, Sun. 8-5; free admission; 40 dealers, minerals, fossils, jewelry, lapidary, local amazonite, smoky quartz, topaz; contact Becky Blair, (719) 748-3030; e-mail: blairra@hotmail.com; or John Rakowski, (719) 748-3861; e-mail: rakgeologist@yahoo.com

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TOURMALINE *and Other Treasures*

Collecting Opportunities are Abundant in Maine

Story and Photos by James M. Monaco and Jeannette H. Monaco

No bats!" said the voice on the other end of the phone. I was trying to arrange the last of our motel reservations, no small feat considering we were traveling with my wife's cockatiel, Buttercup. I'm willing to wager that most miners do not pack small birds.

"No, it's a bird, a very small bird."

"Oh, bird?" Her accent was very heavy and I had to listen carefully to understand. "Birds, OK, you pay 20 dollar extra."



Colorful crystals of tourmaline can be found at Mount Mica and Mount Apatite.

RIGHT: Screening through old tailings at the Songo Pond Mine is a great way to find the pieces of gems the miners missed.

BOTTOM LEFT: A large aquamarine crystal, found at the Songo Pond Mine, looks like nothing else in the tailings and seems to glow as if lit from within.

BOTTOM RIGHT: Digging a hole in the old tailing piles and screening out the material is a good way to unearth spinel and tourmaline crystals.



"Fine." So we were booked into a hotel in Norway, Maine, the last of the accommodations for our week-long adventure. Jeannette and I were looking forward to searching for tourmaline. Since we had not been in the area, we decided to try a smorgasbord of the mines listed in our book *Rockhounding Adventures and Fee Mining in the East* (Gem Guides Book Co., 2004) in order to get a sampling of the area. Our first stop would be the farthest north, The Songo Pond Mine, in Bethel, Maine, then we'd turn back south and visit Poland Mining Camp in Poland, for two day trips to Mount Apatite and to Mount Mica.

We arrived in Bethel, after a seven-hour drive from New York and checked into a bed-and-breakfast that allowed birds, but also had a house cat, a giant Persian the size of a grizzly bear. Buttercup took an in-

stant dislike to the furball and hissed like a rattlesnake as we walked past. We kept our door shut tight and prayed the Persian did not have a master key.

We found two stores in the town of Bethel that would be of interest to rockhounding enthusiasts. Mt. Mann Jewelers on Main Street has lovely jewelry, including a nice selection of Maine gemstones. They also sell specimens from Maine and elsewhere. Mt. Mica Rarities houses a large collection of gems, jewelry, fossils, and other very interesting specimens, which fill numerous display cases.

The next morning, we locked our bird in our room and headed up to the Songo Pond Mine to meet the owner, Jan Brownstein. The mine itself is located on Baker Road, which diverts from state Route 5 South to circumvent Songo Pond. The

mine entrance is on the pond side, about three-quarters of the way around the loop, in a wooded area. After a brief orientation, we followed Jan up a muddy road to the mine, very happy that we had our four-wheel-drive vehicle. It had been raining constantly that June, making the logging road slick as a greased skillet, but we hoped that the downpours would make surface hunting easier.

There was one large open pit that we were told exposed the pegmatite seam, but it was completely covered by rising water. This area is not open to the public, and tie-ups with state and local regulators regarding permits and licenses have also kept the owner from opening up new material for some time.

Unfortunately, we found nothing in the new or old diggings. The tailings piles were plentiful, but the aquamarine was not. We would have to dig. We chose a spot on the old tailings to set up a screening operation. The rain worked in our favor in one regard: it provided plenty of fresh water for screening. We set up a wash tub and used two screens, a classifier and a 1/4-inch-mesh screen.

I dug and Jeannette screened. We searched most of the morning and were rewarded with a few small pieces of aquamarine. They were pale blue and milky, looking a bit like sea glass, but with more luster. We also found a great deal of completely clear quartz that would make excellent cutting material. We also discovered some smoky quartz was also while screening; much of it was facet-grade and the color of root beer.

The dense mist and fog that had begun the day progressed into a steady rain. We were glad to have our rain suits, tops and bottoms. Working the washing station splashed a lot of muddy water onto Jeannette's legs, but the rain pants kept her mostly dry. We were pretty filthy by the time the rain stopped late in the afternoon. One of the interesting minerals we unearthed was magnetic magnetite,



ABOVE: The entrance to the Songo Mine is located in a wooded area behind Songo Pond on Baker Road.

CENTER: Bethel Outdoor Adventure and Campground is convenient to the road, and the knowledgeable staff will ensure that your little miners find tourmaline.

RIGHT: Most tourmaline crystals are hexagonal, long and thin, like the shape of a pencil. Black and green crystals are most common, but pink, blue-green, and pale green gems are also found in Maine.



and many specimens of albite, bertrandite, hydroxyl-hercynite, microcline, and hyalite opal appeared to have the property of fluorescence, but we would have to wait until we got home to our black light to see for sure. It would be worth returning with a black light on another trip.

With the break in the weather came the arrival of two families. I did a quick check to gauge whether they were serious collectors. Here is my quick check method: When the groups arrived, I smiled and waved, looking first at the footwear. If I see rubber boots or hiking boots, I raise my expectations. If, however, I see new, white sneakers, sandals or flip-flops, I lower my outlook. This family wore clean polo shirts and Mom had spotless white canvas sneakers and a large purse. They carried no equipment and wore no raingear. As expected, the kids scrambled around on the tailings while dad made a sincere effort to break some rocks using a discarded rock hammer. Mom, using body language as her only means of communication, clutched her purse and glowered at the doings.

The father ventured close enough to speak to us despite the mud created by our discarded wash water, his curiosity overriding his need to stay clean. Mom did not. We showed him our finds. This renewed Dad's hopes and he went back to work, but within 10 minutes he was swarmed by his family, hovering and complaining. He took the disgruntled group off shortly afterwards.

A second family appeared to pick halfheartedly at a pile of stone and earth. They also had more questions than ambition. A bit later the owner arrived to help this

larger group search and seemed surprised at the size of the tailings pile we'd created. The moment the heavy mist changed over to rain, the second family vanished with the owner and so they missed our biggest find of the day.

It certainly is a thrill to lift the large classifying screen, see the muddy water drain away, and spot a flash of sky blue in the bed of gray waste rock. The aquamarine was over an inch long and a lovely a lovely milky blue-green.

We finished up at about 4:30 p.m. and came back the following day, when we worked until midafternoon before we saw the owner or any other miners. Despite digging and screening all day, we did not find any aquamarine crystals larger than 1/2 inch. We headed back to the B&B for a shower and some rest and were relieved to see that our bird was happy and safe from the gray devil-cat.

The following day, we were going to explore some of the area towns and do some antiquing, but we saw a roadside stand for screening material from Mount Mica. Bethel Outdoor Adventures and Campground also runs river expeditions, but the water was so high we didn't even consider boating. We came in intending to screen only one bucket, but the best deal was three buckets for \$25. Long story short, we never did go antiquing, but spent our entire day screening for tourmaline.

The material we were screening contained numerous lovely beryl crystals of various colors. Since this material had been transported to Bethel from Mount Mica and because we were finding such lovely

specimens, we were very anxious to get to Poland Mining Camp and take our day trip to Mount Mica.

On the following day, we drove south past the famous Perham's Store in South Paris, Maine. Sadly, this landmark since 1929 was going out of business. The crowds that jammed the shop had already decimated the tools, most of the mineral specimens, and the lion's share of the jewelry. Their museum was still intact and the beryl specimens were wonderful. Another very interesting store is Creasers in Norway on state Route 26. This jewelry store sells a large selection of faceted tourmaline and some lovely watermelon tourmaline that has been cut to resemble butterfly wings.

We spent the night in Norway at the motel that did not accept bats and then continued south to Poland Mining Camp, which is located on state Route 26 between Norway, to the north, and Gray, to the south. If you are traveling on Interstate 95 from Gray, go north to Exit 63 and drive eight miles north on state Route 26. The mine camp entrance is located almost directly across from Poland Regional High School.

At the large meeting hall, we met the proprietor, Mary Groves, who had just finished serving breakfast to the mining camp guests. Since we did not meet the one-week minimum stay for full-service cabin rental, we were considered day-trippers and lined up in our cars at 7:30 sharp to follow our guide, Nancy, to the Mount Apatite Mine. Poland Mining Camp has made special arrangements with many of the area mines to gain access. This is a unique opportunity to search tailing piles of working mines with

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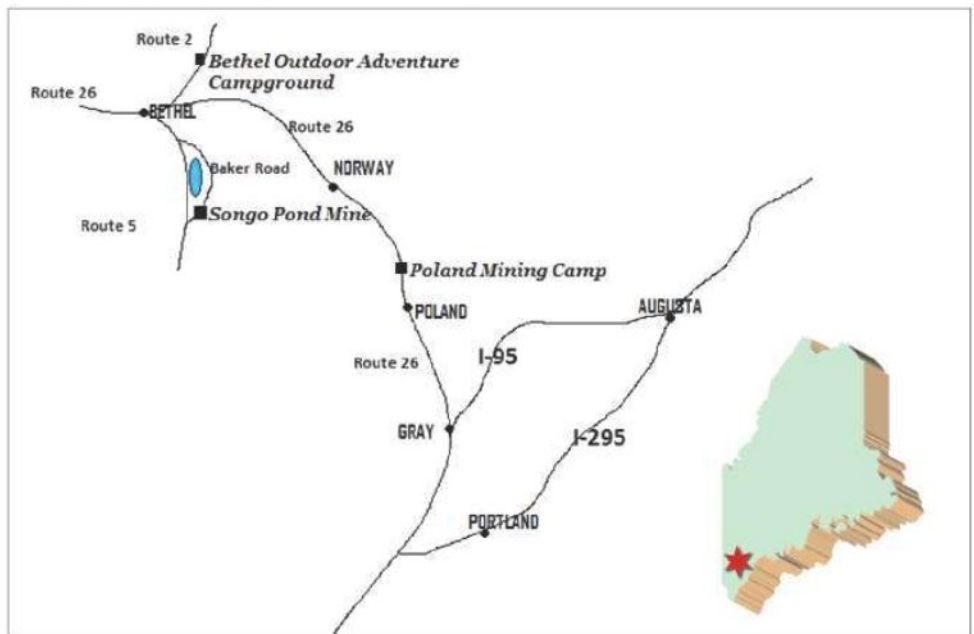


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a guide who knows the area's geology and has vast collecting experience. We were lucky in that the rain held off all day.

