

The New Mexico Facetor

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The Prez Sez:

by Scott R. Wilson, Ph.D.

The New Mexico Faceters Guild is truly a gem among amateur faceting-oriented organizations. We can count members from states all across the US and a number of international members as well, all complementing our local membership. It is the dedication and willingness to serve and share with each other that has driven the NMFG to the level of quality we now enjoy.

We currently face the time to renew the energy sources that make all of this happen. In any organization, the elected officers serve as focal points to operate and guide the organization in the direction the members want it to go. These volunteers put in a great deal of personal energy to keep things rolling, and the jobs need to be traded around so as not to wear out the office holders. It's a lot like the way a flock of geese heading south for the winter trades off leading the flight. The flock members trade off taking the point position, which takes more energy, then falling back to rest while other flock members rotate in to help forge the flight path. The whole flock moves much faster and more efficiently over long distances than the individual birds could do by themselves.

Among the positions we will need to fill for the next two-year term is that of the newsletter editor. The newsletter is the "Ma Bell" of our Guild, keeping everyone informed of what is going on when and where, as well as sharing designs, experience, and knowledge to the membership. The newsletter has become a very high quality publication during the term of Steve and Nancy Attaway, nearing that of a professional journal. This is a clear indication of the care and dedication that they have placed on their duties as the newsletter editor(s), and I would like to thank them personally and on behalf of the entire Guild membership for their stellar work. It has been a lot of hard work though, and Steve and Nancy need to take a rest. It is not a requirement that the newsletter be of the quality that it is today for the Guild to operate and function to its purpose. Simple communications would suffice, and anyone who uses a computer these days can easily do a quality job as an editor for a

group our size. Of course, everyone enjoys fancier and more detailed publications, and experience in publishing helps. Modern software makes it a lot easier than it has been in the past. Think about volunteering to be the CEO of the Guild "Ma Bell" operation. It's a rewarding position! Meet lots of great people! Learn lots of cool things weeks before everyone else hears about them! Get published!

The NMFG has been exceedingly fortunate to have highly dedicated people volunteer for club officer positions over the years. It's time though, to rotate leading the flight. Please consider volunteering to help your organization continue to be the educational, interesting, and innovative group that is its heritage. Your opportunity is at this month's meeting, which includes elections of officers on the agenda. Be sure to attend and lend your passion for our favorite hobby. You will be glad that you did!



Guild President Scott Wilson



The Guild Christmas Party

The New Mexico Faceters Guild will celebrate their Christmas party on **December 9** at the party room of **Landry's Seafood House** restaurant located at 5001 Jefferson NE in Albuquerque. Directions are: drive north on Interstate 25 to the Jefferson exit and turn right on Jefferson. The restaurant is very close to the intersection. Cocktail hour begins at 5:00 p.m., and at 6:00 p.m. we may order dinner. Dress up and join the fun. Please bring a wrapped gift for the rousing gift exchange after dessert is served. Presents from past Christmas parties have ranged from bottles of wine, food, faceting rough, mineral specimens, candles, books, scented soaps, candy, ceramics, and jewelry.



Dates for Future NMFG Meetings

Every year, the contract between the New Mexico Faceters Guild and the New Mexico Museum of Natural History is renewed. The following dates will represent meetings scheduled for the Guild during the year 2001:

January 11, March 8, May 9, July 12, September 13, and November 8. As most of you know, the New Mexico Faceters Guild meets every other month on the second Thursday. Please note that there was a scheduling conflict for the date of May 10, a Thursday, which would have been the date scheduled. However, the museum will be opening the observatory at that time, and the date of May 9 was selected instead. Please note that **May 9 is a Wednesday.**



Louie Natonek

Long-time New Mexico Faceters Guild member and Vice-President/Instructor, Louie Natonek will enter Lovelace Medical Center the last weekend of October for surgery. The New Mexico Faceters Guild sends our best wishes and prayers to Louie at this time.



Minutes of NMFG Meeting

September 14, 2000

by Nancy L. Attaway

President Scott Wilson called the meeting to order at 7:10 p.m. and greeted all members and guests. Everyone introduced themselves to the group.

Old Business

There was no old business to report.

New Business

President Scott Wilson announced that **Gary and Rainy Peters** won two awards in the recent "All That Glitters" jewelry competition hosted by the New Mexico Jewelers Association. The talented couple won one of the first place awards and an honorable mention. Congratulations!

Guild Librarian **Russ Spiering** has cataloged the new books. He has also neared completion of an updated list of the library contents. The Guild library offers many choices in subject matter relating to gems, minerals, faceting, and jewelrymaking. Please e-mail Russ for requests. His e-mail address is: <DesignsByRKS@email.msn.com>.

Nancy Attaway announced that **Paul Hlava**, who was attending the Denver Gem and Mineral Show and not at the Guild meeting, and his wife, Marge have graciously opened their home again to host the Guild picnic. The Guild picnic has been scheduled for September 23 and will begin between 11:30 a.m. and noon. Please bring meat to grill and a dish to pass. Paul will have two grills ready and will provide plates, cups, and utensils. Steve Attaway will grill a marinated London broil, and Nancy Attaway will bring her famous chocolate/cherry cake.

Nancy Attaway said that **Eileen Smith** and she are working on places to hold the Guild Christmas party. They had several restaurants in mind and were hoping to reserve a party room for either December 9 or 16. The Guild Christmas party will be announced in the next newsletter.

President Scott Wilson announced that it was time to prepare a slate of Guild officers to serve the next two year term. Nominations were then entertained from the floor. Elections will be held during the November meeting.

President: Scott Wilson

Vice-President/Programs: Paul Hlava

Treasurer: Ina Swantner

Librarian: Russ Spiering

Editors: Steve and Nancy Attaway (?)

