

The New Mexico Facetor

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The Prez Sez:

By Moss Aubrey, Ph.D.

My Penultimate Column

Well, first off, there is no special significance to the title of this Prez Sez. I just never had a chance to use the word penultimate in print. In actuality, it is a fitting title for my next to the last column I write as Guild President. I have been thinking about that and what it has been like for me, not only to be associated with such a dynamic and interesting group, but to take the helm from such a talented and dedicated predecessor. My thoughts have ranged over what we have done and what I have written over the past two years.

My columns have given me a place to share my thoughts on an assortment of issues. I explored the sometimes competing dynamics of hobby faceting versus limited professional cutting and retail sales. Following with that, I reported on the troubles of the Montana mining ventures, the status of which is about the same as it was two years ago. I described how impressed I was by the rhodocrosite at the Denver museum, and I hoped that such beauty will continue to find its way to places for public viewing. I have written more than once how concerned I am over misleading and deceptive labeling, dubious promotions, and professional relationships. My feelings on those issues have not changed, and they remain strong. I have exhorted all of you to be involved, to contribute, to help out, and to share your excitement. I have outlined some of the changes we as a group have mulled over and still have to consider in the future. Finally, there is my general musings on why these gemstones are so absolutely appealing!

Show and tell has been a great way to see how newcomers are developing their talent. Louie's workshops are definitely helping to get people grounded in the basics. It has been exciting to see how seasoned cutters try new ideas and new materials. I can still picture that Oregon sunstone that Steve carved, and all of the wonderful stones and jewelry that our members shared with us during these meetings

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Casa de Oro

By Karen Fitzpatrick and Mark Guerin

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Guild members, Karen Fitzpatrick and Mark Guerin opened a new jewelry store called Casa de Oro. The address is 3751 Southern Blvd. in Rio Rancho, New Mexico, in the shopping center on the north side, directly after the turn west onto Southern Blvd. from Hwy. #528. Karen and Mark purchased the old Harris Jewelers, remodeled the store, and furnished new cases. The new look utilizes a “platinum and peach” color scheme.


Karen and Mark collaborate on their own designs for jewelry and display their line of fine jewelry and pearls. They also feature local gem artisans on a consignment basis. Many of their showcases display the work of several New Mexico Faceters Guild members. Karen, a graduate gemologist, also evaluates gems and writes appraisals.

Karen and Mark have quickly outgrown their store space and leased the old credit union location next door, which will nearly triple their square footage. Karen and Mark will soon have more space for the other gem and jewelry equipment that now occupies space in a garage. We wish them good luck in their new enterprise.

Our speakers have been great. Gary Warner taught us about turquoise treatments and grading. Paul took us on a trip to Africa. He later explained what causes color in gemstones and then (even later) explained phenomena in gemstones. Herb and Maria toured us through Australia, and Will showed us the thermal activity from the geysers of Yellowstone National Park. Outside speakers taught us about crystal classes, explained the diamond deposits of Ghana and Yogo sapphires, and related the approaches used by gemologists to identify gem materials.

Our Guild newsletter has been fantastic! Thanks to our editor for summarizing the news of the gem world. I know that reading and reporting from so many other sources is very time consuming. Thanks to those in our Guild who have submitted such great articles on the many technical points to help improve our cutting skills, as well as about grit sizes and adhesions, and gemstone photography. Thank you, Merrill O. Murphy, Steve Attaway, Paul Hlava, and Scott and Susan Wilson. Thank you, Ernie Hawes for designing new diagrams to try out! And, of course, Edna Anthony’s well-researched gemological columns are always thoughtful and enlightening. Many of these fine articles have been re-printed in other faceting guild newsletters in this country and overseas.

For me, this has been an very exciting and rewarding two years. I hope it has for you as well. If not, make it that way! This group certainly offers you that opportunity. The Guild provides a very good forum to express and expand your creativity.



**Don't forget:
next meeting
is on Novem-
ber 12, 1998 at 7:00
pm. Dues are \$20.**



Steve Attaway’s carved opal flower pin in 14Kt. gold, with a round rubellite tourmaline accent. A warm wax sheet was used to form the lost wax pattern around the opal flower. The “leaves and stem” were fabricated and attached to the cast flower base.



Minutes of the NMFG Meeting

September 10, 1998

By Nancy L. Attaway

President Moss Aubrey called the meeting to order at 7:15 p.m. and welcomed everyone in attendance. He then asked for everyone to introduce themselves to the group.

Treasurer's Report

Treasurer Bill Andrzejewski reported:

Heading	Total
Previous Balance	\$1,063.12
Expenses	\$136.63
Deposits	\$40.00
Balance Forwarded	\$966.49

Old Business

The Guild picnic is scheduled for September 12 around noon at the home of Paul Hlava. Paul will have several pavilions erected for shade, and a grill will be available for cooking. Those planning to attend were asked to bring chairs, meats to grill, and a dish to share with others. Several members will be bringing hot and cold side dishes and various desserts. Soft drinks and flavored waters will be provided, as well as plates and utensils. One pavilion will house the various tailgate items for sale.

New Business

Paul Hlava mentioned that the annual gem, jewelry, and mineral show hosted by the Albuquerque Gem and Mineral Club will be scheduled for mid March, instead of the traditional date of the first weekend in March. The date

change will eliminate complications with other area shows. The weather should be warmer then, too. Paul is again serving as Co-Chairman of the 1999 show. He mentioned that the 1999 show will continue for three days, instead of the usual two. More information on the AGMC show and its schedule will be announced later.

Troy Smith announced the Christmas party plans made by Eileen Smith. The Guild Christmas Party is scheduled for December 12 at Capo's Villa Restaurant on 722 Central Avenue SW (8th and Central). Parking is available across the street from the restaurant. The Guild will occupy the separate party room from 5:00p.m. until 9:00p.m. We may order any entree from the menu. Door prizes are needed for the after-dinner drawing.

Will Moats mentioned that he recently visited Dr. Virgil Lueth, Curator of the Mineral Museum at the New Mexico Institute of Mining and Technology. Will said that Virgil volunteered to address the Guild sometime next year on the origins of turquoise. Virgil Lueth is an excellent speaker and is well versed on the mineral deposits in the southwest. Do not miss his talk.

Louie Natonek said that he will hold a beginners workshop in November, to be announced during the November meeting. Louie plans to hold several workshops for advanced faceters in 1999.

President Moss Aubrey read the list of the proposed slate of Guild officers who will serve in the next two year term. Susan Wilson accepted the office of President. Bill Andrzejewski remains Secretary/Treasurer. Bill Swantner accepted as Vice-President/Programs. Louie Natonek remains Vice-President/Workshops, but he requested help conducting workshops at his home. Nancy Att-

away continues as the Editor, and Steve Attaway remains Assistant Editor. Edna Anthony continues as the Guild Gemologist, and Paul Hlava remains the Guild Mineralogist. Russ Spiering accepted the role of Guild Librarian. Susan Wilson and Nancy Attaway will serve as Special Events Coordinators. The proposed slate of Guild officers will be published in the September/October 1998 issue of the New Mexico Faceter and voted upon during the November meeting.

Show and Tell

Troy Smith brought a perfume bottle that he rendered from several gem materials. He drilled a reservoir partway into a large quartz crystal. He carved a stopper from Australian chryso-prase and capped it with a carved lepidolite from the Harding Mine in New Mexico. A small oval opal was inset into one side of the lepidolite, which he carved to resemble a flame. He anchored the lepidolite to the chryso-prase with a brass pin and a dab of Crazy Glue and hid the seam beneath a sterling silver band. Troy used his hand-held flex-shaft for carving. Nice job, Troy.

Gary and Rainy Peters displayed a lovely gold pendant and earring ensemble that centered around clusters of Chatham created emerald crystals. They cast the pendant in 14Kt. gold and hand-fabricated the earrings from gold sheet and wire. The parts from gold sheet resembled ribbons that fluttered near the crystals and intertwined with the wire.

Elaine Weisman displayed a hand-made sterling silver pin that showcased a large blue-purple opal triangle that she carved. She reticulated with nickel silver over the sterling silver and soldered many small gold spheres into the pin design. An pretty oval rubellite accented the pin. Elaine enjoys

using classical metalsmithing techniques in her modern renditions of jewelry design.