We waited at the entrance as Nancy unlocked the gate, then followed her over the dirt road that had been rained on every day for over two weeks and had turned into a quagmire. I threw the SUV into four-wheel drive at the top of the hill and watched the guide descend first. Her station wagon slid down the incline sideways. Jeannette gave me that look that said, "It's not too late to turn around," but I clenched the wheel and released the brake. We made it without sliding. Don't you love four-wheel drive?

We parked beside Nancy, who stood behind her car, still shaking her head over her near-catastrophe. She complained to her brother, who is one of the miners at Mount Apatite, that she "did not like that at all." He laughed and assured her that the trees would have prevented her from going very far off the road.

On the day we were visiting the Mount Apatite Mine, they were blasting at the mine, up the hill from the collecting site. The owner came by to check that we were all accounted for and well clear of the range of flying debris.

While we dug and screened, we heard the call, "Dynamite! Take cover! Dynamite!" A few minutes later, an explosion shook the ground, then flying rock tore through the leafy canopy of maple trees and peppered the ground. Silence followed, the bullfrogs and tree frogs all stilled, but they soon resumed their chorus and we resumed our digging.

We did very well, finding a large well-formed spinel and many nice, gemmy tourmaline (pegmatite) crystals in tones of dark blue-green and blues. In a fit of stupidity, we decided to collect a nice, flat rock that had veins of quartz throughout it. It weighed over 50 pounds and the half-mile walk to the car was all uphill. When I look

out into our garden, I'm not sure whether I'll be admiring the interesting rock or recalling that walk. We also walked out with two film containers filled with tourmaline and the anticipation of knowing that tomorrow we would be heading to Mount Mica.

At 7:30 the next morning, we were lined up again, and we arrived at the Mount Mica Mine 30 minutes later. This site does not have ready access to water, so we had to walk some distance to fill our buckets and then carry them up to the tailings. Along the way, we traveled past the mine entrance, which consists of a large tunnel and several ventilation shafts. Both Jeannette and I would have loved to take a peek inside that mine, but Poland Mining runs a tight ship. I'm certain their relationship with the mine owners depends on keeping visitors out of mischief.

The tailings here looked promising and the heavy rain that fell overnight made spotting crystals on the tailings a pleasure. We easily found many small bits and pieces of green and hot pink tourmaline, along with several dime-size chips of crystalline lepidolite. Jeannette found a very nicely formed black tourmaline crystal about an inch long, while my best tourmaline was also well formed, but bright green in color.

We were having such fun we ate our sandwiches while searching the ground. The two geologists who made up the rest of our group had had enough, however, and were ready to call it quits by 1 p.m. The mine has a policy of keeping all visitors until everyone is finished or until the time expires, so we were faced with having to leave before we were ready or keep them longer than they would have liked.

It is the guide's responsibility to watch over visitors and keep them out of restricted areas, so she cannot leave some guests to unlock the gate for others. Once you are in, be prepared to stay *all* day. Luckily for us, the problem was solved because Nan-

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cy's brother had come along. He agreed to keep an eye on us while she let the two others out the gate.

We had set up a screening station and did find several more bits of tourmaline and some quartz crystals, but after an hour, we decided we had been doing better scrambling up and down the tailings. I think this would not usually be the case, because once the area is disturbed by searchers, the crystals no longer sit on the surface and another rain would be needed to reveal them. This kind of searching requires a good eye, kept close to the ground on a slope that is relatively steep, and the good fortune to be searching after a heavy rain. We worked up and down the slope for the rest of the afternoon, plucking out garnets, quartz points, and that lovely tourmaline.

The weather couldn't make up its mind. The day began sunny, then turned windy, and finally, sweeping dark clouds heralded bad weather with the rumble of thunder. There is no shade at this site, so had the day been warm, I'm sure we would have consumed all our water and been quite hot. As it was, we hurried to find what we could before the rain came, moving with the urgency of squirrels in the late fall.

I really wanted a watermelon tourmaline crystal, and I did find several hot pink and light green pieces, but I found none with the characteristic green "rind" and fleshy pink core. I can't complain, though. By the time the lightning chased us off the ridge, we had filled two more film containers.

We thanked our guide and packed up our gear. We had made it to the car when the lightning and thunder came all at once. I guess that was nature's way of showing us the door, while revealing those lovely bits of gemstones for the next guy. I wish I could say that my appetite for tourmaline gems was satisfied, but I'm afraid our trip has only fed my craving and I feel certain I'll be back soon for another nibble. 💎

James and Jeannette Monaco are long-time rockhounds and the authors of Fee Mining and Rockhounding Adventures in the West and Fee Mining and Mineral Adventures in the Eastern U.S.

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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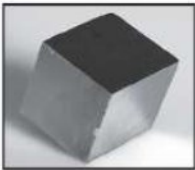
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20-22—LEBANON, PENNSYLVANIA: 13th annual show and sale, "Gem Miner's Jubilee"; Mid-Atlantic Gem & Mineral Association; Lebanon Expo Center, Rte. 72 and Rocherty Rd.; Fri. 10-6, Sat. 10-6, Sun. 10-4; adults \$6, children under 12 free; gems, jewelry, minerals, fossils, beads; contact MAGMA, (301) 565-0487; Web site: www.gem-show.com

20-22—LEXINGTON, KENTUCKY: Show, "Gemboree 2010"; Blue Grass Gem & Mineral Club; Lexington Convention Center "Heritage Hall", 430 W. Vine St.; Fri. 12-6, Sat. 9-7, Sun. 10-6; adults \$1, students and children free; rocks, gems, minerals, jewelry, fossils, Kentucky agate, displays; contact Phillip Daly, 10330 Forkland Rd., Parksville, KY 40464, (859) 854-0418; e-mail: phillipdaly@bellsouth.net; Web site: <http://sites.google.com/site/gemboree2010/>

20-22—SARASOTA, FLORIDA: Show; Frank Cox Productions; Municipal Auditorium, 801 N. Tamiami Trail (Hwy. 41); Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

20-22—SEASIDE, OREGON: Show; Oregon Gem, Mineral & Jewelry Shows; Seaside Convention Center, 415 1st. Ave.; Fri. 10-6, Sat. 10-6, Sun. 10-4; free admission; free pearls to 100 ladies daily; contact Jean Miller, P.O. Box 136, Molalla, OR 97038, (503) 829-2680; e-mail: shadow92337@molalla.net; Web site: www.ogmshows.com

21-22—BOSSIER CITY, LOUISIANA: Show; Ark-La-Tex Gem & Mineral Society; Bossier Civic Center, 620 Benton Rd.; Sat. 10-6, Sun. 10-5; adults \$4, students \$1, children 5 and under and Scouts in uniform free; door prizes, youth activities, exhibits, live demonstrations; contact Charlie Johns, 9314 Overlook Dr., Shreveport, LA 71118, (318) 687-4929; e-mail: cwsejohns@bellsouth.net; Web site: www.larockclub.com

21-22—MADRID (CANTON), NEW YORK: 44th annual show; St. Lawrence County Rock & Mineral Club; free admission; outdoor/indoor show, kids' fluorescent mineral hunt Fri., mineral-collecting field trips, free wire wrapping lessons, geode cracking, swapping; contact William deLorraine, (315) 287-4652; e-mail: wdellie@verizon.net; Web site: www.StLawrencecountymineralclub.org

21-22—YELM, WASHINGTON: Show, "Biggest Little Gem Show in the N.W."; Nisqually Valley Rockhound Society; Yelm City Park, Hwy. 507 (I-5/Marvin Rd. Exit 111); Sat. 10-6, Sun. 9-4; free admission; silent auction, door prizes, kids' booths, tailgaters, inside displays; contacts Mike Smith, 18814 119th Ave. SE, Yelm, WA 98597, (360) 458-8747, or Tim Howard, 17240 110th Ave. SE, Yelm, WA 98597, (360) 458-7841; e-mail: Tim_WSSMI@comcast.net

27-29—SOUTH BEND, INDIANA: 47th annual show and sale; Michiana Gem & Mineral Society; St. Joseph County 4-H Fairgrounds, Esther Singer Bldg., 5177 S. Ironwood Rd. (at Jackson Rd.); Fri. 2-7, Sat. 10-6, Sun. 10-4, adults \$2.50, children 6-12 \$1, under 6 free; dealers, gems, fossils, minerals, jewelry, demonstrations, exhibits, Kids' Korner, silent auction; contact Marie Crull, (574) 272-7209; e-mail: crullb2@sbcglobal.net; or Kathy Miller, (574) 291-0332

28-29—COLUMBUS, OHIO: Show; BeadStreet USA; The Veterans Memorial Bldg., North Hall, 300 W. Broad St.; Sat. 10-6, Sun. 11-5; vintage beads, Swarovski crystals, lampwork, precious metal findings, gemstones, supplies; contact Jane Strieter Smith, (216) 521-4367; Web site: www.beadstreetusa.com

28-29—CONCORD, NEW HAMPSHIRE: 47th annual show, "Gem & Mineral Festival"; Capital Mineral Club; Everett Arena, 15 Loudon Rd., I-94 exit 14; Sat. 9-5, Sun. 10-4; adults \$5, kids 12 and under free with parent; retail and wholesale dealers, displays, raffles, door prizes, minerals, crystals, faceted gems, books, magazines, fossils, jewelry, carvings, displays, free mineral for kids under 12; contact Scott P. Higgins, (207) 439-1107; Web site: www.capitalmineralclub.org

28-29—FREEPORT, NEW YORK: Show; Freeport Recreation Center; 130 E. Merrick Rd., Meadowbrook Pkwy. exit M9 west; Sat. 10-5, Sun. 10-5; adults \$5.50, children under 12 free with adult; dealers, minerals, gems, jewelry, fossils, beads, save 50 cents with this ad; contact Ralph Gose, P.O. Box 1418, Melville, NY 11747, (631) 271-8411; e-mail: kaleidoscopegemshows@yahoo.com

28-29—JASPER, TEXAS: 16th annual show; Pine Country Gem & Mineral Society; The Event Center, 6258 Hwy. 190 W, 5 miles west of Jasper; Sat. 9-5, Sun. 10-5; adults \$2,

continued on page 71

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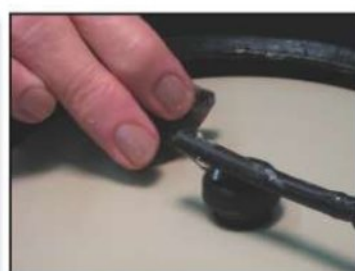
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2010

Lapidary Article of the YEAR CONTEST

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HOW TO ENTER

Submit a step-by-step lapidary project article to *Rock & Gem*. For submission guidelines, visit www.rockngem.com/submissions.asp or write to *Rock & Gem* Writers' Guidelines, P.O. Box 6925, Ventura, CA 93006-9899.