Special Events Coordinators (two required): Rainy Peters and Eileen Smith

Show and Tell

The show and tell case tonight displayed lovely gems and jewelry items.

Merrill O. Murphy brought some of his Beull Park, New Mexico peridot collection that he faceted. He also showed some of the peridot and pyrope garnet rough he collected years ago. Merrill displayed a large triangle peridot, two marquis peridots, a cut-cornered square and a large eight-sided square brilliant peridot, and a cabochon-cut peridot. Merrill said that the smoky colored ones face up green when faceted and can show a reddish hue on the crown. Merrill polished the stones on a tin lap with alumina oxide. For more information on these peridots, please see the May/June, 2000 issue of the *New Mexico Facetor* under the "Show and Tell" heading for Merrill O. Murphy.

Ernie Hawes displayed a faceted example of the "Square Twist" cut that he recently designed. Ernie said that he wanted to render a faceting diagram with as few facets as possible and still maintain a sparkling and interesting gem. His Cook's Peak, New Mexico 6x6 mm amethyst did just that. The "Square Twist" design was published in the July/August, 2000 issue of the *New Mexico Facetor*.

Gary and Rainy Peters displayed gems and jewelry that they recently completed. They showed two large emerald cut amethysts that they carved on the bottom and a smaller emerald cut amethyst that they carved two spheres in the bottom. The smaller stone was set into a hand-fabricated gold ring with a ladderwork motif and gold balls. They explained how they used a horizontal lathe, and they mentioned the 600-grit and 1200-grit diamond wheels that they purchased from National Diamond Labs in Texas, as recommended to them by Steve Attaway. They discussed the lubricants that they used for polish, such as the lube of Raynex on shield, a sapphire polish powder on a felt wheel, and the ASM, International polish compounds in syringes.

Steve Attaway also mentioned that famous award-winning American gem carver, Michael Dyber told him that he uses hardwood dops to hold various polishing compounds.

Scott Wilson displayed several fine mineral specimens that he collected on a recent Albuquerque Gem and Mineral Club field trip. Tom Massis owns this claim that is located near Mule Creek, New Mexico, and he granted permission for the club to collect mineral specimens. Scott showed three amethyst scepter quartz specimens and one delicate cluster of sceptors, a spray of three large and three small sceptors. The area around Mule Creek is an andasite lava flow that has vugs filled with crystals. A hammer breaks open these cavities to reveal the amethyst crystals. The crystals found on the surface had been bleached by the sun.

Scott also displayed a two-inch diameter laser-polished quartz that was 3/8 of an inch thick. A 1500-watt laser polished the quartz, using 254 watts per square centimeter. Please read Scott's "Prez Sez" column on laser polishing in the May/June, 2000 issue of the *New Mexico Facetor*.

Mark Guerin had laser-welded a pair of sugilite sterling silver earrings and combined them on either side of an amethyst for a very attractive cuff bracelet. His solution was a very clever idea and a good utilization of materials.

Steve and Nancy Attaway brought pictures of a tanzanite and diamond gold ring that they recently made, as a customer now has the ring. Steve rendered an asymmetric ring design in SolidWorks, a CAD/CAM computer software package. A Sanders Prototype machine made the wax pattern. The ring was cast in two parts. **Steve** bead-set the diamonds, and **Mark Guerin** laser-welded the ring and set the tanzanite in a bezel-type hold. **Nancy** cut the 12x9 mm pearshape tanzanite, which weighed 3.95 carats.

Refreshments

Rainy Peters, Ina Swantner, and Eileen Smith brought home-baked refreshments and drinks to the September meeting. Thank you very much. Coffee was also provided. Steve Vayna and Scott Wilson volunteered to bring refreshments to the November meeting.

Future Programs

Master gemologist and appraiser, Larry Phillips, ISA, CGA, ASA, will address the Guild during the November meeting. Larry will provide information on jewelry and gem appraisals and will discuss the various gem treatments and telltale inclusions in gemstones. Larry will also discuss the changes he witnessed during his last trip to China.

Program Speaker

by Nancy L. Attaway

Professional geologist William Mansker, Ph.D. spoke to the New Mexico Faceters Guild about his experiences in searching for kimberlite deposits in the United States. Dr. William Mansker received his B.S. and M.A. from the University of Missouri. He received his Ph.D. from the University of New Mexico with a dissertation on "The Petrology of Nephelinites and Melilite Nephelinites of Oahu, Hawaii". Dr. William Mansker has worked as a project geologist for diamond exploration in the United States for the last two decades, and he has served as an expert witness on environmental compliance. He is involved in the research and development of innovative geologic and environmental tools and is currently preparing a manuscript titled "A Prospecting Guide for Diamonds".

Dr. Mansker began by stating that kimberlites and lamproites were the primary sources for diamonds. Placer deposits were the secondary sources. Diamonds have also been found in meteorites. He defined a kimberlite as a rare type of volcanic rock, named after the South African town of Kimberly, that is the major and primary source of naturally occurring diamonds. He mentioned that some kimberlites were barren, as not all kimberlites contain diamonds. Volcanic in origin, kimberlites rise upward from the depths of 100 to 150 miles within the earth. At such depths, diamond and other minerals, such as pyrope garnets and magnesium ilmenite, are stable. He explained that the structure of the kimberlite is usually called a pipe, which in a cross section appears to be funnel shaped. The pipe is broader near the surface and narrows as it travels downward. This typical funnel shape arises from a violent, explosive eruption of the kimberlite from the depth to the surface, as extremely high internal pressures are released.

Dr. Mansker said that since kimberlites are the very old volcanic rocks found at great depths, lamproites are then the shallow, more magmatically evolved rocks with an unusual chemistry. Lamproites have only recently been found to carry diamonds. Diamonds from the Argyle mine in the Kimberley region of western Australia, famous for pink diamonds, were traced to the weathered remains of a lamproite volcano. Kimberlites are thick, stable craton areas, and lamproites are the thinner cratons.