Elaine also posed the question: "When does a pink tourmaline become a rubellite?" **Guild Mineralogist Paul Hlava** said that a pink tourmaline may be called a rubellite when the color saturation shows a deep enough intensity of red. He thought that the pink tourmaline in Elaine's pin contained enough red color saturation to be correctly termed a rubellite. Paul plans to ask several noted gem experts about this rubellite determination during the September 1998 Denver Gem and Mineral Show.

Will Moats brought two examples of natural turquoise in matrix that he collected from the #7 dump of the Lavender Pit at the mine in Bisbee, Arizona. Will worked at the mine during the late 1980's. He described the uniqueness of the high quality natural turquoise from Bisbee, and he related several interesting stories about his employment there. He said that the Bisbee turquoise occurred in veinlets in the Glance conglomerate in cretaceous rock.

Susan Wilson displayed two stones that she faceted in squares, a yellow beryl from the Ukraine and a pink tourmaline from Afghanistan. She thought that the yellow beryl windowed too much, because she used angles that she later determined to be too shallow. These angles were obtained from an old list from Al Huebler, who acquired the list from the Michigan Lapidary Society many years ago when the list was published. These angles were derived by Reg Thompson, a facet designer from years ago. Susan decided that the pavilion angles allowed the loss of too much light, and she will not use these recommended angles again. Susan cut the small pink tourmaline

with a deep pavilion that gave it a chunky appearance for carat yield.

Nancy Attaway displayed three stones that she cut, a large emerald-cut aquamarine from Mozambique, a triangular Brazilian citrine, and a large Bolivian ametrine tablet. The emerald cut aquamarine weighed over nine carats and exhibited a very deep blue hue. Nancy said that she had to re-cut part of the pavilion near the culet because of a series of chips that occurred along one side of the keel. She was able to finish the stone but was disappointed that she had to change her original design that she called "Emerald Glitter with Keel". She plans to facet another one with that pattern and have the design published in the *New Mexico Facetor*.

Nancy used the tribrite design for her citrine triangle, but thought that the design did not allow very much sparkle in large stones. She has used this diagram for small stones, and they all appeared to sparkle. She plans to look for another triangular design more suitable for large stones that will give a lot of glitter.

Steve Attaway had sliced several ametrine tablets for Nancy to facet. The one she showed tonight was large, but very thin. Nancy shaped the ametrine to resemble an antique beveled mirror. She cut one row of step cuts at 55 degrees on the pavilion and cut two rows of step cuts on the crown, one at 45 degrees and the other at 35 degrees. The ametrine is now ready for Steve to carve the tablet with a reverse intaglio design. He thinks that the beveled effect would show better if he reversed the tables.

Future Programs

Vice-President Susan Wilson has scheduled Douglas Irving for the meeting in November. Doug works as a professional geologist and travels

throughout the world in search of mineral prospects. Doug will talk about the diamond-bearing kimberlite areas in Canada and will relate his experiences in the countries he has visited, such as Madagascar.

Refreshments

Baked refreshments were brought by **Gary and Rainy Peters, Elaine Weisman, and Moss Aubrey**. Thank you all very much. **Nancy Attaway** volunteered to bring refreshments to the meeting in November. If **Gary and Rainy Peters** will be in town, they plan to bring additional refreshments.

Program Speaker

Our speaker, Scott Sucher cancelled his scheduled talk because of travel conflicts, but he promised to speak to the Guild next year. Gem dealer, Forrest Broadley from Santa Fe wants to speak on his gem buying trips. Dr. Virgil Lueth will speak on the origin of turquoise. Scott Sucher will talk about cutting the replicas of the world's famous diamonds and tell of his gem travels. Dr. Cornelis Klein will also address the Guild. Dr. Klein is an excellent speaker and a professor of mineralogy at the University of New Mexico.

Guild Mineralogist Paul Hlava graciously volunteered to present a lively discourse on the shapes of crystals and how they relate to faceting. Paul's presentations are very informative and entertaining. He establishes correlations between mineralogy and faceting problems, and he explains those concepts very well. A report of Paul's talk is in this issue of the *New Mexico Facetor*.



In the News

Angolan Diamonds

Source: The Economist August 22, 1998

Angola produces about 15% of the world's highest quality diamonds. Although an agreement exists with DeBeers, the Angolan government, who gained control again of the Cuango valley, has awarded diamond concessions outside of DeBeers. Angola contracted to give Russia diamond concessions in partial payment of loans for arms.

Illegal mining still occurs in Angola. Money has been poured into Angola to further develop the area. Operating in Angola has become hazardous for mining firms, as kidnapping and ambushes are common.

DeBeers Diamond Sales Down

Source: JCK August 1998

Diamond sales during the first half of 1998 fell to \$1.7 billion, 41% below the \$2.9 billion in sales for the same period last year. DeBeers blames an overstocked supply and contracts negotiated in 1997 with Asian markets. A DeBeers policy of restricted sales has kept diamond prices steady and has prevented a decline in consumer confidence.

Argyle Diamond Sales Up

Source: National Jeweler September 1, 1998 and Modern Jeweler 9/98

Argyle Diamond Mines reported that diamond sales rose 18% during the first half of 1998, up \$35 million. Strong sales in the U.S. reflected a demand for lesser valued goods.

Diamond Drilling Disclosure

Source: National Jeweler September 1, 1998 and JCK September 1998

Delegates from the World Federation of Diamond Bourses unanimously approved a resolution that requires the mandatory disclosure of laser drilling in diamonds for all World Federation of Diamond Bourses members. Effective January 1, 1999, laser drilling must be disclosed in writing when diamonds are offered for sale. The laser-drilling process uses intense heat that burns microscopic holes inside a diamond to eliminate dark inclusions. This leaves behind a microscopic channel that is sometimes bleached out and filled with wax and synthetic resins.

Synthetic Amethyst Detection

Source: National Jeweler September 1, 1998

Large amounts of synthetic amethyst are sold in the U.S. as natural. AGTA's Gem Lab in New York plans to introduce batch-testing this fall. Testing methods remain secret, but these same methods have nearly rid Bangkok of synthetic amethyst.

A polariscope detects the optical properties of gemstones, including refractive index and any stress present, and it can help detect synthetic amethyst. Look through the girdle at different angles with the polariscope. A microscope can show the presence of "bread crumb" inclusions, indicative of synthetic stones. Natural amethyst contains "fingerprint" inclusions, needle-like inclusions of iron, and hexagonal patterns from crystal growth. Natural amethyst shows colors that range from clear to dark purple. There are no colorless areas in synthetic amethyst, as the color is consistent throughout.

Scientists Build Diamonds

Source: National Jeweler September 1, 1998

Scientists at the University of Science and Technology in Hefei, China discovered a new way to create synthetic industrial diamonds. The process, called metallic reduction-pyrolysis-catalysis, includes heating carbon and sodium at temperatures lower than previously used. A composition of sodium, carbon tetrachloride, and a nickel-cobalt alloy is heated in a stainless steel container at 1,290 degrees F for 48 hours and allowed to cool at room temperature. Diamonds had been created by heating carbon, water, and metal to 1,470 degrees F.

Fine on Illegal Mussel Sales

Source: National Jeweler September 1, 1998 and Colored Stone November/December 1998

The Tennessee Shell Company pleaded guilty to felony charges and agreed to pay \$1 million in fines to the U. S. Fish and Wildlife Service. The Japanese-owned company was charged with illegally shipping thousands of pounds of freshwater mussel shells from American protected rivers in Michigan, Ohio, Kentucky, and West Virginia and sent to Japan.

New J.A. Ethics Plan

Source: National Jeweler August 16, 1998 and JCK September 1998

Ten state jewelry associations, including New Mexico, will test a code of ethics set by Jewelers of America before all members are required to follow the rules. The program will demonstrate that jewelers are committed to professional and ethical service to consumers.

Colored Moissanite For Sale

Source: *JCK* September 1998

The Jewelry Forrest in Dallas sold the first bluish green and light green faceted moissanite stones. According to C3 Inc., nearly any color may be made, but the company wants to concentrate on the colorless moissanite stones for now.