"Lapidary" is defined as the working of precious or semiprecious gem materials or metals into an ornament to be worn or decoratively displayed. How-to stories dealing with the building of lapidary tools, display paraphernalia, and other items are welcome, but are not eligible for the contest.

Authors must complete and return a Contributor Agreement and W-9 form before their entry will be considered for publication. Contact Managing Editor Lynn Varon at (805) 644-3824 ext. 129 or editor@rockngem.com for these forms.

All conditions and requirements of the writers' guidelines and the Contributor Agreement apply.

All step-by-step lapidary projects published in 2010 cover date issues of *Rock*

& *Gem* are eligible for the 2010 contest, regardless of the year of submission, and will be automatically judged.

The number of lapidary project submissions received may exceed the available space. *Rock & Gem* publishes approximately 6 to 12 project article per year.

The authors of all published articles will receive normal payment for the article, as determined by the editor.

If a winning entry was contributed by a separate author and photographer or by multiple authors, one prize will be awarded to the contributors, to be divided as they see fit.

JUDGING

Articles will be judged by a combination of reader response and editorial merit. Readers should send a brief explanation of why a project deserves the big prize to 2008 Lapidary Article of the Year Contest, *Rock & Gem* magazine, 290 Maple Ct., Ste. 232, Ventura, CA 93003 or to editor@rockngem.com.

Don't wait to send in your vote! The deadline for 2010 votes is January 1, 2011. The winner will be notified by January 17, 2011.

Readers may vote for more than one article per year, but are limited to one vote per article.

The final decision will be made by the Managing Editor of *Rock & Gem*.

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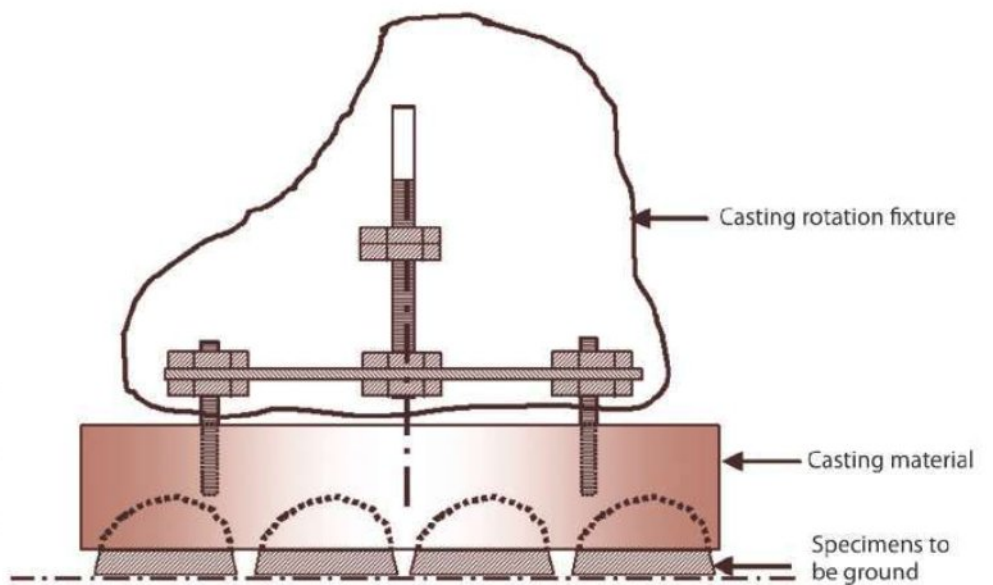
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A Mechanized System of FLAT LAPPING

A Summary of a Speedier Process

Story and Illustrations by O.B. "Bud" Marshall

I have developed a system of flat lapping items such as thunder eggs, geodes, bookends and slabs that lets me lap multiple items simultaneously, using semiautomated electromechanical methods. The system is designed to remove as much of the manual labor as possible and speed up the flat lapping process, thus increasing the ease and efficiency of flat lapping.



The casting rotation fixture permits control of the casting by a motor on a flat iron lap or in a vibralap. The bottoms of the flat specimens are somewhat below the bottom of the casting material for clearance.

The grinding surfaces of many vibralaps have some slight concave curvature, which is apparently designed to keep the circulating specimens moving toward the pan center.

I have been using this system for 15 years to process my thunder eggs, geodes, slabs and bookends, which I and my wife sell at the Quartzsite Improvement Association Pow-Wow in Quartzsite, Arizona. This article is intended to provide a summary of said system. The complete system is described in detail in my book *Gemstone Flat Lapping, Mechanized* (Xlibris Corp., 2007).

There are four basic components to the mechanized system:

1. The casting;
2. The semiautomated coarse-grit flat iron lap;
3. The fine-grit vibralap with bottom flattener and casting rotator; and
4. The vibralap polisher having locally elevated portions in its pan bottom to assure complete polishing.

To polish items having flat surfaces, such as geode or thunder egg halves, slabs, bookends, or other non-jewelry lapidary items, it is necessary to utilize equipment that is designed for flat grinding and polishing, such as flat laps or vibralaps.

The usual method of preparing flat items for polishing is to do the initial grinding of individual specimens by hand either on an iron lap or a sanding belt, or of multiple specimens in a vibralap. In the vibralap, the specimens circulate around the lap surface in response to the vibrating action. Prepare the flat items by attaching weights and bumpers to them or by attaching them together. The weights enhance the grinding action of the vibralap because the grit is pressed harder into the face of the specimen and the bumpers prevent the specimens from chipping. There is some splatter of the grit and water in the vibralap, which requires covering the lap in some manner.

When using this method to polish small-diameter specimens, just about the entire flat surface of each specimen touches the lap surface, allowing complete grinding of

the specimen surface in a relatively short time. It is well known that no point on a specimen can be ground or polished unless it makes actual contact with the lap surface. The vibralap method described above works well for specimens that have small diameters, but will not work for large-diameter items such as bookends and larger slabs without requiring a lot of extra grinding time.

The grinding surfaces of many vibralaps have some slight concave curvature, which is apparently designed to keep the circulating specimens moving toward the pan center. When you attempt to grind or polish large-diameter specimens, this pan curvature does not allow all points on the specimen to touch the lap pan. Only the outer edge of the specimen makes contact with the pan, resulting in a ring being ground only around the outer edge of the specimen. In this case, grinding must be carried on for a long period of time to completely grind the entire surface of the specimen.

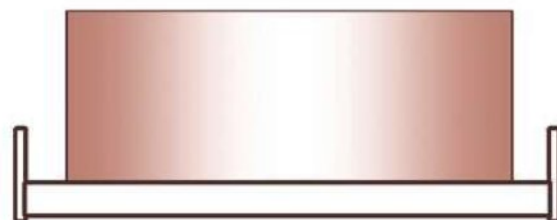
If the vibralap pan is perfectly flat, the pan touches all points on the bottom surface of the specimen and all points will grind. However, after some period of lapping, the flat surface of the lap plate may become slightly concave, since more grinding takes place in the center of the lap plate than on the outside edges.

If all the flat-bottomed specimens are cast into a solid disk having an absolutely flat surface, and if there is a mechanism for flattening the lapping surface and keeping it flat, grinding will occur continuously on the entire specimen surface.

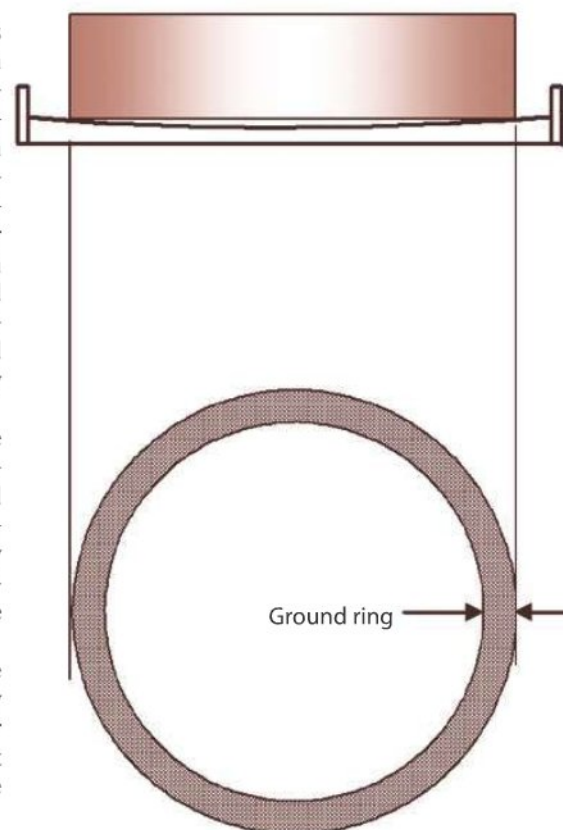
You must consider the size of the available lap pan in which the casting will be ground. If a vibralap is used, its diameter must be somewhat larger than the diameter of any flat specimen to be ground in order to allow horizontal movement of the specimen.



Small specimens make good contact on a concave vibralap surface.



A large, absolutely flat specimen makes contact at all points on an absolutely flat vibralap surface, which will slowly become concave with grinding.