Dr. Mansker explained that several major minerals are found in kimberlite. These minerals serve as locator minerals for diamonds. The lists includes *pyrope garnets*, *magnesium ilmenite*, *olivine*, *chrome diopside*, and *serpentine*.

Other accessory minerals include *phlogopite*, a magnesium-rich mica; *apatite*, a calcium phosphate; *calcite*, a calcium carbonate; and *spinels*, various iron, magnesium, aluminum, and chrome oxides. He said that color change garnets and garnets with high chrome and low calcium content reveal the presence of diamonds. An orange peel texture on a garnet also indicates the presence of diamonds.

Dr. Mansker described diamonds as pre-cambrian and composed of carbon in high pressure form. Diamonds occur as xenocrysts and contain cognate mineral inclusions. Diamonds are transparent to translucent and usually occur as octahedral grains or as other variations of cubic form. Graphite is a common low pressure form of carbon.

Diamonds do not crystallize in kimberlite or lamproite as a primary mineral. Instead, they are transported through kimberlite and lamproite pipes from deeper areas. The parent rocks where diamonds are crystallized lie deep in basement rock beneath the pipes. Small crystals of diamond will sometimes be found still encased in fragments of their original parent rocks. These fragments are called xenoliths.

Other materials in kimberlites include exotic fragments of rock material that was plucked from the earth's crust and mantle during the kimberlite's rapid ascent to the surface of the earth. These exotic materials include: *eclogite*, a rock saturated with garnet and chrome diopside from deep within the earth's mantle, where diamonds can crystallize; *granite*, crustal fragments from immediately below the surface to depths of about 30 miles; *sedimentary rocks*, shale, limestone, and sandstone from very near surface rocks from zero to two miles down, varying from place to place.

Dr. Mansker said that kimberlites have been found in the United States in North Carolina, South Carolina, Georgia, West Virginia, Michigan, Kansas, Arkansas, and Louisiana, as well as in Texas, Colorado, Wyoming, California, Oregon, Utah, New Mexico (in the Pedernal Mountains and Zuni Mountains), and Alaska. Diamonds have been found in commercial quantities in Canada's Northwest Territories. Dr. Mansker stated that ten to eleven carats per metric ton is required for commercial diamond potential.

In searching for diamonds, Dr. Mansker stated that a large-scale geologic area is first targeted. Landsat imagery from satellites enable geologists to locate the long lineaments that outline the cratons. Low altitude photography is also used. Diamond-bearing kimberlites of economic significance are found in archons, those portions of cratons that are older than 2.5 billion years. Cratons are magnetic and can be traced. Kimberlites also occur in clusters.

Dr. Mansker said that a common method for kimberlite exploration and prospecting include taking samples from stream sediment to look for the indicator minerals, like pyrope garnet, ilmenite, chrome diopside, and olivine. A second method involves magnetic investigations of probable kimberlite areas. Kimberlites are usually magnetic due to their composition of magnetic minerals, such as ilmenite, olivine, diopside, and magnetite. A third method utilizes the geochemical investigations of probable kimberlite areas and stream sediments. Kimberlites typically contain higher amounts of nickel, chrome, and niobium, and they contain more of these elements than other rock types.

Dr. Mansker stated that once a kimberlite has been located by exploration geologists, it must be evaluated for economic potential by checking the diamond content. The usual steps in evaluation include the determination of the kimberlite type and its extent and also bulk sampling. The kimberlite must be drilled to have samples taken, the rock must be mapped geologically, and geochemical analysis of the kimberlite and its minerals must be performed. Through bulk sampling, the kimberlite is determined either to be diamondiferous or barren. If it is discovered to be diamondiferous, then the grade of diamonds must be ascertained.

After a kimberlite has been evaluated, assuming all results have been positive, then mining and diamond recovery may commence. Dr. Mansker described the several operations involved that include: 1) mining of the kimberlite and shipping, 2) milling and crushing of the kimberlite, 3) separation of heavy minerals, such as garnets, ilmenites, diamonds (now called concentrate), and 4) separation of diamonds from the heavy mineral concentrate.

The total time frame from initial prospecting and exploration to completion of actual mining varies, according to Dr. Mansker. Prospecting usually entails several months of rigorous field work by geologists. Once a kimberlite has been located, evaluation may take one to three years. Following the evaluation of the kimberlite, another three to four years are required to bring a mine into full production. The producing lifetime of a mine is also variable, depending upon the size and grade of the kimberlite and other factors. From an economic standpoint, Dr. Mansker said that a mine should have an active lifetime of at least seven to ten years once mining has begun in earnest.

Dr. Mansker brought various kimberlite mineral samples to show. He made gifts to Guild members of small vials of concentrate from a Kansas kimberlite. The New Mexico Faceters Guild thanks Dr. Mansker very much for a fine presentation on the search for diamonds.



In the News

Local War Closes Pearl Farm

Source: *National Jeweler* 8/16/2000

Recent violence between Muslims and Christians forced the closure of a pearl farm in Indonesia. Swiss-based pearl giant Golay evacuated its pearl farm at Bacan on the Halmahera Island. The closure affects pearl farms on nearby islands and will partially disrupt pearl supplies coming out of parts of Indonesia. Australia is the top producer of South Sea pearls, with Indonesia second and the Phillipines third. Indonesia and the Phillipines are known for their creamier white, champagne, and yellow pearls and the rare golden varieties of pearls.

Demands for Untreated Gems

Source: *National Jeweler* 9/1/2000

More customers are demanding untreated natural gems. Many dealers in precious gemstones are offering some untreated natural gems at premium prices. The Web has made it easy for consumers to download information on gem treatments, and that knowledge has driven a desire to find untreated natural gems.