Report on Gem Treatment

Source: *National Jeweler* August 16, 1998 and *Colored Stone* September/October 1998

Gem Quality Institute, with gemological laboratories in Las Angeles and Chicago, submitted a new gem identification report that includes comprehensive information on the characteristics of a gem as measured by the GQI gemologists. The report focuses upon gem enhancements, descriptions, how extensive they are, and how treatments may affect the gemstones.

Gem Care List

Source: *JCK* September 1998

Many colored gemstones are listed from A to Z, and the proper gem care for each is described.

Madagascar Sapphire Ban

Source: *Colored Stone* September/October 1998

Madagascar has banned mining, purchase, and export of all sapphire from the northern part of the country since April, 1998. Anyone caught will be arrested. The purpose of the ban is to diminish the illegal mining that has nearly destroyed the Ankarana Forest, a special reserve included in the World Wildlife Fund's Amber Mountain Reserve. The ban makes no distinction between legal and illegal mining.

Sapphire from the northern region lies in alluvial deposits from a prehistoric river bed. Miners dug holes for sapphire under trees where the soil was less compacted. Continued funding from the World Wildlife Fund is contingent upon the government fixing the illegal mining problem within the reserve, slated for ecotourism. {*Editor's note: I heard at the Denver Gem and Mineral Show that the ban has recently been lifted.*}

Australia Describes Opal

Source: *Colored Stone* September/October 1998

The Australian Gem Industry Association has agreed upon an official standard terminology for its opal. The new list of terms has been published by the AGIA and called "Opal Nomenclature and Classification", and describes all types of opal. Australian law requires that each opal sold in the retail market be accompanied by a full written disclosure of the opal's characteristics.

North American Diamonds

Source: *Outside* October 1998

Outside Magazine reports on diamond mining in Wyoming, Colorado, and Canada and explains the potential for new discoveries. Parts of Wyoming, Montana, Utah, Idaho, Nevada, and Colorado compose the Wyoming Craton, an area that contains a high potential for the discovery of commercial diamond deposits. Geologists have mapped more than one hundred kimberlite pipes in the Wyoming Craton, and nearly eighty of these pipes are in Wyoming. The article relates the infamous Diamond Peak swindle of 1871-1872.

Canadian Diamond Mine

Source: *National Jeweler* October 1, 1998

Canada's first diamond mine, Broken Hill Proprietary Ekati mine is now open for production. The question is, who will distribute the rough. Negotiations with DeBeers are in session, but mineowners want a multi-channel marketing approach. The Ekati mine lies 200 km. south of the Arctic Circle and is expected to produce between 3 million and 4.5 million carats a year. BHP of Australia owns 51%, Dia Met Minerals of Canada has 29%, and the two geologists who discovered the diamond deposit have 10% each.

Fancy Colored Pearls

Source: *Modern Jeweler* October 1998 (see *JCK* October 1998 and *National Jeweler* October 16, 1998)

Modern Jeweler devoted nearly an entire issue to colored pearls. Most of the new fancy colors originate from the waters of Tahiti, but some are from China. Shades of brown and green, golds, and blues now join the pinks, oranges, blacks, and beiges for a wide variety in pearl colors. These pearls also come in many shapes and sizes.

No Tanzanites Yet

Source: *Colored Stone* November/December 1998

Massive clean-up work remains in progress at most of the tanzanite mines. The groundwater has not receded enough to mine at many of the sites, although a few mines are in operation. Prices on tanzanite continues to climb as rough supply dwindles and demand increases. Supplies were limited before the flood.



Program Speaker

By Paul Hlava

Crystallography and Crystal Shapes

Paul Hlava, who has made the study of mineralogy and crystallography a lifetime focus, explained the importance of knowing the characteristics of the different crystal forms. This knowledge leads to a better understanding of the behavior of a crystal during faceting. Such information can enable a faceter to dop a piece of gem rough to the best advantage, to determine which crystal axis shows the best color, and how to avoid cleavage planes.

Paul presented a brief review of some general crystal shapes known in the world of minerals, and he named many gemstones that were represented in most of those classifications. Every crystal form consists of a face or a set of faces related by symmetry, and all of the faces of that crystal form are the same shape and size. There are forty-eight basic crystal forms, and many variations and combinations are possible. Every crystal can have seven basic ways that an axis and a face may intersect.

Some crystal forms are described as being closed, as all the forms in the cubic crystal system (fluorite, diamond) or as in dipyramids (sapphire). The non-cubic crystal systems have many forms, such as prisms in the tetragonal system (zircon). Most of the crystal forms of similar shapes can be grouped into families. These have the same general angular relation to an axis, but have different numbers of faces, depending upon the crystal system. The major crystal form families include faces perpendicular to an axis (pedia, pinacoids), parallel to an axis (prisms), and at an angle (oblique) to an axis (pyramids, pinacoids). The minor crystal families include the sphenoid, the trapezohedron, and the scalenohedron.

The simplest crystal form has one face perpendicular to an axis and is called a pedion. Pinacoids have two faces perpendicular to an axis (a top and a bottom, a left and a right, etc.) More complicated forms exist that show two-, three-, four-, and six-fold symmetry. These include faces parallel to an axis (prism) or at an angle (oblique) to an axis (pyramid and dipyramid). Prisms may be orthorhombic (topaz) or hexagonal (beryl and apatite). Ditrigonal prisms have three sharp angles and three gentle angles, such as tourmaline. Tourmaline has no center of symmetry and can have different types of ends, with a pyramid on one end and a pedion flat on the other. The prism, pyramid, and dipyramid families includes trigonal, ditrigonal, tetragonal, ditetragonal, hexagonal, and

dihexagonal forms. The prism forms can also include monoclinic and orthorhombic forms. The very rare gem, benitoite is the only known gemstone in the ditrigonal dipyramidal crystal class.

The orientation of a gemstone may be located with visual observations. Paul recommended cutting the table on an emerald parallel to the C axis for the most saturated color. On the other hand, aquamarine cut perpendicular to the C axis will show the darkest blue color, but, unfortunately, the yield in carats will be low. On green tourmaline, Paul advised cutting the table parallel to the C axis, and he said to cut the ends fairly straight to prohibit the mixing of colors that deadens the stone. Since tourmaline is dichroic, it has a differential absorption, with both high and low absorption rates. Sapphires are sometimes zoned due to bands of color. Paul advised placing the area of a sapphire that shows the most color concentration in the culet. Ruby is dichroic and will appear deep red down the C axis and more orangey along the side axis.

Cleavage is the crystallographically-controlled breaking of a crystal. Every mineral has the ability to cleave, depending upon the degrees or levels of stress within the atomic structure. Diamonds have cleavage, and when they break, they expose the hardest face. This feature allows diamonds to cut other diamonds. The nodules sometimes found on one end of a tourmaline could indicate the presence of stress. Topaz should be dopped ten degrees off axis to avoid the cleavage plane that may slough off or peel during the polish stage.

The real complicated crystal forms are rare. Those include monoclinic (sphenoid), where two faces are oblique and diagonal to the C axis, and tetragonal disphenoid. A dome has two oblique faces across a mirror. Other forms: trigonal scalenohedron, tetragonal scalenohedron (chalcopyrite), trigonal trapezohedron, hexagonal trapezohedron, and rhombohedron (rhodochrosite).

Faceters work with many different types of natural gem materials, which can have crystal forms and behavior that present challenges to the gem artisan, who needs to consider color, clarity, and carat yield. A faceter familiar with the predicted behavior of varied crystal forms is better equipped at faceting all gem materials, especially the more difficult ones. Knowledge of crystal shapes and their behavior provides a faceter with an important guide to use when faceting and will help to produce better yields and more successful results.



Facet Designer's Workshop

By Ernie Hawes

“Objets d’Arte”

In previous columns around the holiday season, I have offered designs for “faceted ornaments.” Actually, these were teardrop or pendalogue designs meant for earrings or pendants. This year, I have decided to give you something different. We have all seen geometric shapes fashioned in crystal or colored glass. These are sometimes fairly large, but often are somewhat small, perhaps only an inch or so on a side. While they usually are cast in molds, they very well could be faceted. They are meant to be decorator pieces or sometimes paperweights. The better pieces are a bit pricey and could be worth the time of someone wishing to cut them for profit, especially if cut from clear or rutilated quartz. The more sophisticated boutiques, where items of this nature are found, refer to them by the French term “objets d’arte,” and well they should be, if cut and polished with care by a faceter.