Large, flat specimens do not grind properly on a concave vibralap surface. Only a narrow ring around the outer periphery is ground.

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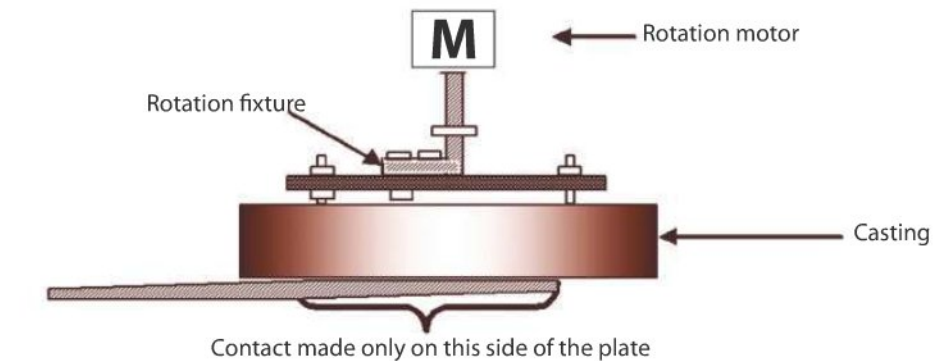
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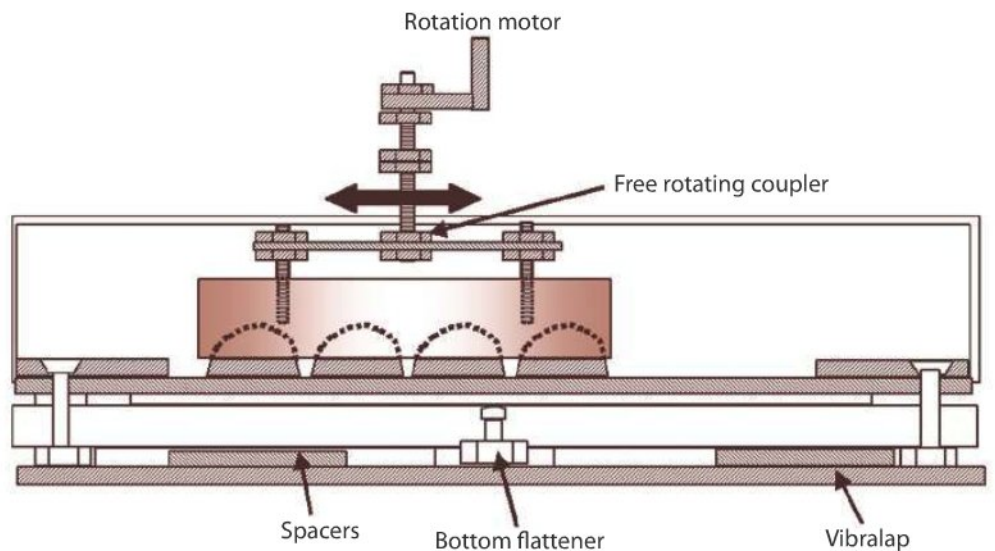
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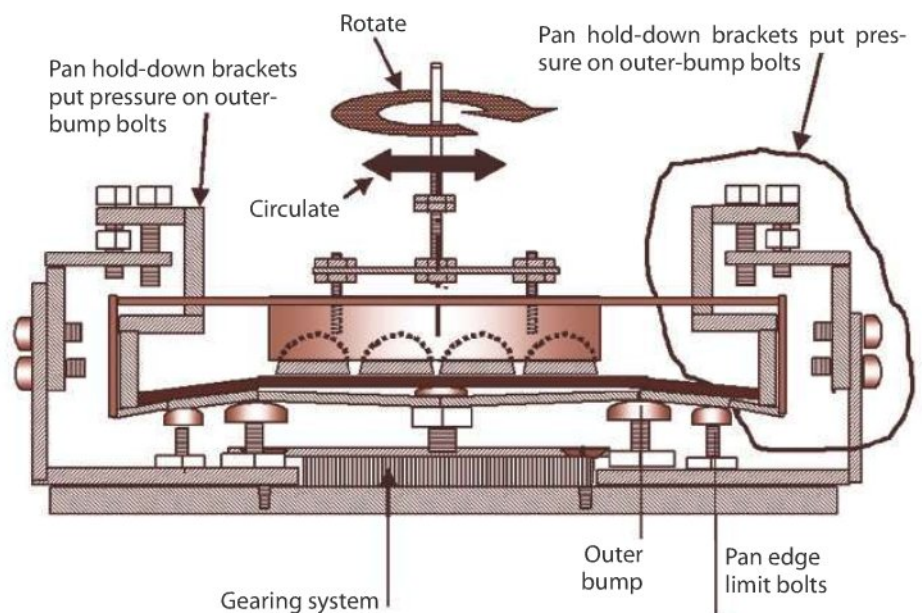
A Mechanized System of Flat Lapping from page 63



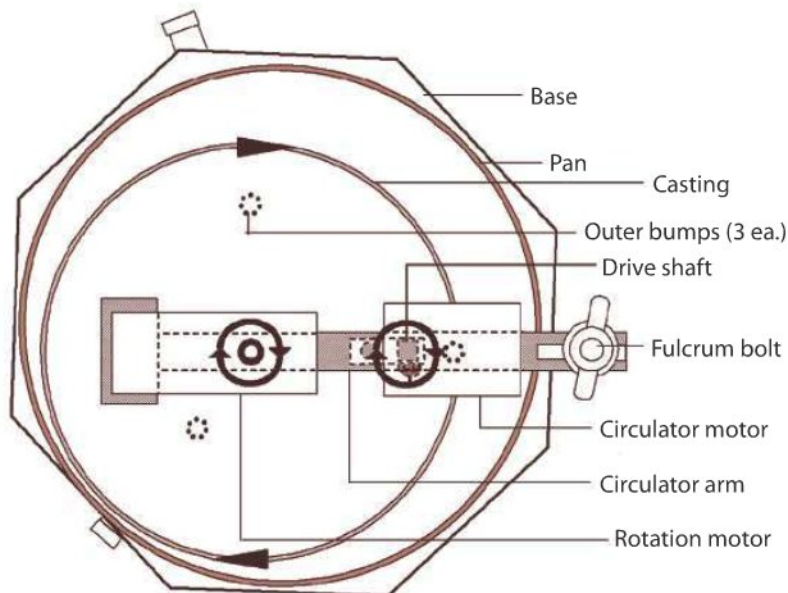
The casting fully covers half of the lap plate to keep the plate flat and smooth.



Fine grit pan's bottom must be kept flat. This is accomplished using a lag bolt to raise the pan center a very small amount to compensate for any wear at center. A feeler gauge is used to assure flatness.



Pan hold-down brackets keep the outer pan edges down, while a gearing system moves the pan center up or down to decrease or increase the effect of the outer bump bolts.



The pan bottom has "bumps" that put pressure on the casting at three points. As the casting circulates, pressure is put on every point on the casting, resulting in a complete polish.

Create a casting in which the flat bottoms of all the specimens form a plane surface. Construct this surface to be somewhat below the material that is used to cement the specimens together so that the lapping equipment will not be required to lap anything other than the surfaces of the actual specimens. Attach a circulating fixture and motor to the casting to enable power circulation and control of the casting on or in the lapping equipment.

FLAT LAPPING SURFACES


In this system, three types of lapping surfaces are used: a flat iron lap for coarse grit, a fine-grit vibralap, and a polisher.

A flat iron lap is used for the first, coarse-grit stage. This lap must have a flat surface with no grooves or other major imperfections. The casting is positioned on the lap so that it covers one entire side of the lap and extends over the center point of the lap, as well as over the edge. This keeps the lap surface flat and true. The casting is slowly and continuously rotated by a slow-speed (1.3 rpm) Farberware rotisserie motor.

The fine-grit vibralap covers the 220 and 400 grit stages. It is constructed using a semi-thick ($1/8$ to $1/4$ inch), flat aluminum bottom that can be warped slightly with a screw under the pan center. Tightening the screw raises the pan center a very slight amount to compensate for wear near the center. The pan bottom must be kept very flat to provide contact over the entire face of the casting. The pan center is raised only as much as necessary to flatten the center, or else the center will wear too rapidly. Flatness is determined using a short carpenter's square and feeler gauges underneath. The casting is continuously circulated by a slow-speed (1.3 rpm) Farberware rotis-

serie motor. The casting rotates freely on its own axis as it is circulated.

The polisher has three locally elevated "bumps" in its bottom located radially in the outer section of the pan. The casting sits on these bumps via a polish pad and plastic underlayer and is circulated and rotated simultaneously by motors so that the bumps hit all points on the casting surface multiple times. If there were no bumps, pressure on the casting surface would be insufficient to properly polish the surface in a limited time. Pressure is a necessary ingredient for polishing, and the bumps increase the pressure at these three points. The entire weight of the casting is supported on these three bumps. The polish pad over the bumps will wear out slowly, but can be restored by rotating the pan on its base to new spots.

The center of the polish pan can also serve as a bump that can be moved up or down as necessary during polishing using a gearing system that is available from the outside of the vibralap. The pan center is moved down to cause the outer bumps to protrude more and polish the outer section of the casting. The pan center is moved up to eliminate the effect of the outer bumps and to polish the casting center. The pad over the center bump will wear out slowly, especially if it is not raised more than necessary. The casting is circulated around the pan by a higher-speed rotisserie motor (Brevel, 4 rpm) and simultaneously rotated around its own axis by a second motor that is slow-speed (Farberware, 1.3 rpm) that rides on top of the casting. 

O.B. "Bud" Marshall is the owner of Marshall Lapidary Engineering in Paradise, California. Gemstone Flat Lapping, Mechanized is available from Xlibris Corp., 1663 Liberty Dr., Suite 200, Bloomington, IN 47403, (888) 795-4274, www.Xlibris.com.

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by Jim Perkins

OFF THE DOP

Afghan Tourmaline

These days, we often hear of the corruption and ugly tragedies of this war-torn country; however, as a lapidary artist, I get to see the unpublicized beauty nature has bestowed on Afghanistan. For example, I recently phoned my gem rough dealer looking for some aquamarine to cut for a customer. They were out of aquamarine, but they recommended a piece of green tourmaline from Afghanistan. I had it sent and it was truly beautiful. A couple days later, I learned they had another, larger piece of pink tourmaline, also from Afghanistan. They offered me a special price if I took both, so I had to order it, too. I offered a friend of mine the green stone, as I thought my wife would like the pink stone best.