Diffused Ruby Detection

Source: *National Jeweler* 9/1/2000

Diffusion-treated ruby, found mixed in with calibrated parcels of rubies, is easy to detect. The diffusion treatment process involves embedding the rubies in aluminum-oxide powder that contains coloring agents. Dark tones, a strange, watery-look face up and poor polish are key indicators of diffusion, according to *GIA Insider*.

DeBeers Seeks Control in Canada and in Australia

Source: *National Jeweler* 9/16/2000

DeBeers is planning to purchase controlling interest in diamond mines in Canada and in Australia. With a new name and logo, The Diamond Trading Company, formerly DeBeers Central Selling Organization, expects extra diamonds from the mines to be absorbed into the market by an aggressive advertising campaign. DeBeers is currently waiting for shareholders response to a takeover bid for Ashton Mines, which owns 40% of the Argyle mine. DeBeers recently took over Winspear Diamonds, a Toronto mining company that has a 67% stake in what will be Canada's third mine, the Snap Lake Project in the Northwest Territories.

Bellataire Diamond Ads

Source: *National Jeweler* 9/16/2000

Lazare Kaplan affiliate Bellataire Diamonds recently launched an advertising campaign for its color-treated diamonds as being products of nature. Bellataire diamonds are marketed as extremely rare and ultra pure. The company trains stores to sell the diamonds as natural stones that have been helped along by technology.

Professional Jeweler Show at Tucson Cancelled

Professional Jewelers sent a letter dated 9/22/2000 to customers of the Professional Jewelers' Fine Jewelry Show that was held in Tucson in February, 2000. The letter stated that Professional Jeweler has decided to cancel its Fine Jewelry Show for February, 2001 in Tucson, as the current location was deemed not conducive to holding a successful event. New show locations in Tucson are being scouted.

Canada Mine Gets Permission

Source: *National Jeweler* 9/16/2000

Diavik Diamond Mines has received permission to build a mine, the second, at Lac de Gras after their environmental proposals were accepted. The project is a joint venture between Diavik, which owns 60% of the mine, and Aber Diamond Mines, a mining company in the Northwest Territories, which owns 40%. The new mine is expected to yield six million carats per year. The first mine at Lac de Gras in the Northwest territories was Ekati, owned by BHP Diamonds. A third diamond mining project in the Northwest Territories is the Snap Lake Project, owned by Winspear Diamonds. That particular mine is in the middle of a \$206 million takeover offer by DeBeers.

J. O. Crystal For Sale

Source: *Modern Jeweler* October 2000

CEO of J.O. Crystal, Judith Osmer is approaching retirement and wants to sell her company. Judith Osmer developed the secret process used to grow the Ramaura ruby. The company also manufactures created alexandrite and cultured emerald.

New Phoenix Diamond Cut

Source: *National Jeweler* 10/1/00

The Phoenix Diamond Company of New York unveiled a new cut-corner emerald cut for diamonds that incorporates facets from the Barion cut and the Princess cut to render a new pavilion design. The new design shows a crown with scissor facets. The Phoenix features 85 to 89 computer-generated, hand-cut facets. Shapes will also include cushion cuts, pears, ovals, and a new round version.



THERE'S A LONG, LONG TRAIL A- WINDING ----- NEW MEXICAN MOONSTONE

By Merrill O. Murphy

I have not been down at the Rabb Canyon moonstone site for quite a long time, and I doubt that more than a few of our members have ever been there. There are reasons for that. 1) It is quite a few miles down there, 2) one must walk a few miles off the road on a moderately difficult trail, 3) unless you have a vehicle with rather high clearance, you will be forced to leave it where vandals may see it, and 4) you are faced with the choice of camping overnight or driving another 25 miles or so to find a motel room in Silver City. Believe me that it is well worth all those troubles.

Back in the 1960's, another Albuquerquean and I held mining claims on the moonstone deposit. However, we were not the first to do so. I think that the first claims may have been worked as far back as the earliest copper mining in the Silver City area. Then, again, perhaps not. At any rate, those who tried to mine those wonderful moonstones ran into the same problems that my partner and I faced. There is no road into the site, so it is very difficult to bring in equipment. Then, too, great care must be taken when trying to separate the moonstone from the worthless rock. The old drill-and-blast technique just shatters the moonstone. The only procedure possible seems to be careful chiseling using a dull steel chisel and hammer. For the casual collector, the most practical technique is collecting loose material from the surface and/or raking the loose sand to uncover loose moonstone pieces.

Ruth Bronson, an old-time faceter from west Albuquerque, became tired, sat down on a low bank, and scuffed the sand with her feet. In doing so, she uncovered a chunk of moonstone weighing several pounds. Only parts of the chunk were cuttable into

bright silvery-white stones. Like most of the white moonstone, this one was nearly opaque but much, much brighter than the moonstone of India and other eastern countries. This specimen came from the north end of the site. Pieces taken from the southwest end are generally smaller, but the moonstone glow is a transparent sky blue and wonderful for faceting small gems.

Moonstone is a member of the feldspar family of minerals. Feldspars are the most common of all crystalline minerals. There are numerous feldspars and feldspar-like minerals. Most of them are listed as orthoclase (potassium-aluminum-silicate with varying crystal structure) or plagioclase (calcium-sodium-aluminum-silicate with the calcium and sodium varying with subtypes). The Rabb Canyon moonstone is a member of the orthoclase group called sanidine. Sanidine is a "high temperature polymorph of monoclinic orthoclase" and is much less abundant than other members of the orthoclase family. It tends to form as euhedral crystals with tetragonal Baveno twinning.