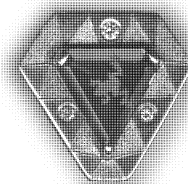
Three of these “objets d’arte” comprise our designs for this issue. The first two are simple pyramids with beveled bases, and the third is a design for a crystal paperweight. The angles of the pyramids could easily be adjusted to give a taller or shorter piece. I think three pyramids cut to different heights and sizes would make an attractive set. They would look very nice together as decor on a desk or credenza and, assuming you kept them for yourself, would become interesting conversation pieces to tell others about your faceting interests.

Faceting the pyramids will be a simple task until you get ready to polish them. I strongly recommend making a leather or hard felt polishing lap for your faceting machine and using cerium oxide, Linde A, or tin oxide as the polishing compound. An alternative would be one of the plastic films that already have the polishing agent bonded to the film. All of these will result in slightly rounded facet edges. Standard polishing laps may be used and will give flatter, sharper edged

facets. They do require a lot more time and all too often fail to give a good, scratch-free polish on large facets. Since I have not tried the colloidal polishes, I cannot say what kind of polish to expect. If you have them, then I would give them a try.

The paperweight design looks rather complicated, but it really is not. Polishing the facets will be much easier than on the pyramids. If you are willing to devote the time necessary and take reasonable care as you are faceting to avoid having to recut, then the result will be a piece worthy of a king, or princess, your mother, or your most cherished friend.

Now, go find some big pieces of glass, or better yet, some really big chunks of quartz.

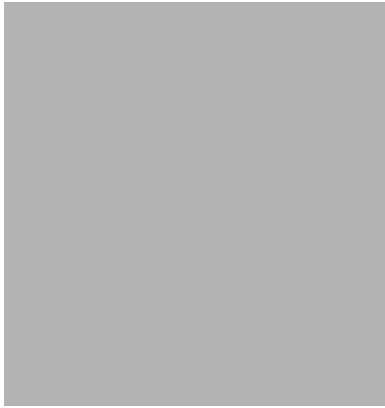


Here is a pin for those who often have a frog in their throat. Steve Attaway carved this little poison arrow frog in a peridot tablet faceted by his wife, Nancy Attaway. The pin is fabricated from 14Kt. gold with “gypsy” set diamonds. Thanks to Tony Anthony for showing Steve how to properly render a gypsy setting.



Gem Myth of the Month

By John Rhoads, D & J Rare Gems, Ltd.
raregems@amigo.net



Gem Myth of the Month: “Ametrine is citrine and amethyst glued together.” This myth was submitted to us by Nancy Attaway in New Mexico, who also included an amusing story related to ametrine. She heard this exact statement, that amethyst and citrine are glued together to make ametrine, voiced by a salesperson to a customer shopping in a fine jewelry store in Atlanta in 1985.

The existence of ametrine has been known for quite a few years. Ametrine occurs from a single mine in Bolivia, and it is a gemstone where both citrine and amethyst are present in the same crystal. When this material first appeared on the market during the 1980’s, there was quite a bit of speculation about it, that it was not a natural gem. It was thought that selective heating of amethyst gave ametrine its color.

When you view the final product, this deduction seems quite normal. Most of the gems have a 50/50 color split with a very straight line separating the two colors of purple and yellow. It was not until years later, after the first ametrine crystals appeared on the market, that it became obvious that ametrine was indeed a naturally occurring gem.

Most of the crystals we have seen are very rough. When cut in cross section, however, they show a pie-like division with alternating sections being amethyst and citrine. These crystals are then sliced and preformed with the color division present in each piece.

Ametrine rough appearing on the market shows that this is an exception and not the rule. Lower grades of rough do not display the distinct separation of color. Finished gems cut from this lower grade of rough appear a pale purplish orange and often has a “muddy” look. Cutters have managed to facet this material in patterns with improved optics to show a

highly desired sunset color and avoid the undesired “muddy” appearance. We have seen many ametrines faceted into emerald cuts with the color line in the center. This is thought to better show the color contrast between purple and yellow in the gem.

Today, the labs have learned to create ametrine artificially, and much of the ametrine material handled by bulk dealers at some of the gem shows is synthetic ametrine. If you are in doubt when purchasing an ametrine as to whether or not it is natural, then get it written on your receipt, or head for another dealer.

The story regarding the ametrine from Nancy Attaway begins at a party where everyone was finely dressed. Nancy noticed a stunning ametrine ensemble of bracelet, ring, and pendant worn by a woman, and she complimented her about the beautiful ametrine jewelry. Upon hearing the word “ametrine”, the woman became indignant with Nancy and quickly corrected her. “This is not ametrine, but very fine amapaz,” she said. “I purchased this from a very reputable jeweler in Santa Fe, who told me that it was amapaz, half amethyst and half topaz.”

Obviously, this was a case of a slick salesperson spinning a tale that would sell jewelry. Amethyst and topaz do not occur in the same crystal. They are from two entirely different crystal groups and are each a separate gem species. Amethyst belongs to the hexagonal crystal group, and topaz is a member of the orthorhombic crystal group. The only way that amethyst and topaz could occur within the same crystal would be if one were an inclusion of the other. Then, the crystal would not have the distinct color separation seen in ametrine.

What a pity that the salesperson in Santa Fe felt he had to use myth instead of truth to sell ametrine. As beautiful as ametrine is, it can very well stand on its own as a fine gem. The action of the salesperson who sold the ametrine jewelry not only misled the customer who purchased the ensemble, but he will, subsequently, mislead anyone else who saw the ametrine ensemble and make a comment on it. Because of an incorrect identity on ametrine, the owner of the ametrine ensemble will then tell the incorrect identity of the gem to others.

{See the Spring 1994 Issue of *Gems and Gemology* for a full report by GIA on Bolivian ametrine.}



Gemstone Chronicles

By Mark Liccini

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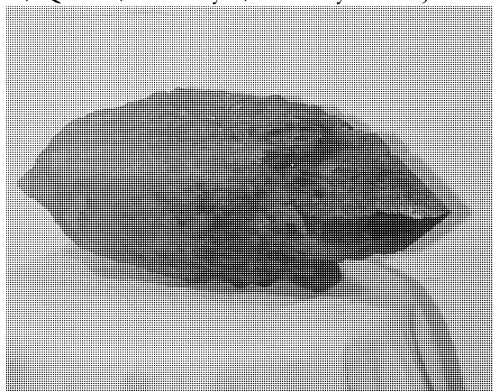
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Bolivian Amethyst and Ametrine

I want to tell an interesting story about the situation that involves amethyst and ametrine from Bolivia. I also would advise anyone to grab any ametrine rough that you see offered for sale, as it will become difficult to get.

An adventurer named John Sparks, an American, arrived in Brazil and established a cutting factory in the town of Governador Valadares. He worked almost exclusively for Salah, from Afghanistan, cutting kunzite and tourmalines. Salah later formed his own cutting business there and used only local cutters, leaving John without work. John then headed for the border between Bolivian and Brazil to buy amethyst and ametrine for himself.

Here, I would like to interject a brief history of the mine. The main mine was financed by the United States Government, using our tax money, with the idea that if they were mining amethyst, then they would not grow narcotics or traffic in drugs. In the beginning, there were two metals dealers, Ramiro Rameriz and Edgar Marancenbaum. Initially, they just sold the mondo, a term used to describe mine runs. If you have ever seen a crystal of Bolivian ametrine, then you would know that they occur in large sizes. The mine run is 2-300 grams up to several kilos in single pieces. The selling price for the mondo began at \$10 per kilogram at that time. {I have one large crystal that weighs 6.4 kilogram, I photographed it, and you may see it at <http://www.liccini.com/Collection/Quartz/Amethyst/Amethyst.htm>}



I purchased a ton of mondo some twenty years ago at that low price, and it was a real money maker for me. First, I processed it with cobbing hammers. I used carbide-tipped

hammers custom made by Tull Hardware in Idar-Oberstein, Germany. You must cobb the material first, because you cannot saw it. Entire crystals are covered with a few millimeters of clear quartz, and this coating will not permit you to see the exact locations of the clean areas inside the crystals.