It's not an easy trip for gems to come out of Afghanistan, as the terrain of the Hindu Kush Mountains, from which many of these gems come, is rugged. Most of the tourmaline is mined in the Kolum district of the Nuristan region, northeast of Kabul. Active mining there began in the 1970s following exploration by Russian geologists. The area is known for fine aquamarine, tourmaline and kunzite, which are found in pockets within pegmatite.

According to directions from Gary Bowersox, a mineral dealer who spent many years exploring Afghanistan's gem treasures, start on the Kabul-Jalalabad road, go north approximately 20 kilometers to Mehtar Lam, then go 40 kilometers northeast to the village of Nuristan. The passable road ends a few kilometers past Nuristan and one must continue on foot for two full days along narrow gorges and rocky trails to the deposit in Nilaw. After a lot of digging approximately 20 meters below the surface, crystals of gem tourmaline and kunzite may be located in pockets of soft clay. Miners who find gems are rewarded with the arduous task of trekking them to market.

Gary's 52-minute television documentary "The Gem Hunter in Afghanistan", which follows him on a 2001 gem-mining expedition, is now available on DVD at www.gems-afghan.com/gemhunter-video.htm. I'm going to try to locate it through my local library.

It is unlikely that gems from Afghanistan will be overabundant as long as the country is troubled by political unrest. Periodically, though, I see some nice faceting material from Afghanistan on the market. Much of it makes its way to cutting centers in Thai-



land, Hong Kong, Germany, Brazil, and the United States.

Many gem treasures in addition to tourmaline are now being mined in Afghanistan, but I think the blue, green and pink tourmalines are simply stunning. Like tourmaline from other sources, Afghan tourmaline has a critical angle of approximately 38.12. I have found that the best pavilion angles for low R.I. material (less than 1.7), which includes quartz, beryl and tourmaline, is approximately a half-degree above critical angle.

In order to set good crown angles, I now use one-third crown-height proportions, relative to pavilion depth, as my standard. Table width will vary depending on the shape of the gem, but 50 to 60 percent table relative to width is certainly acceptable for any colored stone. Once the stone is cut, I usually pre-polish it on a BATT™ lap charged with 100,000 diamond and oil, then polish it using the same 100,000 diamond on a Darkside™ lap. If any scratches remain, I will polish them away on a Corian lap lubricated with aluminum oxide and vinegar.

Since my stone was perfectly shaped for an oval, I designed an oval I call the Peshawar Butterfly Oval using GemCad. The name commemorates the city in which my rough was offered for sale and purchased after being hidden in the steep mountain terrain of Afghanistan for millions of years. ♥

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



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<input type="checkbox"/> Business Opportunities	<input type="checkbox"/> Minerals	<input type="checkbox"/> Rough For Tumbling
<input type="checkbox"/> Cabochons	<input type="checkbox"/> Miscellaneous	<input type="checkbox"/> Services
<input type="checkbox"/> Catalogs	<input type="checkbox"/> Nuggets	<input type="checkbox"/> Wanted to Buy
<input type="checkbox"/> Fossils	<input type="checkbox"/> Opals	<input type="checkbox"/> Other
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students and children free; silent auction, Spinning Wheel, door prizes, grand prize raffle, rock food table, lapidary demonstrations, educational exhibits; contact Jonetta Nash, Rte. 2 Box 248, Jasper, TX 75951, (409) 384-3974; e-mail: jonetta.nash@yahoo.com

28-29—MOUNTAIN HOME, ARKANSAS: Show; Ozark Earth Science Gem, Mineral & Fossile Club; Senior Center in Cooper Park, 1101 Spring St.; Sat. 10-6, Sun. 10-5; free admission; door prizes, mineral and gem displays, interactive children's events, minerals, fossils, handmade jewelry, demonstrations, silent auction, touch and feel area; contact Edward Hakesley, 821-1 Alexis Cir., Mountain Home, AR 72653, (870) 424-0956; e-mail: edscamp3@yahoo.com; Web site: www.ozarkearthscience.org

28-29—PEORIA, ILLINOIS: 47th annual show and Midwest Federation Convention; Geology Section of the Peoria Academy of Science; The Grand Hotel, 4400 N. Brandywine Dr.; Sat. 9-5, Sun. 10-5; free admission; "Homer" the Triceratops display, speaker Dr. Michael Henderson, silent auctions, kids' area, fluorescent display, panning flume; contact Jim Travis, (309) 645-3609; e-mail: boatnick@aol.com; Web site: http://pasgeology.com

SEPTEMBER 2010

3-6—CRAWFORD, NEBRASKA: 24th annual show, "Crawford Rock Swap"; Northwest Nebraska Rock Club; Crawford City Park, 1st St. and Main St.; Fri. 8-6, Sat. 8-6, Sun. 8-6, Mon. 8-12; free admission; buy, sell, trade, swap, rocks, minerals, fossils, agates, free agate bed field trips; contact Wade Beins, 120 Gordon Ave., Box 569, Chadron, NE 69337, (308) 432-8950; e-mail: agates@bbc.net

3-6—FORT BRAGG, CALIFORNIA: 48th annual show; Mendocino Coast Gem & Mineral Society; Town Hall, Main and Laurel; Fri. 10-6, Sat. 10-6, Sun. 10-6, Mon. 10-4; free admission; contact Don McDonell, P.O. Box 868, Fort Bragg, CA 95437, (707) 964-3116, or Jane Webb, (707) 964-7182

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

4-6—CANBY, OREGON: Show, "Willamette Valley Gem, Mineral & Jewelry Show"; Oregon Gem, Mineral & Jewelry Shows; Clackamas County Fairgrounds, 694 N.E. 4th Ave.; Sat. 9-6, Sun. 9-6, Mon. 9-4; free admission; contact Jean Miller, P.O. Box 136, Molalla, OR 97038, (503) 829-2680; e-mail: shadow92337@molalla.net; Web site: www.ogmshows.com

9-12—TUCSON, ARIZONA: Business-to-business gem trade show; Gem & Lapidary Wholesalers Inc.; Holiday Inn Palo Verde/Holidome, 4550 S. Palo Verde Rd. (I-10 at Palo Verde Rd.); Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-3; contact G&LW, P.O. Box 98, Flora, MS 39071-0098, (601) 879-8832; e-mail: info@glwshows.com; Web site: glwshows.com

9-12—TUCSON, ARIZONA: Business-to-business gem trade show; Gem & Lapidary Wholesalers Inc.; The Grant Inn, 1365 W. Grant Rd. (I-10 and Grant Rd.); Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-3; contact G&LW, P.O. Box 98, Flora, MS 39071-0098, (601) 879-8832; e-mail: info@glwshows.com; Web site: glwshows.com

10-12—FERNDALE, CALIFORNIA: 6th annual show, "Wildcat Gem Fest"; Wildcat Gem & Mineral Society; Humboldt Co. Fairgrounds, 1250 5th St.; Fri. 12-7, Sat. 10-1, Sun. 10-5; free admission; door prizes, raffles, kids' games, demonstrations, classes, gems, minerals, fossils, jewelry, silent auction; contact Mike Martin/The Stonery, P.O. Box 189, Miranda, CA 95553, (707) 499-6194; e-mail: micknorma@directv.net

10-12—MARIETTA (ATLANTA), GEORGIA: Show; Frank Cox Productions; Cobb County Civic Center, 548 S. Marietta Pkwy.; Fri. 1-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (941) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

10-12—WINSTON-SALEM, NORTH CAROLINA: 39th annual show; Forsyth Gem & Mineral Club; Educational Bldg., Dixie Classic Fairgrounds, Gate #9; Fri. 10-7, Sat. 10-7, Sun. 12-5; contact W.A. Marion, 1163 Bear Creek Church Rd., Mocksville, NC 27028; e-mail: MarionA1@yadtel.net

11-12—FAIRFIELD, IOWA: Show; The Sac & Fox Lapidary Club; The Fairfield Arts & Convention Center, Main & Briggs; Sat. 9-6, Sun. 10-5; adults \$3, students \$1, children under 6 free; children's activities, demonstrations; contact Betty Morris, 618 N. Lincoln St., Mt. Pleasant, IA 52641; e-mail: emorris@lisco.com; Web site: sacandfoxlapidaryclub.com

11-12—ROSEBURG, OREGON: Show, "Rough to Gems"; Umpqua Gem & Mineral Club; Douglas County Fairgrounds, I-5 Exit 123; Sat. 10-6, Sun. 10-4:30; free admission; dealers, rough, gems, minerals, fossils, beads, jewelry, tools, equipment, books, display cases, demonstrators, knapping, UV mineral exhibit, silent auction, wheel of fortune, geode cutting, raffle, door prizes, gold panning, kids' rock hunt; contact Bob Sampson, 752 Cooper Creek Rd., Sutherlin, OR 97479, (541) 459-1755; e-mail: davenmow@q.com

11-12—SILOAM SPRINGS, ARKANSAS: Annual fall swap; Northwest Arkansas Gem & Mineral Society; clubhouse, Hwy. 43N; Sat. 9-5, Sun. 10-5; free admission; auction, kids' gem wash, silent auctions, grab bags; contact Dave Leininger, (479) 787-5619; e-mail: hulagrub@aol.com; Web site: www.nwarockhounds.org

11-12—WALLA WALLA, WASHINGTON: Show, "Walla Walla Gem & Mineral Show"; Marcus Whitman Gem & Mineral Society; Walla Walla County Fair Ground, Community Center, 9th St. and Orchard; Sat. 10-5, Sun. 10-5; dealers, opal, petrified wood, jasper, agate, sunstone, wire wrapping, faceted gems, slabs, rough, jewelry, silent auction, demonstrations, kids' section; contact Warren Rood, (509) 522-2330; e-mail: wrood@coffeecom.com