I have two very technical treatises on Rabb Canyon. One is titled, "*Shallow, High-Temperature Pegmatites, Grant County, New Mexico*" by V. C. Kelley and O. T. Branson. It is reasonably readable. The other is titled,

"*Preservation of Primary Magmatic Features in Subvolcanic Pegmatites, Aplites, and Granite From Rabb Park, New Mexico*" by James D. O'Brien. This second one tends to use all the tongue-tangling words the author could find in the dictionary. For example, the O'Brien article uses seven huge words on the first page. Examples are "consanguineous", "phaneritic", and "hypabyssal". Though tending toward the complex, both articles contain a great amount of information. Both should still be available through the University of New Mexico Library and the New Mexico Institute of Mining and Technology Library.

Now, how does one get to the Rabb Canyon site? Simple. Follow U. S. 25 south to Truth Or Consequences. About 10 miles south of T Or C, turn west on

paved State Highway #152. Continue west, more or less, through Hillsboro and Kingston. Stay on State Highway #152, climbing steeply over Emory Pass. Check your odometer at the top, then drive carefully down the west side of the pass for about 10 miles. At this point, the road flattens momentarily before leaving the valley and climbs to the top of a low hillside. Slow down and watch carefully on your right as the road goes gently downward. Watch for an opening in the trees with a livestock corral at the back of the open space. Drive, perhaps, 50 feet, toward the corral. Then, turn west (to your left) for 75 feet. Stop and examine the dirt road leading west into a gully. Make sure your vehicle has enough clearance to continue. **IF NOT, YOU MUST PARK IN THE CLEARING OR DO ENOUGH ROAD WORK TO MAKE CLEARANCE PRACTICAL.** Walk or drive down this primitive road to a shallow valley (Noonday Canyon), where it turns to the north and crosses a shallow ford. (There may be a trickle of water here). Cross and continue beside an old fence line until you reach another clearing, a distance of, perhaps, 200 yards. There is an east-to-west fence and gate just beyond the clearing. This clearing is the trailhead. If you have driven in, then pull off the road and park here.

Climb the ridge on the west of the clearing, going, perhaps, 20 to 30 degrees north of west. You should reach a distinct trail near the top of the ridge. This trail runs north a short distance to a second gate in the fence mentioned above. After reaching this second gate, the trail angles and goes nearly west across the ridge. If, however, you have found no trail and no gate at the top of the ridge, then go back to the trailhead. Now, follow the dirt road north no more than 100 yards to the east-west fence. Then, walk west up the fence line until you reach gate #2 near the top of the ridge. From this ridge-top gate, the trail leads gently up and down a few hundred yards before diving abruptly into Rabb Canyon.

Go up Rabb Canyon. There should be pools of water in the canyon bottom. If you look closely, then you will see bright blue flashes from tiny moonstones in the water. The canyon turns to the west a short distance upstream, and the water disappears in the sand. Continue up Rabb Canyon until you see a shallow arroyo on your right. There may be a trickle of water

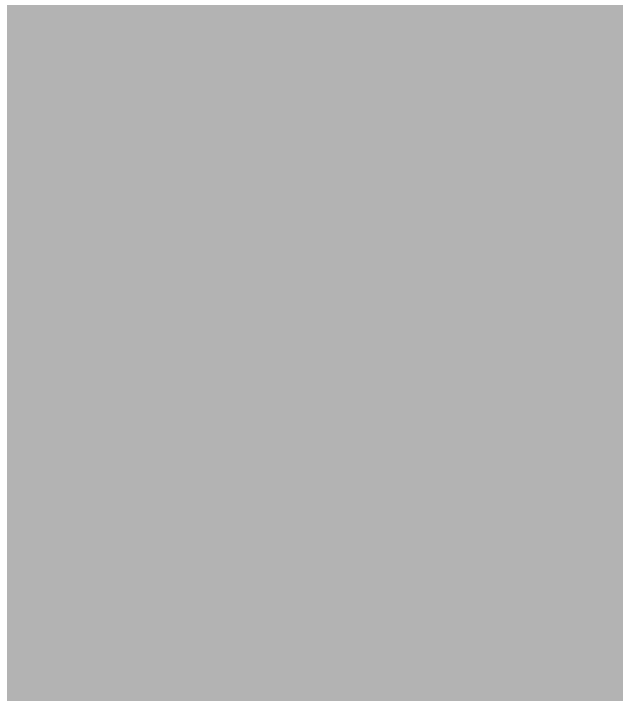
in the arroyo. Cross the arroyo and take a trail leading northwest. This trail goes only a short distance before crossing the arroyo. Follow the trail paralleling the arroyo, keeping it no more than 50 feet to your left. After about a quarter mile, the indistinct trail will reach a livestock corral. Turn to the left and walk to the arroyo bank. About a half truckload of white feldspar should be visible on the far side. It is opaque, cracked, and shows little adulescence. It is part of a pegmatite that follows a fissure down from the main deposit.

Get down in the arroyo and go up it no more than 30 yards to a very indistinct gulch that joins the main arroyo from the west. This gulch leads to the moonstone site. Follow it more or less to the west. The banks will begin to steepen. Watch for a trail angling up the right-hand bank. This trail will climb out to a bowl-like little mesa measuring no more than two or three acres. Majestic cedar trees stand tall in the bowl, some of the largest cedar trees I have ever seen. When you climb out of the gulch, continue a short distance west. You should see the remains of a tiny cabin. Blue moonstone is scattered on the sands between the cabin remains and the lower edge of a sharp ridge. Silver-white moonstone comes from the north part of the bowl. Shallow prospects are visible here and there along the west and north edges of the bowl. You will find lots of fine but very small bits of blue moonstone. The white moonstone will be in larger pieces. Few pieces of either will yield good cut stones.

Single moonstone crystals at this site have been reported as large as 13 inches by 13 inches by 20 inches. Quartz crystals as large as three feet long by 8 inches diameter have also been taken from this site. The quartz varies from colorless to jet black and smoky. Shallow trenches at the north end of the deposit have yielded pale amethyst. Some of the large crystals of quartz show as many as five growth interruptions, indicating numerous periods of intense volcanic action. There are other minerals, such as biotite, magnetite, ilmenite, and sphene that have also been reported here. Tiny blue crystals of sanidine feldspar occur in rhyolite from many places in New Mexico, but this seems to be the only known pegmatite producing large crystalline sanidine.