The cobbing goes like this. First, you knock off the what is known as the "tail", the end away from the termination that resembles the root of a tooth. Any material found in this part will be tiny, but sometimes there is a thin vein of amethyst running up the center of the white quartz. The next step is to break the crystal down. If you see a major crack on the surface, then you would hammer there first. If the crystal lacks a visible crack to begin with, then you would try to peel off the clear quartz without hitting the amethyst underneath. At that point, it becomes a matter of using smaller hammers to knock away at each flaw or crack until you have a flawless piece. A production factory would begin the sawing just after the initial hammering, which is much faster. The reason for cobbing first and not sawing is that you can go through the clean area as you are sawing blind into the crystal. There is also all the wear and tear on those expensive diamond sawblades to consider. My experience was that the material would take out 30% net flawless, and 1/3 or net 10% of the starting weight was top dark color material.

In the beginning, there were really only a handful of large companies in Brazil buying rough from the mine. The production of the mine ran about 12 tons per month back then. Two major buyers operated at that time. One was John Batista (the Baptist), a huge dealer in Belo Horizonte, Minas Gerais, Brazil. The other was Miranda, the largest lapidary firm in Governador Valadares, Minas Gerais. At one point, Miranda bought a 60-ton lot and actually contracted several hundred lapidaries to process just the ametrine. Likely, the largest buyer of those cut stones was a huge firm in New York, Ambras trading. Since they were selling only about 10-ton minimums at the mine site, I was buying one ton lots from John Batista. I processed the material in a cobbing factory that I owned in Valadares.

Anyway, back to my story. Ramiro was described as the type of person who can never be satisfied. John Sparks visited Ramiro's mine and demonstrated how to cobb the material. John took Ramiro aside and proposed a scheme to him. John's idea was to establish a monopoly of the amethyst and ametrine, in exchange for a part ownership in the mine. The new partnership excluded Edgar Marancenbaum totally, who then began mining a less productive area that was adjacent to their mine.

Then, John moved his cutting factory and all of his Brazilian workers over to Bolivia. They soon stopped selling mondo to the Brazilians, began their cutting operation, but only offered the sawed rough for sale. They sold that rough exclusively to Asia for \$3,000 per kilogram for the better quality grades.

The problem with their plan was that Ramiro had been throwing 12 tons a month of material on the market for 15 years prior, and they had to wait for all that material to be consumed. They soon contacted me with a proposition: that I visit my friend and associate, Ambras and present him with the situation about how the sources in Brazil had been cut out of the sales loop. It seemed to me that the situation had become a kind of extortion, and I wanted no part in it. However, I did brag that I could improve his amethyst based on some minor experimentation I performed on my first lots. So, Ramiro sent me kilos to experiment with. The research and development was quite expensive, and he refused to pay for any of it. However, I received a few giant crystals for my collection as payment for my work.

Here is what I discovered how to do successfully. I was able to convert the lighter amethyst material into a medium, darker color. More significantly, however, I was able to change the brown "trine" part of the ametrine to amethyst. This is quite notable, as the "trine" end had no value by itself at that time. Anyway, John and Ramiro, being insatiable, approached another known treater, Pollak in San Diego, with the plan to cut me out of the treatment loop. To this date, I understand that he remains unsuccessful in his attempts to copy my formula.

Now, they are not selling any rough, not even any that is sawed. They hope to monopolize the market in cut stones, however. The last of the Brazilian material, 3 tons, just waste cobbled, was offered to me one year ago. I managed to get 100 kilos of it, but I could not find people here in the States to cobb it. I had delayed too long, and the 3 tons were shipped to India. This is why we should try to get all the ametrine rough that we can. The plan of these greedy guys is going to work, unfortunately. Within a couple more years, perhaps, there will be no Bolivian amethyst and ametrine rough for sale.

This is what I propose to any takers out there. Edgar has stockpiled 10 tons of a lower material. This material will take out only about 5-10% flawless, maybe 2% dark color. He would be willing to take \$10 per kilogram, with the addition of a few bucks in shipping costs.

I have also spotted a stock of material in the States, and I think he has 3 tons of it. It is with a mineral dealer who does not know he has facet rough in his hands. He bought the material in Minas from John Batista to sell as specimens. He is having no luck, as the specimens are all chipped and beat up crystals. He now wants \$10-15 per pound, and I am sure will sell as little as 100 kilos to me.

Brazilian Topaz

I recently received an inquiry regarding some topaz. A man acquired four pieces of natural light blue topaz that weighed 2271 grams total weight. He also bought seven pieces of colorless topaz that weighed 1130 grams total weight and a parcel of light blue topaz that weighed 357 grams. The last parcel, which he said that he purchased in Brazil, contained many small pieces that ran about ten to twenty carats for each piece, and he was uncertain whether the material had been treated or not.

I think the material is all from Brazil, judging by the sizes of the crystals. Since this man was certain that it was of Brazilian origin, then I think that it was from the Marambia mine. This is how I determined this. There are three locations (that I know of) of white topaz occurring in Brazil. The Rondonia mine is one site and is located in the State of Rondonia, where it meets the Amazonas. There, the crystals are alluvial, and the largest you will find is 100-150 grams. However, most fall under 30 grams. By its common sizes, I eliminate it as that material. Another site is in the state of Espirito Santo, near the city of Mimosa do Sul. The ones from there can occur in larger sizes, but it is a more recent discovery. If it had been obtained in Brazil a few years ago, I would then lean toward identifying Marmabia as the origin, the third and most famous location. Let's assume it is from Marambia.

Marambia is an area in the northern part of the state of Minas Gerias, about two to three hours drive north of the city of Teflo Otoni. It is quite large, and I would guess contains about 100 square miles. At the center of this area lies the small village of Padre Paisio. At the height of the topaz boom of the 1980's, it was a bustling trading and sawing center for the local topaz. The topaz there was originally found in the creek beds, where it had washed down from the surrounding hilly countryside. Before topaz treatment was discovered, it was considered near worthless and traded for \$0.50 per kilogram, with the exception of the rare natural blues. The only guideline I can give is the value of the natural blue topaz at the time, which was the selling price of the cut stones, \$300 per carat. Compare this to the white topaz value at the height of the topaz boom. In the unsawed semi-clean white topaz

rough, up to 1-2 kilos, the price was \$50-\$150 per kilogram. Sawed flawless lots went from \$250-\$350 per kilogram.

Larger crystals were found, and some of these weighed 10-20 kilos and more. The largest I ever worked with weighed 36 kilos and was flawless. One crystal was found about five years ago in the Trace Barros area of Marambia, and that one weighed a couple of tons (estimated weight, as it was not taken out whole, but was broken in place to remove the cutting rough), and ran \$500-\$1,000 per kilogram and up. Today, there is little to no production in that area. There is a lack of demand for blue topaz now. Also, most of the public mining areas were flooded about five years ago by the Government, under pressure of international environmental groups. Potential still lies in private lands, fazendas (farms), but these grow coffee more profitably nowadays.

Topaz Treatment

How you process your topaz depends upon the origin of the material and the colors you want to achieve. The three basic means of irradiation are Cobalt 60 (Gamma), Linear Accelerator (Electrons), and Nuclear (neutron). If you know the source of the material, then I can tell you what to expect, including formulas and also your approximate costs. Almost all such treaters ask for a minimum lot size, but 6 pounds fills most requirements. I could write a 10-page treatise about this, but I think it best if I narrow it down to one specific mine. I would add one thing, though, and that is the natural blue topaz is rare from any mine in the world. It seems unlikely you would fall into 6 pounds of it. I would suspect that you have material that has already been irradiated. If you do not know the origin of the material, then put a photo up at your website, link here, and I can likely identify it from the photo. If I cannot, then there is a way to test it and determine the source from most of the mines. The test is inexpensive, and I can recommend a tester, with his permission.