12—BLOOMINGTON, MINNEAPOLIS: Show, "Rings & Things BeadTour"; Rings & Things; Hilton Minneapolis/St. Paul Airport, Ballroom A, B, C & D, 3800 American Blvd. E; Sun. 12-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

14—GREEN BAY, WISCONSIN: Show, "Rings & Things BeadTour"; Rings & Things; Suamico Ale House, 2310 Lineville Rd.; Tue. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

15—MILWAUKEE, WISCONSIN: Show, "Rings & Things BeadTour"; Rings & Things; Clarion Hotel Airport, 5311 S. Howell Ave.; Wed. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

15-19—DENVER, COLORADO: Fall show, "Colorado Mineral & Fossil Show"; Martin Zinn Expositions LLC; Holiday Inn - Denver Central, 4849 Bannock St.; free admission; 200 wholesale and retail dealers from all over the world, free shuttle to shows at the Merchandise Mart; Wed. 10-6, Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-5; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax (303) 223-3478; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

15-19—DENVER, COLORADO: Show and sale, "Denver Coliseum Mineral Show"; Eons Expositions; Denver Coliseum, 1900 44th St.; Wed. 10-6, Thu. 10-6, Fri. 10-6, Sat. 10-6, Sun. 10-4; free admission; 130 dealers, minerals, fossils, crystals, meteorites, gems, artisan jewelry, gold, services, equipment, displays; contact Lowell Carhart, 7514 Antelope Meadows Circle, Peyton, CO 80831, (719) 886-7046; e-mail: lowellcarhart@yahoo.com; Web site: www.ColiseumShow.com

16—SCHILLER PARK, ILLINOIS: Show, "Rings & Things BeadTour"; Rings & Things; Comfort Suites O'Hare Airport, 4200 N. River Rd.; Thu. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

17-19—BEREA, OHIO: Show and sale; GemStreet USA; The Cuyahoga County Fairgrounds, The Arts & Craft Bldg., 164 Eastland Rd.; Fri. 10-6, Sat. 10-6, Sun. 11-5; fine gems, jewelry, beads, fossils, minerals; contact Jane Strieter Smith, (216) 521-4367; Web site: www.gemstreetusa.com

17-19—COOS BAY, OREGON: Show, "South Coast Rock & Gem Fest 2010"; Far West Lapidary and Gem Society; 4th St. parking lot, across from Outdoor-Inn, downtown; Fri. 10-5, Sat. 10-5, Sun. 10-5; dealers, rockhound sales, jewelry, gems, minerals, fossils, rough and finished rocks, tumbled rock, geodes, faceted stones, cabochons, thunder eggs; contact Rocky Pribble, P.O. Box 251, Coos Bay, OR 97420, (541) 572-8301

17-19—DENVER, COLORADO: Show, "Colorado Fossil Expo"; Martin Zinn Expositions LLC; Denver Merchandise Mart Plaza Annex, 451 E. 58th Ave.; Fri. 9-6, Sat. 10-6, Sun. 10-5; adults \$6, seniors and teens \$4; 50 dealers, fossils, meteorites, petrified wood, amber, paleontological exhibits, part of the Denver Gem & Mineral Show; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004-0665, fax (303) 223-3478; e-mail: mzexpos@aol.com; Web site: www.mzexpos.com

17-19—ENID, OKLAHOMA: Show; Enid Gem & Mineral Society; Oak Wood Mall, 4125 Owen K. Garriot (Hwy. 412); Fri. 10-6, Sat. 10-6, Sun. 12-5; contact Billy E. Wood, (580) 234-5344

17-19—HOLLAND, MICHIGAN: Show, "Rockhounding: A Green Hobby"; Tulip City Gem & Mineral Club; Holland Civic Center, 150 W. 8th St.; Fri. 9-8, Sat. 9-7, Sun. 11-5; adults \$2, students 50 cents; more than 50 club member, museum and college displays, "green" demonstrations, Petoskey stone polishing, kids' games, touch display, fluorescent mineral display, lapidary demonstrations, silent auction, club sales, children's silent auction, 8 dealers, fossils, minerals, jewelry, lapidary equipment, contact Rebecca Cistaro, 1162 Wintergreen Dr., Holland, MI 49424, (616) 393-9307; e-mail: r4squares@charter.net; Web site: www.tulipcity.org

17-19—LINCOLN, MISSOURI: Show and swap; Mozarkite Society of Lincoln, Missouri; Lincoln City Park; Fri. 10-5, Sat. 9-5, Sun. 10-5; free admission; beading, public digs for Mozarkite; contact Ted Bollick, 1201 S. St., Clinton, MO 64735, (660) 890-4983, or Kay Shaver; e-mail: kayshaver405@wmconnect.com; Web site: www.mozarkite.com

18—GRAND RAPIDS, MICHIGAN: Show, "Rings & Things BeadTour"; Rings & Things; Stars Room, 3221 Plainfield Ave. NE; Sat. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

18-19—CASTLE ROCK, WASHINGTON: Show; Southern Washington Mineralogical Society; Castle Rock Fairgrounds; Sat. 10-6, Sun. 10-4; spin table, gem dig, country store, magnetic sand, gold panning, rock cutting, silent auction, live auction Sat., demonstrations, door prizes, scholarship raffle, black light display, dealers; contact Fran Wolff, P.O. Box 1492, Kalama, WA 98625, (360) 560-2987; e-mail: fwolff@comcast.net

18-19—CLARKSVILLE, INDIANA: Show, "Falls Fossil Festival"; Indiana Society for Paleontology; Falls of the Ohio State Park, 201 W. Riverside Dr.; Sat. 9-6, Sun. 10-5; free admission; vendors, fossils, minerals, books, jewelry, polished stones, guided Devonian fossil bed hikes, Silurian and Devonian fossil collecting piles, Cave-in-Rock mineral collecting pile, children's craft activities, guest speakers, fossil and rock ID, fossil park and museum brochures; contact Alan Goldstein, 201 W. Riverside Dr., Clarksville, IN 47129, (812) 280-9970; e-mail: agoldstein@dnr.in.gov; Web site: www.fallsoftheohio.org

18-19—HARTLAND, MICHIGAN: Annual show; Livingston Gem & Mineral Society; Old Hartland High School, 9525 Highland Rd.; Sat. 10-7, Sun. 10-4; adults \$2, students 50 cents, children free; dealers, demonstrators, flint knapping, children's games, wire wrapping, show cases; contact Chuck Amberger, 20815 Dixboro, South Lyon, MI 48178, (248) 446-0818; e-mail: camb2@sbcbglobal.net

18-19—PASO ROBLES, CALIFORNIA: 19th annual show, "Rockhound Roundup"; Santa Lucia Rockhounds, Pioneer Park, 2010 Riverside Dr.; Sat. 10-5, Sun. 10-5; free admission; exhibits, raffle prizes, silent auction, demonstrations, youth activities, rocks, gems, minerals, fossils, meteorites, crystals, beads, carvings, lapidary equipment; contact Kim Patrick Noyes, 7343 El Camino Real #301, Atascadero, CA 93422, (805) 610-0603; e-mail: kimnoyes@gmail.com

18-19—REDWOOD CITY, CALIFORNIA: 44th annual show, "Harvest of Gems"; Sequoia Gem & Mineral Society; Community Activity Bldg., 1400 Roosevelt Ave.; Sat/ 10-5, Sun. 10-5; free admission; kids' activities, dealers, member displays, silent auction, earth science room; contact Carol Corden, P.O. Box 1245, Redwood City, CA 94064, (650) 248-7155; e-mail: ccorden@earthlink.net; Web site: http://sgms.drifmine.com

18-19—RHINEBECK, NEW YORK: 41st annual show and sale, "The Hidden Beauty of Stone"; Mid-Hudson Valley Gem & Mineral Society; Dutchess County Fairgrounds; Sat. 10-5, Sun. 10-4; adults \$5, seniors \$4, students \$2, children 12 and under and Scouts in uniform free with adult; 30-plus dealers, minerals, gemstones, fossils, meteorites, jewelry, 6 free rocks for kids, exhibits, fluorescent booth, lapidary

continued on page 74

MANY FACETS

by Guest Faceters

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

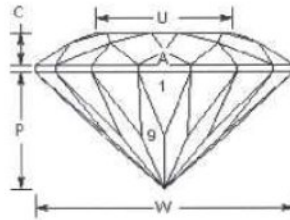
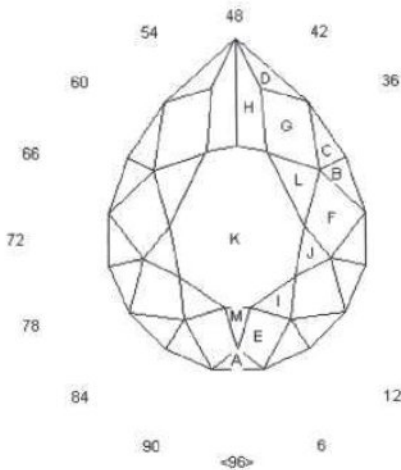
I originally designed this pear for a piece of tsavorite garnet and it worked out quite well. I have since used this on a piece of rhodolite, and it should do well for most varieties of garnet.

This design is fairly easy to cut (as pears go). Pears and hearts can be a bit tedious to cut, as you typically cut a facet or two and have to change your angle and/or height setting. However, I kept the angles simple to set and I believe you will find the results well worth the effort. Depending on the size of your stone, be mindful when you cut tiers 9 through 11. They will cut very quickly and if you aren't paying attention, they can overcut in a hurry.

If you try this design, I would love to hear from you, as I greatly value the feedback. Happy faceting!