Now for a few precautions. First, be careful on the trail down into Rabb Canyon. It is steep, and there are several places where a stubbed toe can initiate a painful fall. Second, you will be sharing this wilderness area with wild animals and semi-domesticated animals, like cattle. The cattle will probably be no problem, but stay clear of a bull or a cow with a baby calf. Third, among the wild animals to be aware of are bears, mountain lions, and rattlesnakes. Bears and lions will generally be more afraid of you than you are of them. As with cows and their calves, a mama bear or lion is unpredictable should you come between her and her baby. Always be wary of rattlesnakes. Several varieties of rattlesnakes reside in the Rabb Canyon area. The most dangerous variety is a small, dark, gray-green rattler. These blend so well with their surroundings that they are difficult to see. They are also very fast. Be attentive to the surroundings, and be careful of where you step and place your feet.

I once walked alone into the moonstone area to take some pictures. I have since decided that going alone was a bad idea. I parked my low-built car just off the paved road in the first clearing. I returned to the clearing several hours later, unlocked the car door, and placed the camera inside. That is when I heard a rattling noise. I looked around but saw nothing. Wary, I stood watching the area where the noise seemed to have originated. The rattle came again, someone's discarded tin cans maybe. Then, about 25 feet away, behind a three-foot boulder, the rattle came again. A patch of dark brown fur showed momentarily above the boulder. I picked up a fist-size rock from down by my feet and threw it over the boulder. Thirty pounds of baby bear stuck its head over the boulder. Another rock launched in his direction sent him waddling toward shelter. With my car door open, I stood scanning the area, looking for mama bear. I never did see her, but you can bet she was not far away. The morale to the story is: when out in the wilds, walk carefully, always remain on the watch, AND NEVER GO ALONE!





Let's Talk Gemology

By Edna B. Anthony, Gemologist



Scott Wilson

HUMITE GROUP

[NESOSILICATES]

CHONDRODITE, HUMITE, CLINOHUMITE and NORBERGITE

One year during a visit to the famed Tucson show, the author discovered a startlingly beautiful golden-yellow faceted gemstone identified as clinohumite, purported to be from the Lake Baikal region in Siberia. The dealer could provide little information about the gem's physical and optical properties. Thus began a search to determine how practical its use for jewelry might be.

The Mineralogical Record, Inc. publication *Glossary of Mineral Species* lists alleghanyite, chondrodite, clinohumite, humite, jerrygibbsite, leucophoenicite, manganhumite, norbergite, rubellite and sonolite as members of the humite group. Walter Schumann mentions none of these in his *Gemstones of the World*. Of the ten species, only chondrodite, clinohumite and norbergite are listed in Michael O'Donoghue's *American Nature Guides Rocks and Minerals*. Dr. Joel Arem adds humite to the list in his *Color Encyclopedia of Gemstones*. The discussion of the humite group in Cornelius S. Hurlbut, Jr. and Cornelis Klein's *Manual of Mineralogy* after J. D. Dana tells us

the members of the group are so similar in chemistry, structure, and physical characteristics that optical tests must be used to distinguish one from another. A structure that alternates layers composed of $Mg(OH,F)_2$ with others, which possess the atomic arrangement of olivine, create a close relationship to the structure of olivine. Hydroxyl end members are not known to occur, although the replacement of iron by OH can be extensive. Each specie is biaxial positive and exhibits a vitreous luster. Poor cleavage and infusibility are common to all. Exposure to long-wave ultra-violet light reveals a dull orange luminescence. While most specimens remain inert under short-wave light, the exceptions exhibit a bright yellow fluorescence. TiO_2 in humite and clinohumite greatly influences their optical properties.

All of the species develop in contact regions of metamorphic metasomatised limestone and dolomites and in skarn derived from such deposits, into which large amounts of magnesium, iron, aluminum and silicon have been introduced. They are seldom found in alkaline formations of igneous origin. Dr. Arem mentions a source in a carbonatite formation in Loolekop, East Transvaal in Africa, but he does not specify if the formation is of igneous magmatic or sedimentary origin. The American Geological Institute's *Glossary of Geology* states that although "carbonatite" has been used synonymously with "limestone," the more common use of the term designates an igneous rock. Wiberforce, Ontario, Canada is a source of crystals of the humite group, and deposits in Pargas, Finland and Kafveltorp, Orebro, Sweden produce yellow material. Noted sources of the specific species are listed in the narratives below. The characteristic small crystals of the group often harbor numerous inclusions and fractures, so faceted gems larger than three carats are extremely rare.

CHONDRODITE

This most common member of the humite group [$Mg_5(SiO_4)_2(F,OH)_2$] usually occurs in granular and massive forms. Its tiny transparent to translucent yellow, red and brown monoclinic crystals frequently show lamellar twinning. The *Manual of Mineralogy* tells us its association with graphite, phlogopite, pyr-

rhotite and spinel in crystalline limestone formations is highly characteristic. It occurs with fosterite, monticellite and wollastonite in skarn deposits. The Tilly Foster magnetite deposit near Brewster, New York yields most of the available gem crystals, although it is also found in Kafveltorp, Sweden, the Pargas area in Finland and Monte Somma, Italy. The density can vary from 3.16 – 3.26. It possesses a hardness of 6.5. Refractive readings range from 1.592 to 1.646 with a birefringence variation from 0.028 to 0.034. Dr. Arem lists pleochroism colors of very pale yellow/brownish yellow – colorless/yellowish green – colorless/pale green. The combination of toughness and good hardness with rich colors would make chondrodite a lovely gemstone, but the lack of size makes the few faceted gems prized additions to a collector's cabinet.