Cooking Corundum

I know that performing high temperature heat-treatment of sapphire can require an large outlay of money for the high-tech equipment. However, you can do a lot of heating with just a toaster oven. The rest, including half of your corundum treating, can be done with just a \$300-\$700 cast-iron oven. For the people doing only handfuls, a lot of work can be accomplished with just a test tube and a Busen burner. There are many unreported treatments, but nearly all

formulas are published. There are numerous U.S. Patents and so many books available that you just can't read them all. Some notables are *Gemstone Enhancements* by Kurt Nassau; ISBN 0 7506 1797 7; or the *Heat Treatment of Ruby and Sapphire* by Ted Themelis; Library of Congress #90-82001; and *Gemstone & Chemicals* by George W. Fischer. Lapidary Journal and GIA sells these books. There is so much more information available nowadays from the Internet; see all the U.S. Government test results on gemstones. (Hey! There was a war on, remember?) You can find written instructions going back to ancient Egypt on how to treat gemstones. Get with a specialist in antique lapidary books and research Peri Lithon and John Sinkankas. He advertises in Lapidary Journal. It only contains lab notes, but I am working on it. {Check out this URL on how to do it. <http://www.licini.com/Treating/TreatIndex.htm>} I'll sell you some white rough for practice so you can learn the skills to treat it yourself and bring the stone to its fullest beauty. Treating gemstones is part of the lapidary process. Most treatments must be done during or directly after the lapidary process. You may also consider using subcontractors. I have them listed, too.

Emeralds

I now find it necessary to test emeralds with a hot pin in the center of the crystal, because many are being treated with a plastic filling. I recommend that you buy emerald rough from very reputable dealers who have the skills to test it. Brazil has wonderful emerald from the Socotto mine, Nova Era, Santa Terezinha, and the reputed Tocantins. It is all cleaned and oiled before sale with just a surface oiling to show color and clarity. The Socotto mine in Bahia produces 5 tons of emerald rough every month, and every drop of it is quickly sold. If they filled it all with plastic, then no one would buy any.

The same goes for Santa Terezinha, as all sales are legitimate there, also. The real problem is with Nova Era. At first, the miners were all Bahian wildcatters, but soon the local authorities made a partnership with one mining company and kicked out all the Bahians. Now, it is just a scam. Nova Era produces emerald as fine as Columbia. However, when they sell you a parcel, they call ahead to the authorities, who seize it as you are trying to transport it. They take it back and sell it all over again. They also make fake crystals and fill the centers with plastic. In Brazil, you must test any material from Nova Era.

You can determine which emeralds need testing. Nova Era material looks like material from Muzo, Columbia, in that it exhibits strong to medium to light colors, very transparent and clean. Material from Santa Terezinha is transparent, dark green, and nearly all of them have black carbon

spots. Material from Socotto is all translucent, light to dark green, and comes in big crystals. Emeralds from there get gemmy, but not transparent. These examples of emerald rough are all distinctively different. The last location, Tocantins, I am not sure even exists. I think it is a salt mine, but I am not completely sure. I have never seen any rough from there, but other buyers have described it to me. The material sounds like rough of Santa Terezinha origin, a neighboring state to Tocantins. My sources tell me that when they bring the subject up, they hear "discovered" it in Tocantins.

{Editor's comment: Mark Licini is a long time dealer in colored gemstones and is also a faceter. He has traveled to many different countries, to South America extensively and knows the various mining regions on a first-hand basis.}



Susan Wilson Earns Perfect Score

GIA informed Susan Wilson, Ph.D. that she earned a perfect score on the 1998 Gem and Gemology Challenge Exam. This marks her second one, as she scored a 100% on the 1997 Gems and Gemology Challenge Exam. Her name will appear in the Fall 1998 Issue of Gems and Gemology with the others who earned a perfect score.



Obituary: Harvey A. Lawler, 1915-1998

By Nancy L. Attaway, Editor

The New Mexico Faceters Guild lost one of its long-time members on October 7, 1998 when Harvey Lawler died. Harvey enjoyed faceting gemstones in unique designs, and he carved scenes and statuettes from jade and marble. Harvey invented tools and machines for faceting, carving, and jewelrywork. He remained active faceting gems, fabricating jewelry, and carving sculptures in his lapidary/machine shop.

Harvey Alexander Lawler was born in Cudahy, Wisconsin on March 22, 1915. He worked at Cutler Hammer in Milwau-

kee, Wisconsin, where he acquired an apprenticeship as a tool and die maker. Harvey served three years in the U.S. Navy during World War Two. He was married to Ruby Kret Lawler for fifty-seven years, and they have six children, with grandchildren, great-grandchildren, nieces, and nephews.

Harvey owned and operated a gunsmith shop in Cudahy after the war. He then moved to New Berlin, Wisconsin and worked as a technical engineer at the Milwaukee School of Engineering, and later at Marquette University. He retired from Marquette University after sixteen years and moved to Rio Rancho, New Mexico in 1979 for a milder climate.

Harvey enjoyed hunting and being outdoors. He held the wilderness in high regard. Harvey was a contributing member of the New Mexico Faceters Guild and a very accomplished gem artisan. He was always willing to hear and read about new gemstone techniques, and he was glad to share his ideas and show his work. Harvey's love of gems and his excitement for rendering gemstone art inspired him to create wonderful pieces in stone, a legacy that his family will always treasure. The New Mexico Faceters Guild has lost a talented member, but we were enriched for having known him. Farewell, Harvey.

The following article is a reprint from the October, 1993 Issue of the New Mexico Faceter, where Merrill O. Murphy describes some of Harvey's work as "A Stroke of Genius". We included this article as a tribute to Harvey.



FOR WHAT IT'S WORTH

By Merrill O. Murphy

A STROKE OF GENIUS

Some time ago, a few amateur faceters began experimenting with what I call incised facets and concave facets. As these terms indicate, the incised or concave facets were not the normal flat facets on a gem surface. They were, instead, recessed into the gem surfaces or scalloped into the girdle edges. These techniques were borrowed from gem carving and first applied commercially to faceting in connection with rather thin pieces of diamond having a relatively great width. A normal crown was faceted on these gems, and the pavilion

occupied the remaining space allowed by the thin rough. The shallow pavilion was flattened parallel to the table, and a number of V-shaped grooves with 40 degree sides were cut, crisscross, into the flattened pavilion. The net result showed a pavilion consisting of many, tiny, four-sided pyramids. After polishing, this very shallow pavilion yielded reasonably good brilliance for a gem with a large diameter, but a low carat weight. However, this design did not “catch on”.

When a gem is faceted as described above, each of the little pyramids acts as a tiny, single-cut pavilion that reflects light rays back to the crown of the stone. All faceters have noted that each pavilion design results in a different appearance when the gem is viewed from the top. The incised pavilions certainly gave the gem a “different” appearance, but some customers may not have cared for that “different” look. Anyway, that cut in diamonds never became popular.

Norm Jarvi of Facetron - Jarvi Tool Company, maker of the Facetron faceting machine, noted that some amateurs (and a few professionals) were experimenting with incised and concave facets to create colored gems of striking appearance. Unlike the diamond application, there was no attempt to make low-weight gems appear large. The emphasis was on a striking and unusual appearance. Early examples were pretty much incised and/or concaved by hand, a rather inaccurate process. In response, Jarvi developed and marketed a machine to do the job more accurately and called it the Facetron Special Cut Machine (SCM). SCM used a Facetron base and a Facetron faceting head and mast, but added a second motor on a positioning plate. The second motor drove small diamond wheels to cut and polish the desired concaved and incised lines. The faceting head held the stone in the usual manner and provided indexing and protractor functions. The Jarvi kit, attachments and devices, was priced in the \$600 range. I believe Jarvi also made a complete machine, which included the faceting head and mast, at a higher price. Other manufacturers of faceting equipment may have offered similar kits.

In the New Mexico Faceters Guild, Louie Natonek and Ernie Hawes became interested in the Jarvi SCM, and Louie purchased a kit. About the same time, Steve Attaway became excited by the incised and concaved gems pictured in *Lapidary Journal*. He worked out a few designs, and he and wife, Nancy, tried their hand at them. They were cutting colored gems with the incising technique applied to the pavilion. The result was a quite interesting light pattern and a shallower, easier to mount gem. But the technique was slow and difficult using standard faceting and carving tools in lieu of the Jarvi SCM.