—David Groncki

djgroncki@comcast.net



Original Pear (for garnet)

© David Groncki 2009

Angles for R.I. = 1.810

60 + 15 girdles = 75 facets

1-fold, mirror-image symmetry

96 index

L/W = 1.279 T/W = 0.626 U/W = 0.527

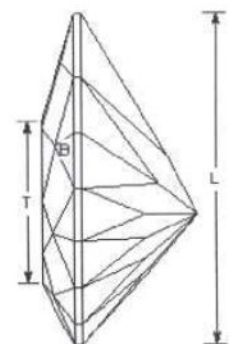
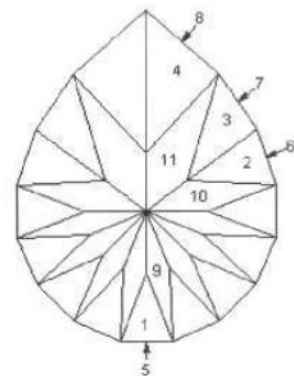
P/W = 0.451 C/W = 0.127 Vol./W³ = 0.242

PAVILION

1	43.00°	96-06-12-18-24-72-78-84-90	PCP
2	42.70°	29-67	PCP
3	41.35°	33-63	PCP
4	38.55°	37-59	PCP
5	90.00°	96-06-12-18-24-72-78-84-90	Establish width
6	90.00°	29-67	MP @ 1,2
7	90.00°	33-63	MP @ 2,3
8	90.00°	37-59	MP @ 3,4
9	41.50°	03-09-15-21-75-81-87-93	GMP
10	41.50°	27-69	GMP
11	38.70°	35-61	GMP

CROWN

A	33.00°	96-06-12-18-24-72-78-84-90	Establish girdle height
B	33.00°	29-67	Level girdle
C	33.00°	33-63	Level girdle
D	33.00°	37-59	Level girdle
E	27.70°	03-15-81-93	GMP
F	27.70°	27-69	GMP
G	27.00°	35-61	GMP
H	17.25°	45-51	GMP
I	17.90°	09-87	MP @ A,A
J	17.90°	21-75	MP @ A,A
K	0.00°	Table	MP @ E (at index 15, 81)
L	19.70°	31-65	MP @ B,C
M	25.70°	96	MP @ A





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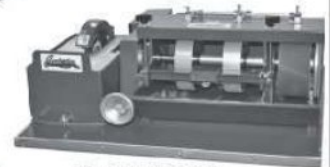
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Show Dates from page 71

SEPTEMBER 2010

demonstrations, wholesaler; contact Carolyn Reynard, (845) 471-1224; Web site: www.mhvms.org

19—NOVI, MICHIGAN: Show, "Rings & Things BeadTour"; Rings & Things; Sheraton Detroit Novi, 21111 Haggerty Rd.; Sun. 1-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

21—INDEPENDENCE (CLEVELAND), OHIO: Show, "Rings & Things BeadTour"; Rings & Things; Skyline Hotel and Conference Center, 5300 Rockside Rd.; Tue. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

23—WEST HENRIETTA (ROCHESTER), NEW YORK: Show, "Rings & Things BeadTour"; Rings & Things; RIT Inn & Conference Center, 5257 W. Henrietta Rd.; Thu. 12-5; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

25—BURLINGTON, (BOSTON), MASSACHUSETTS: Show, "Rings & Things BeadTour"; Rings & Things; Hilton Garden Inn Boston-Burlington, 5 Wheeler Rd.; Sat. 12-4; free admission; gemstones, bead strands, wholesale prices, findings, stringing supplies; contact Dave Robertson, (800) 366-2156; e-mail: drobertson@rings-things.com; Web site: www.rings-things.com

25-26—FRANKLIN, NEW JERSEY: 54th annual show; Franklin Mineral Museum; Franklin School, Washington Ave.; contact Lee Lowell, (973) 827-6671

25-26—MISSOULA, MONTANA: Show, "Big Sky Rocks"; Hellgate Mineral Society; Ruby's Reserve Street Inn, 4825 N. Reserve St.; Sat. 10-6, Sun. 10-5; contact Bob Riggs, 14 Holiday Ln., Missoula, MT 59801, (406) 543-3667

25-26—MONTEREY, CALIFORNIA: 51st show; Carmel Valley Gem & Mineral Club; Monterey Fairgrounds, 2004 Fairgrounds Rd.; Sat. 10-6, Sun. 10-5; adults \$3.50, senior \$2.50, children free with adult; exhibits, kids' stuff, grab bags, door prizes, wheel of fortune, demonstrations (fossil impressions, sphere making, silver jewelry making, grinding and polishing gemstones); contact Janis Rovetti, 1047 Roosevelt St., Monterey, CA 93940, (831) 657-1933; e-mail: janis12@sbcglobal.net; Web site: www.cvgms.org

25-26—OSHKOSH, WISCONSIN: 39th annual show; Oshkosh Earth Science Club; Sunnyview Expo Center, 500 E. County Rd. Y; Winnebago County Fair Grounds; Sat. 9-5, Sun. 10-4; adults \$2, students with ID \$1, children under 12 free; rocks, minerals, fossils, lapidary arts, jewelry, more than 80 vendors, private collections, Weis Earth Science Museum exhibits, kids' rock polishing and painting, take-home specimen kits, grab bags; contact Bob Fox, (920) 235-4669; e-mail: oesc-webmaster@hotmail.com; Web site: www.oescclub.com

25-26—SHAROVILLE, OHIO: Show; BeadStreet USA; The Sharonville Convention Center, 11355 Chester Rd.; Fri & Sat 11am; Sun 11am-5pm; vintage beads, Swarovski crystals, lampwork, precious metal findings, gemstones, supplies; contact Jane Strieler Smith, (216) 521-4367; Web site: www.beadstreetusa.com

25-26—SOUTH SIOUX CITY, NEBRASKA: 45th annual show; Siouland Gem & Mineral Society; South Sioux City Senior Center, 1501 W. 29th St.; Sat. 9-6, Sun. 10-4; adults \$1.50, students (12 and older) 50 cents, children under 12 free; exhibits, four dealers, agates, rough and polished specimens, gems, beads, geodes, minerals, superb faceted jewelry, fossils, door prizes, spin the wheel, silent auction, displays, Siouland dinosaur hunters' exhibits; contact Bob Powell, (712) 378-2775

25-26—TRAVERSE CITY, MICHIGAN: Annual show; Grand Traverse Area Rock & Mineral Club; Grand Traverse Heritage Center, 322 Sixth St.; Sat. 10-5, Sun. 11-4; adults \$2, children free with adult; dealers, rocks, gems, minerals, jewelry, demonstrations, jewelry making, rock cutting and polishing, kids' area; contact Cvnthia Vaughn, (231) 276-6150; e-mail: Maple2b@aol.com

For more Show Dates, go to www.rockngem.com.

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SHOW SCHEDULE 2009 - 2010

April 9 - 11, 2010

Raleigh, N. Carolina -
Kerr Scott Building, State Fairgrounds

April 30 - May 2, 2010

Houston Texas -
Houston Fine Mineral Show, Embassy Suites Hotel, Room 201

August 13 - 15, 2010

Springfield, Massachusetts -
Eastern States Exposition Center

September 15 - 19, 2010

Denver, Colorado -
Holiday Inn North, Room 115

October 8-10, 2010

Detroit, Michigan -
South Macomb Community College Expo Center,
Warren, Michigan

November 12 - 14, 2010

Houston, Texas - Humble Civic Center



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An "Old-Fashioned" Rock Show

I had to go to my map file when I got an e-mail from Dave Treffinger of Loogootee, Indiana. That's a town I had never heard of. I had, however, heard of the Lawrence County Rock Club show that Dave is chairing June 25-27, 2010. This club show, which started in 1966, is now held at the Monroe County Fairgrounds each year.

I want to call it "an old-fashioned rock show", and I think you'll agree with me, as the show has much to commend it. Anyone who lives in the Midwest really should check it out. Admission is free, and dealers are only charged \$2.50 per front foot. That's reminiscent of shows held in the 1950s! For instance, the great Tucson Show, now the best in the world, charged dealers \$1 per foot when it started in 1955! No wonder more than 120 dealers head to this Indiana gem, mineral and fossil show/swap.

The show is held in three separate buildings, as well as outside. Camping near the show is available for a modest \$15 a night! The show does much to promote the hobby. For instance, one dealer team, George and Wanda Aldred, has been making a special effort to help kids involved in 4-H projects for years. There is even a Mine and Quarry Safety Training course scheduled, something all rockhounds ought to take.

The show also supports the Midwest chapter of Friends of Mineralogy. I was in the original group with Arthur Montgomery, which met at Dick Bideaux's home. A leading Midwest member of Friends is Dr. Nelson Shaffer of the Indiana State Geological Survey. Nelson often puts a display in the Lawrence County club show.

The show itself touches on every aspect of our hobby. Dealers offer a wide range of gem materials, along with fine mineral specimens. Some dealers feature fossils, which should be no surprise, as the Midwest is rich in ancient life forms. There are also lapidary, rockhound and prospecting supplies for sale. Most important, efforts are made by the club and dealers to cater to youngsters involved in school science classes and 4-H and Scout projects.



Flint knapping is just one of the many educational demonstrations seen at the Lawrence County show.

Local shows like this one are what keep our hobby alive and growing. If you live in the Midwest, this three-day show should be on your "must-do" list!

WHY DO YOU COLLECT?

Here's a question with as many answers as there are rockhounds: Why do you collect? Think about it. You know people who don't collect anything and you know others who collect anything they can get their hands on. Do you fit into the latter category? If you do, some might call you a pack rat!

There actually have been psychological studies done to answer the question of why people collect—not just rocks, but anything—and the answers are as varied as the items collected!

I define collecting as "the selecting, gathering and keeping of objects of subjective value". I say "subjective" because some of the thing I value, others consider valueless. Some rockhounds' spouses even question the value of rocks and see no reason for collecting them at all!

Who are mineral collectors, anyway? According to a nifty book called *Collecting: An Unruly Passion: Psychological Perspectives*,

by Werner Muensterberger (Harcourt, Brace & Co., 1994), a collector is an enlightened amateur preserver of many good things of the earth, whose contribution to society, although great, has been little acknowledged!

This statement reminds me of my friend Pat Haynes. Pat loves to collect and his collecting goal is certainly a most worthy endeavor. He searches for new mineral species! He has been remarkably successful, having found more than a dozen new minerals so far, including one he named bobjonesite! Pat's finds always end up in universities and museums and are documented in scientific journals. That is a most worthy result of his collecting.

Rock collecting started when some ancient wanderer picked up an unusual rock or stone. It took thousands of years for such amateur "collector" curiosity to evolve into what we now call a science. Three cheers for human curiosity!