NORBERGITE

The granular form and the frequently highly modified yellowish to orange and brown transparent to translucent crystals of norbergite [$Mg_3(SiO_4)(F,OH)_2$] develop in the orthorhombic crystal system in contact regions in dolomite and limestone formations. The name reflects the source located in the Ostanmosa iron mine in Norberg, Sweden. The Franklin area of New Jersey also produces this specie of humite. Scratch tests reveal a hardness of 6.5 on the Mohs scale. With a range of 3.15 to 3.18, it has the lowest and least variable density of the four gem humites. Its refractive indices are also the lowest, with readings of 1.563 to 1.593 and a birefringence of 0.026 to 0.027. The dichroscope reveals the three pleochroism colors of pale yellow, very pale yellow, and colorless. Like chondrodite and humite, the crystals are so small that the very few gemstones cut from this material are the province of collectors.

HUMITE

Orthorhombic humite forms a series with monoclinic clinohumite. Its chemical formula can be written as $Mg_7(SiO_4)_3(F,OH)_2$. Gemmy, small yellow and intense orange translucent to transparent crystals are found in association with clinohumite and chondrodite at the Tilly Foster Mine. Humite exhibits a hardness of 6 on the Mohs scale, a density of 3.20 to 3.32, and

refractive index readings from 1.607 to 1.675. The birefringence varies from 0.029 to 0.031. Trichroism colors of yellow - colorless/pale yellow - colorless/pale yellow are seen with the dichroscope. Suitable rough for cutting is extremely small and almost unobtainable, so faceted humite is almost unknown. These tiny gems would certainly be collectors' items.

CLINOHUMITE

Monoclinic clinohumite [$Mg_9(SiO_4)_4(F,OH)_4$] is an end member of the humite to clinohumite series. The yellow, brown, orange, and white transparent to translucent crystals can be found in contact zones in dolomite formations, talc schists, and in serpentines. The Tilly Foster iron mine, the Pargas area in Finland, and the Llanos de Junar, Malaga, Spain are sources of this specie, but the largest and finest intense yellow and orange crystals are recovered in the Pamir Mountains and the Lake Baikal region of Siberia. At refractive indices of 1.631 to 1.668 and a birefringence of 0.037, the optics of the material from Siberia vary from the normal refractive readings of 1.629 to 1.674, with a birefringence range of 0.028 to 0.041. When viewed through the dichroscope, clinohumite's pleochroism colors of golden yellow/deep reddish yellow - pale yellow/orange yellow and pale yellow/orange yellow are revealed. A variation in density can range from 3.17 to 3.35, with a hardness of 6.

Gems cut from clinohumite are not common, but they can be larger and more abundant than gems of its sister species. They possess excellent toughness, a fair hardness, and bright intense colors. For those who appreciate the unique, one set in an appropriate ring mount and treated with care or a pair featured in earrings would be an asset to one's collection of jewelry.



Facet Designer's Workshop

By Ernie Hawes



Scott Wilson

Baubles & Ornaments

With the winter holiday season fast approaching, it is time to start thinking about gifts and tree decorating. Over the years, I have designed a couple of holiday ornaments. I have also designed a paper weight that would make a nice present for someone special. The “ornaments” were really meant to be drops on earrings, but they look like some of the fancy ornaments placed on Christmas trees. The paper weight certainly should qualify as a bauble.

Looking over designs I created in the past, I felt some refinement was in order for the paper weight. I also thought of an interesting variation for one of the original ornaments. So, that is what you are getting in this issue. Both designs have some unusual characteristics that should be reviewed before you cut either of them.

The first design I call simply, **Paper Weight II**. It is not meant to have a lot of brilliance but rather to generate an interesting play of surface reflections and some play of reflections from within it. Obviously, it should be cut from a large piece of rough. Slag glass or a large piece of quartz would be very appropriate. This design differs from **Paper**

Weight I very little, but I feel that it has a more pleasing curve from the pavilion to the crown. I stress cutting the crown first and have included the girdle as the first row of facets on the crown. Rough cutting the “base” facet by hand before dopping seems to be the logical first step. You will end up using your 45 degree adapter twice to finish both the tiny table facet and the base. One option for the base would be to finish with a 600 grit lap rather than polishing it. The frosted appearance is appealing and could be engraved or carved, depending upon whether you have the required tools or know someone who does this type of work. The girdle is unusual in that it ends up being a series of triangles instead of the usual long, thin rectangles. This design will certainly be a test of patience, partly because of the large number of facets, but also because many facets will be large. These larger facets will require a considerably longer time to render a polish. However, I believe the result will be well worth the time and effort. It should make a real keepsake for anyone fortunate enough to receive it.

The second design I call **Holiday Ornament 2000**. It is an elaboration on the ornament that I did a few years ago. A long tourmaline crystal would be a desirable gem material for this design, although many other natural or man made materials would work just as well.

This design has no girdle or table, but you may want to start by cutting a preform girdle at 90 degrees. This could make it easier to achieve even meets on the facet rows adjoining the crown and pavilion. It also would help in getting exact sizing for cutting a matched pair for earrings. Cutting the pavilion will require considerable care to avoid breaking the tip or knocking the stone off the dop. I believe you should always hold the stone and not the dop or quill when faceting. This is particularly important when faceting a long design such as this one.

My wife has already placed an order for these to be dangling drops on a pair of diamond earrings. I will do the girdle preform described above. Now, I just need to find two matched pieces of suitable rough. If I'm lucky, I may find a really long piece that I can preform and then cut in half to facet a truly matched pair.