At this point, I pointed out that it should be possible to make a little machine, smaller, less complex, and cheaper than the Jarvi device to mechanize the process. That suggestion was printed in the July, 1993 Issue of the *New Mexico Faceter*.

New Mexico Faceters Guild member, Harvey Lawler, is a 78-year-old retired tool and die expert, originally from the Milwaukee area. Harvey's grandfather was a watchmaker, and he taught Harvey about the little shafts, gears, and bearings used in watches. Harvey was a bright and interested pupil. From his grandfather, he learned to try for perfection. His father was Irish, his mother German. He picked up an interesting German accent from his mother and has it still. I am guessing his tall, slender physique, and wry humor may have come to him from his father. The Irish have a reputation for wiry strength and a sense of humor that never fails.

Give Harvey an English hunting cap, a somber overcoat, and a calabash pipe, and the Harvey Lawler of today could pose for photographs as Sherlock Holmes. He has the same sharp features, the nose from an eagle, and the same sharp and searching eyes. But Holmes projected a sense of haughty superiority. Harvey is not like that. He has strong opinions, true enough. An example is his steadfast belief that faceting machines with a mast are basically less stable than those, like the Raytech faceter, which have no mast. Using his background in mechanics, Harvey can provide a solid argument for his beliefs. However, Harvey Lawler is a humble man, as you will discover later in this article.

Harvey became a machinist/tool and die maker early in life, spending time with the U.S. Navy. He was later doing machinist work in a power plant work and teaching the machinist's trade at university level. He spent seven years at the Milwaukee School of Engineering before shifting over to Marquette University for 18 years. He performed special machinist tasks and worked as a machine shop lab instructor at both universities. Not satisfied with his take-home pay, Harvey operated his own gunsmithing shop and became a licensed operator of stationary power generation equipment and high pressure steam boilers. He added this later capability to the work he did at Marquette. During that period, he found time to become an amateur (Ham) radio operator.

The Lawler family had a Milwaukee neighbor who retired and moved to Rio Rancho, New Mexico. In 1978 the Lawlers visited this former neighbor in his new home. Harvey's friend showed him around some of the mountain areas and open spaces of the Land of Enchantment. Harvey liked what he saw. The winter of 1978-79 was the clincher, as the snow and the cold in Milwaukee were miserable that winter.

The snow became so deep that there was no place left to deposit it when Harvey graded it off his driveway. As if that was not enough, ice froze in the gutters and downspouts and backed up under the roof shingles. When the furnace ran, the ice melted from under the shingles and dripped into the bedrooms below. The Lawlers had enough of winter. When April 1979 came around, Harvey retired. It took a six-week-long garage and yard sale to dispose of all the goodies Harvey had stashed away in his years of machine work, but he did it. They moved to Rio Rancho and bought a house down the street from their old Milwaukee neighbor.

Harvey visited the New Mexico State Fair in Albuquerque in the fall of 1979. There, he happened to meet Ernie Hawes, who was demonstrating gem faceting and trying to build interest in a local faceters guild. Harvey signed up and became one of the charter members of the New Mexico Faceters Guild. He learned to facet and even built his own heavy-duty handpiece and indexing head for a mastless faceting machine. He does remarkable faceting and mounts many of his stones in precious metals.

However, Harvey was growing restless. He had mastered faceting and jewelry-making. The fun and excitement of gem-cutting was wearing thin. Then he read my comments to the effect that building a machine for incising and cutting concave facets should not be too difficult. His master machinist's mind snapped to attention. He dragged a couple of thick pieces of aluminum plate from under the workbench, took them to the drill press, lathe and milling machine, and he started to build. A few days ago, Harvey showed us a little machine occupying less than a 6 and 1/2-inch cube of space, and he showed us stones with incised pavilion facets that he had cut on his new machine.

Harvey's machine includes an indexing head and draw-type chuck similar to that used on the mastless faceting machines. The stone can be facet cut in the standard manner and then moved, dop and all, to the chuck on the incising machine. (If a scalloped girdle or concave facets are planned, a rounded diamond bur of appropriate size is used.) A simple protractor is used to tilt the stone pavilion for cutting incised facets at a constant depth. A hand screw allows the movement of the indexing head toward the diamond bur to cut a straight-line or V-shaped channel. In Harvey's machine, the diamond-charged wheels or burs are driven by a flexible shaft from a heavy-duty Dremel motorized hand tool. A simple fixture and hand screw locks the chuck of the flexible shaft in alignment with the indexing head.

Those of us who have seen Harvey's machine and the work that it can do believe the design is patentable. However,

Harvey doesn't want to go that route. He says, "Let's put it into the public domain and let anyone build one like it." He is justifiably proud of his handiwork, but humble enough to believe that "any machinist worth his salt" could duplicate it from some good photographs or diagrams.

Please contact Merrill O. Murphy or Ernie Hawes by e-mail for further information regarding Harvey Lawler's machine design.

Here's to Harvey Lawler, a consummate technician, a brilliant, but humble man, who wished to share the fruits of his skill with faceters everywhere.



Lets Talk Gemstones

By Edna B. Anthony, Gemologist

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AQUAMARINE: A CYCLOSILICATE

The region of pegmatite dikes in the state of Minas Gerais in Brazil has been the primary source of gem beryl and several other species of colored gemstones for many years. Rivers have cut places through the dikes and alluvial deposits, called “cascalho”, which are scattered throughout the region. It is notable that the extensive gemstone deposits in Minas Gerais often yield large aquamarine crystals accompanied by all the other colored varieties of beryl. According to Peter Bancroft in *Gem and Crystal Treasures*, the principal aquamarine-producing region begins about 75 miles north of Rio de Janeiro and includes the areas of “Conselheiro Pena, Governador Valadares, Teofilo Otoni, Aracuai, Salinas, the Jequitinhonha River basin, and Pedra Azul”. Numerous sites lie in the Marambaia Valley in the Teofilo Otoni area alone. Many of the locations have not achieved mine status and may be identified only by the name of a nearby fazenda (plantation). Beautiful gem crystals have been recovered from such unlikely places as water wells, drainage ditches, road cuts, and excavations for building foundations.

Most of the largest and finest aquamarines are from Brazil. Imagine being able to see an object distinctly through the completely transparent length of a 19 by 16 inch hexagonal gemstone prism weighing 520,000 carats! Such a crystal was unearthed by David Mussi in the Papamel mine near Marambaia in 1910. Two Germans purchased the 110 kilogram greenish-blue crystal for 35,000 marks. The gems cut from this gigantic crystal were heat-treated in the first known successful application of this method to remove the undesirable yellow tones and achieve a purer blue color. Jaroslav Bauer and Vladimir Bouska wrote in their book, *Precious and Semiprecious Stones*, that its yield of 200,000 carats of cut

gems supplied the world market with faceted aquamarines for several years.

The standard for comparison of color in aquamarine was set by the smaller 34 kilogram, deep blue Marta Rocha crystal recovered from the same area. This very large crystal was cut into 300,000 carats of magnificent gems. Many crystals of another such rich blue tone have been found in the township of Pedra Azul, formerly known as Fortaleza, and the gems of that hue are called “fortaleza” aquamarines.

The Maxixe mine in the Piaui Valley is the source of the notorious dark blue alkali beryl known as maxixe or maxaxite aquamarine. After its discovery in 1917, several lots of the crystals were sent to Germany for cutting. Peter Bancroft says “there was hell to pay” when its color quickly faded to a “whitish yellow”. An investigation disclosed that the color was caused by natural radiation and can be restored, but not permanently, by artificial radiation. The crystals soon became quite popular with collectors as specimens, but they were useless as a gemstones. Dr. Joel Arem states in his *Color Encyclopedia of Gemstones* that maxixe beryl is “rich in cesium”. In *The Illustrated Encyclopedia of Minerals and Rocks*, Dr. J. Kourimsky attributes the color of maxixe beryl to the presence of boron. Dr. John Sinkankas explains in his book, *Emerald and Other Beryls*, that it is more probable that the replacement of a missing atom by a vibrating electron in the atomic lattice creates a color center which can be destroyed by light and heat. He cites studies by Nassau and Wood to support this conclusion.