Collecting is a fascinating read. It's interesting to peek into the psychology of collecting and "see" so many collectors we know in our mineral hobby! If you can find a copy of this interesting text, you might recognize a lot of your collecting friends in its pages.

On a more earthly plane, there are plenty of personal reasons to collect rocks, minerals, books, or even string! I like to think many collectors practice their hobby as a means of gaining knowledge about the world of minerals. Surely, that is at least an underlying factor in the minds of most collectors. We look at crystals, wonder why and how, study them, and turn to books and magazines to find answers to our curiosity.

Others love to collect minerals, put them on a shelf, and sit and admire nature's handiwork. This gives the collector great aesthetic satisfaction. Nothing wrong with that! Admiring nature's creations, be they sunsets, open vistas, minerals, or the stars, is a great pursuit!

Once mineral collecting starts, other factors tend to reinforce the drive or desire. Some collect as a means of gaining recognition or distinction. I can cite collectors I have known who were ordinary

folks working at ordinary jobs, not outstanding scholars or community leaders, yet they became well known in national mineral circles because of their collecting.

Those of us in Arizona know of a fellow who worked as a custodian all his adult life. Now, custodians don't get rich pushing a broom. This fellow had two interests: collecting plants and collecting minerals. He was so successful that he became known throughout the plant world for collecting and breeding types of cactus.

When this quite ordinary fellow, who was really not at all ordinary, passed away, he also left behind a highly valuable mineral collection.

This second collection, for which he was not at all well known, is a wonderful mineral collection, which he left to the University of Arizona. The collection is now valued at several million dollars, a remarkable collecting feat for "an ordinary fellow"! Surely, this man, who spent his life in what we would consider a lowly station, emerged with great distinction because of his collecting endeavors!

Other collectors seek what might be called physical security in possessing something no one else has. This can be a noble pursuit if it is done with reasonable intent. Unfortunately, we have some folks of this type in the hobby who have taken this physical security "need" to an extreme! Their need to collect at any cost to themselves and others indicates a flawed personality. I've seen friendships lost because one collector places the desire to obtain a certain specimen over friendship. The person pursues the specimen at whatever cost, including that of losing a friend. This is wrong and is not collecting per se. It is either a form of greed or a mental defect, pure and simple!

If you think about it, the emotions that are involved in collecting run the gamut. When you find something really fine on a rock hunting trip, you experience an exhilaration that can last for days! I know that, whenever I cracked open a crystal pocket in an old mine, I got a real charge out of being the first to see such beauty. At a mineral show, just watch the face of a kid who has paid to have a geode cracked as he sees for the first time a crystal cluster nested in the geode hollow. That's exhilaration!

When collecting starts getting serious, another whole set of emotions, some of them negative, begins to surface. I can recall being in a dealer's shop looking at a specimen I was thinking of buying while another collector, who arrived after I did, waited for me to make up my mind. I bought the specimen and the fellow later told me he had experienced first excruciating agony, while hoping I would pass up the purchase, then distress, when I made the purchase.



Psychological studies have been done to find out why people collect, and the answers are as varied as the items collected.

Heck, I'd have stepped aside if I'd known it was that important to him!

On the other hand, years ago it was once common practice to bring what we had dug out in the field to our local club meetings to show others. More importantly, we would offer our surplus to those who were unable to go into the field. The older folks in our club were particularly grateful and were careful to select only one specimen so that others could have a turn. The delight in sharing with others is ample reward for doing this! Unfortunately, this most com-



An Arizona custodian left a highly valuable mineral collection to the University of Arizona, gaining distinction through collecting.

mendable practice finally ceased when some of the younger club members, who were perfectly capable of digging their own specimens, started rushing to the table and pouncing on the better specimens.

Serious collecting can, unfortunately, bring out the worst in some collectors. On one field trip we made, a friend of mine invited a guest who had never been in the field to collect. As luck would have it, the newcomer opened a small vug lined with lovely, small azurite crystals. He showed the piece to the fellow who invited him. The fellow promptly advised the newcomer to take the specimen to the car, carefully wrap it, and put it in the trunk. The newcomer

did just that, and while he was gone, his "friend" dug out the rest of the pocket for himself! Needless to say, I didn't go collecting with the fellow after that.

Collecting is much more than a single experience of pleasure. Like eating chocolate for a chocaholic, collecting requires a repetition of the act of acquisition, another "fix"

whenever possible! It is, in fact, mandatory to keep on collecting to sustain the exhilaration and excitement. In extreme cases, the collector experiences a flagrant exhibitionistic elation and runs about flaunting the find to anyone who will listen.

This brings us to the topic of exhibiting your collection! An altruistic reason for exhibiting your minerals at a show is to educate visitors in hopes of enticing them into a hobby that gives such pleasure. This motive is best seen in the educational displays some collectors work on for weeks before putting them in a show.

Unfortunately, most shows these days have few, if any, educational exhibits. That's one reason I like the Lawrence County show; education is the running theme. I'm sure there are plenty of other local shows that are so enriched!

This altruistic reason aside, the exhibits you see are there for other reasons. Some are entered into competition to win a trophy and prove the owner's collecting prowess or wealth! Others are entered for financial reasons in shows that pay cash awards, like some state fairs. Some exhibits are there as a business effort. Dealers in particular will exhibit examples of their latest acquisitions with the intent of tempting customers to their booths.

I choose to think that most exhibits—especially those called "special", meaning no ribbons, no awards, no trophies—are in a show because the exhibitor simply wants viewers to enjoy the display. This type of display has no hidden agenda, no intent to flaunt, no hope of financial reward. It is simply an exercise in sharing for the joy of sharing!

Mineral exhibits really ought to be placed in shows for two reasons: to educate and to share the joy of fine minerals or lapidary arts! Some quiet evening as you sit and admire your specimens or your lapidary handiwork, think about why you collect. Maybe you will get the feeling that sharing is a great idea and move in that direction! ♡

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



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

Tracksite Update

I just wanted to thank you so much for your article "Walking with Dinosaurs", by Steve Voynick, in your [April] issue of *Rock & Gem*. It was very well written and presented a lot of information about both Dinosaur Ridge and the Morrison Natural History Museum. I just wanted to give you some good news since the article was written. The road over Dinosaur Ridge has been closed to through traffic and is just open to our tour buses, hikers and bikers. Alameda Parkway is now more of a park road and creates a much safer and quieter environment to learn about dinosaurs and other features on the ridge. The best roadway to access our Visitor Center is off the Alameda/C470 interchange, just one block east of us. Thanks again for such a great article.

—Joe Tempel
Executive Director, Dinosaur Ridge

Carver Contact

Has anyone ever heard of a Walter Bauscher from New Jersey who carved stones? If so, is there anywhere to find more information on him? I am trying to research the signature I found on a carved rock crystal face set in a pendant. I appreciate any help you can offer.

—Joshua Cohn
toobilt@comcast.net

Spanish Fork Show

Last weekend [Mar. 19-21, 2010], we went up north to the gem and mineral show in Spanish Fork, Utah, expecting to find a sleepy little conglomeration of displays and vendors.

Boy! Were we wrong! We found an impressive selection of display cases, demonstrations and vendors. There was something for everyone. The committee was expecting 10,000 visitors and I would not be surprised if they exceeded that number. Small town? Yes. Small show? No. Needless to say, we will be attending this show next year.

—Richard Gibbons
Saint George, UT

Show Particulars

In the April 2010 issue of *Rock & Gem*, there was an article [titled] "Ohio Flint and Its Master Knapper", by Tom Towles. He

mentioned a show in the Rio Grande Valley in South Texas. Do you know anything about this show and if it is sponsored by a club?

—Claude H. Townsend
via e-mail

[It] is a small show held each February at the Benson Grove RV Park (810 Bentsen Palm Dr., Mission, TX; 956-585-7011). It's put on by the Bentsen Grove Rock Club and the only vendors are the club members themselves. They usually have six to 10 vendors and demonstrations in silversmithing, cab making, wire wrapping, and faceting. [It is] a small show that only last for about four or five hours. I understand that their club has nearly 200 members and they do more rockhounding than anything. They do have

a small lapidary shop of three saws and three or four grinders. The only way you can work on stones or rockhound is to stay in the park for the season.

There is a larger lapidary shop for park members only at Llano Grande RV Park (west of Expressway 83 on Mile 2 West Road) in Mercedes, Texas, and it has over 30 machines, including saws, grinders and tumblers, with instructors. They also teach wire wrapping and silversmithing. Just show up, pay the \$1 hourly fee (covers operating and supply costs), and we'll teach you how to cut and polish rocks. We have some slab rocks available and some settings.

—Tom Towles
Rock & Gem contributor

Coincidences

I wish to relate a few coincidences: In January, we stayed in Quartzsite for a few days and since I have an old addiction to rocks, we looked in at the rock show.

The picture is of a rock I found in 1951 on the ranch where I grew up in South Dakota. Because this was a very unusual and pretty rock, I took it to an old family friend who knew all about rocks.

My parents lived in Mission, South Dakota, when I was born and one of the early baby sitters for me when necessary was June Culp!

My parents and the Zeitners were long-time family friends and when Albert married the new schoolteacher, it was natural that I would grow up knowing June.

When I showed her the rock I had found, she asked where I had found it. Our ranch was in Mellette County, just north of Tripp (Mission). June did not believe that it had come from there, since Fairburns were not known to exist that far east. A few years later, when I found another, I looked a bit harder and found some more. When I took these down to June, she decided to give me the benefit of the doubt. She and Albert came up to our ranch and found several.

After this was reported by her in one of her articles, we were often visited by "rockhounds". I was well acquainted with the "badlands" all the way from our place to the Cheyenne River to the west, and on several occasions I helped the Zeitners find a route into some real wild and inaccessible parts of the badlands.

I had many great experiences with June, but the most memorable was the chance finding of a Fairburn agate and a bear skull with arrowhead, which was buried deep in the ground.

So now the last coincidence was for me to be in Quartzsite and the timing of your magazine with the article about June.

I have kept many rocks from my days in South Dakota, including several Fairburns, many fossils, and one that I claim is the largest jasper [at] 1,730 pounds.

—Jim Carr
via e-mail



JIM CARR PHOTO



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