Special Dates for Guild Members

Moss Aubrey will celebrate his birthday October 29. Merrill O. Murphy and his wife, Jerry will celebrate their **60th wedding anniversary** October 31. What a marvelous achievement! Becky Hawes will celebrate her birthday November 1. Larry Plunket will celebrate his birthday November 10. Maria Traulsen will celebrate her birthday November 23. Russell and Betty Annis will celebrate their **50th wedding anniversary** November 24. Another great milestone! Gary and Rainy Peters will celebrate their 21st wedding anniversary December 23. Congratulations to all!



Two Guild Couples Celebrate Special Wedding Anniversaries

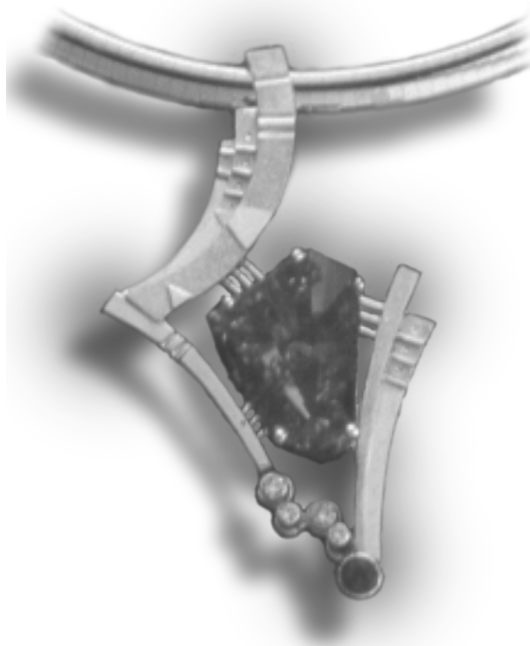
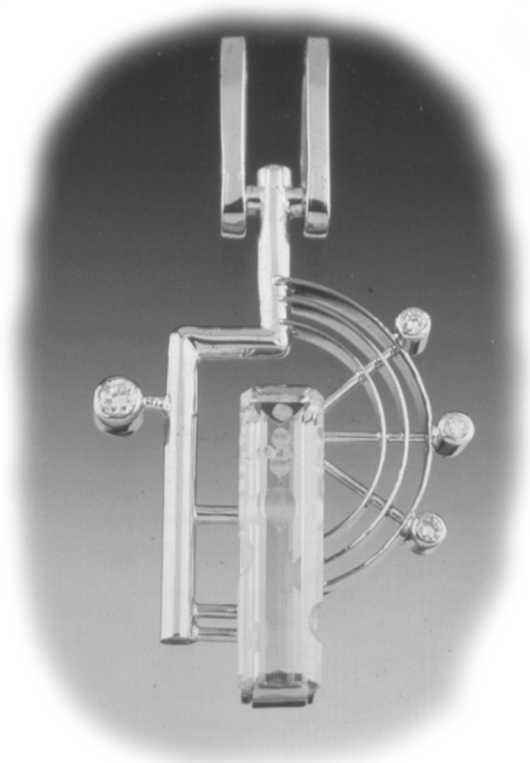
The New Mexico Faceters Guild wishes to recognize Merrill O. and Jerry Murphy and Russell and Betty Annis. Merrill and Jerry will celebrate their 60th wedding anniversary October 31, and Russell and Betty will celebrate their 50th wedding anniversary November 24. The Guild extends to the two couples our heartiest congratulations!



Gary & Rainy Peters Win Awards

The Albuquerque Journal, dated October 2, 2000, announced that Gary and Rainy Peters won one of the first place awards and one of the honorable mentions in this year's "All That Glitters" Jewelry Competition. The annual event is sponsored by the New Mexico Jewelers Association and entertains several categories of jewelry design. Gary and Rainy Peters won a first place with a gold pendant that featured a faceted and carved emerald cut aquamarine accented by bezel-set diamonds. They won an honorable mention for a gold pendant that showcased a faceted and carved irregular-shaped ametrine accented by an amethyst and diamonds in bezels. Congratulations!

The top photograph shows the Peters' winning design. The 14Kt. pendant is set with a long, thin emerald cut aquamarine that had small bubbles carved in the pavilion. The bottom photograph shows a 14Kt. pendant that features a faceted and carved amethyst with bubbles carved in the pavilion, which received an honorable mention. Both pieces featured Gary's superb hand fabrication techniques.





Advertisement

Steve Attaway lists for sale an **eighteen-inch vibratory flat lap** made by Contempo Lapidary. The unit comes with two trays, one for grinding and one for polishing. His asking price is \$150. Steve may be reached by phone at 505-281-4163 and by e-mail: attaway@highfiber.com

Moss Aubrey lists the following items for sale: **Sphere Cutter:** This is a home-made device for cutting small spheres. Consists of two electric motors mounted on a board to allow re-positioning. I never used this, so I cannot assist in its operation. \$10./ **Lamps:** Four electric swing arm lamps, suitable for workshop or trade show. One of the base clamps needs to be altered, but three are operational. \$15 for all./ **Light box.** This is a metal box with a glass lid and light fixture inside. It's a commercial light for recessed ceiling mount, but it makes a good box for examining gem rough. Some electrical cord and plug (120 v.) will be needed. \$15./ Moss may be reached by phone at 505-842-6968 or e-mail: DRsAubrey@aol.com.

Heidi Ruffner lists for sale a wooden antique jeweler's bench from the 1920's; asking price is \$225. Heidi may be contacted by phone at 505-275-5764.



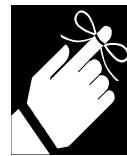
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NMFG Back Issues

Back issues of the *New Mexico Facetor* are available for all of 1999, all of 1998, and much of 1997. Please contact the Editor for any requests for back issues. Thank you.



**Don't forget:
next meeting
is November**

9, 2000 at 7:00 pm.

**Meeting Location:
NM Museum of
Natural History.
Dues are \$20.**

**Please send the editors
photos of your work for the
next newsletter!**