Another atypical deposit of aquamarine is located in the Governador Valadares area of Minas Gerais. This site was mentioned in an earlier “Let’s Talk Gemstones” article on beryl. The crystals from that site show a pale green body color obscured by multitudes of exsolved ilminite skeleton inclusions. These inclusions form when iron (hematite) and ilminite in solid solution, having been incorporated into the beryl crystal lattice, become supersaturated, are separated at critical pressures and temperatures, and are later expelled from the crystal lattice. They adapt to the cleavage planes of the growing aquamarine and, by repeated recombination and exsolution, create reddish-brown dendritic patterns. When cut properly en cabochon, a six rayed star emerges from the bronze Schiller effect. Similar material is found in Madagascar. These and

other dark star beryls can resemble black star sapphires. Cat's-eye aquamarines are very unusual and are seldom available in the market. Examples are shown in the photographs on page 76 of the Eyewitness handbook, *Gemstones*, by Cally Hall and on page 48 of the softcover version of Dr. Joel Arem's book, *Gems and Jewelry*.

Aquamarine is almost always found in pegmatites or in the alluvial debris from such sources. Excellent deep blue material is now recovered from a number of mines in Madagascar (the island Republic of Malagasy). Deposits near Nerchinsk in Siberia, at Murzinka and Miass in the Urals, and Adun Chilon in the Baikal area have produced lovely crystals for many years. However, recent production has waned.

In the United States, Mount Antero in Colorado is well known as a source of beautiful gem aquamarine, and its color compares well with the high quality aquamarine from Africa. Maine, Connecticut, North Carolina (Hiddenite in Alexander County), and California are localities of limited production. India, Pakistan, Afghanistan, Namibia, and Zimbabwe also produce aquamarine. Deposits in Nigeria and Mozambique are more recent discoveries, where high quality aquamarine of dark color has been unearthed. The Mozambique material can exhibit an especially rich blue color, and a well cut aquamarine from this area is a real treasure. The sources in gem-rich Sri Lanka and Burma yield a great number of fine quality gemstone species, and it is quite surprising that so few aquamarines are found there.

Aquamarine hues range from near colorless to the sea-green of oceans and the bluest of skies. Ferrous iron atoms in the channels of the layered ring structure of the tetrahedra account for the blue color. Any ferric iron present causes tints of yellow. A pure blue is now the most desired color, and many aquamarines are heat-treated after cutting to permanently remove the yellow tones and intensify the blue component. This practice is accepted in the trade and proves very difficult to detect. The brownish-green material yields the deeper blue shades after heat-treatment.

During treatment, the expansion of inclusions and any liquids present could fracture or shatter the gems. Therefore, cutting is advisable to remove inclusions before treatment. When kilns with controlled temperatures are available, the greenish aquamarines can be lay-

ered in sand and heated. The temperature is raised in increments to the proper level. Careful monitoring of the process is required, as overheating destroys all color.

In Dr. Sinkankas' *Gemstone & Mineral Data Book*, he describes a primitive method used in Brazil to heat-treat green beryls and obtain the more popular blue color. The stones are securely embedded in bread dough and baked. The loaves are then allowed to cool before being broken for the retrieval of gems and the consumption of fresh bread.

Aquamarine can be confused with blue topaz, blue tourmaline, sapphire, apatite, euclase, zircon, fluorite, and kyanite; however, simple tests can identify it. It is not synthesized for commercial use. Inexpensive synthetic spinel has been used extensively to simulate aquamarine. The color of aquamarine is replicated in paste (glass) imitations. Doublet and triplet imitations have also been manufactured. The delicate to rich colors of the durable aquamarine make this gem an ideal choice for jewelry.

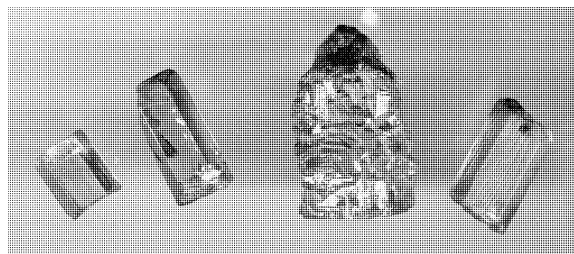


TABLE 1. Gemstone Properties

<i>SPECIE</i>	<i>aquamarine</i>
Refractive Index	o=1.567 to 1.583; e= 1.572 to 1.590
Birefringence:	varies from 0.005 to 0.007
Optic Character	uniaxial negative
Dispersion:	0.014
Pleochroism	distinct, almost colorless/blue
Ultraviolet Fluorescence	inert; iron quenches fluorescence
Spectra	disputed; W Schumann on page 64 and J.Arem on pages 52 and 53
Color Filter	no information
Aqua Filter	green
Chelsea Filter	green
Solubility	insoluble except in fluoric acid
Thermal Traits	avoid thermal shock; remove stone during jewelry repairs
Treatments	heat treatments
Inclusions	elongated primary growth tubes that often house liquids containing gas bubbles and microlite crystals; short negative crystals; "snow-stars" formed by microlite crystals surrounded by droplets of liquid on cleavage planes; cleavage cracks; ilminite; biotite; hematite; muscovite; phlogopite; rutile; pyrite

TABLE 1. Gemstone Properties

<i>SPECIE</i>	<i>aquamarine</i>
Composition:	beryllium aluminum silicate $Be_3Al_2(Si_6O_{18})+Cr, Fe$
Class:	silicate; cyclosilicate
Group	beryl
Species:	aquamarine
Crystal System:	hexagonal; per Schumann, trigonal
Variety:	aquamarine
Colors:	near colorless, blue-green, green-blue
Phenomena:	chatoyancy and asterism
Streak:	white
Diaphaneity:	transparent to opaque
Habit:	elongated prismatic crystals; often striated and etched
Cleavage:	imperceptible
Fracture:	conchoidal to uneven
Fracture Lustre:	vitreous
Lustre:	vitreous
Specific Gravity	varies from 2.67 to 2.71
Hardness	7.50 to 8.0
Toughness:	very good, but can be brittle



Market Place

Here is the text of the a new regulation that might change the price that we advertise our arts and crafts.

Attorney General of New Mexico
CONSUMER PROTECTION DIVISION
P.O. Drawer 1508
Santa Fe, New Mexico 87504-1508
Division Director

TO: **RETAILERS OF NATIVE AMERICAN JEWELRY and ARTS AND CRAFTS**

FR: WILLIAM S. KELLER, ASSISTANT ATTORNEY GENERAL RE: EFFECTIVE DATE OF 1 NMAC 2.7, NEW REGULATION DA: JULY 15, 1998

On June 22, 1998, Attorney General Udall signed 1 NMAC 2.7, a new regulation which controls comparison price advertising in the RETAIL Native American jewelry and arts and crafts industry. Public hearings on the proposed rule were held in March, April, and May in Santa Fe, Taos, Gallup, and Albuquerque. A copy of the final version is enclosed for your information. This memorandum will provide you with some basic information concerning the rule.

Effective Date: The rule is effective on July 15, 1998.

Enforcement Date: To allow a reasonable transition period, this office will not begin enforcement efforts until August 15, 1998. You will have until that date to come into full compliance with the provisions of 1 NMAC 2.7.

Pricing and Discount: The rule will require that all merchandise be marked or labeled at the actual price which you intend to sell it. If the real, good faith price you want for an item is \$100, it must be labeled at \$100. It will be illegal, for example, for you to mark an item at \$200, then offer an automatic "discount" of 50%. Based on traditional pricing methods, this provision will require most retailers to remark all of their inventory, since most label their merchandise with a price that is at least 50% higher than they actually charge their customers.

Wholesale Advertising: **The term "Wholesale" as it has been used in the industry will no longer be permitted.** Under the rule, "Wholesale" means a transaction between a wholesale merchant or distributor (referred to now as Jobbers) and a retail merchant (referred to now as a "wholesaler") who will increase the price of the merchandise and resell it to a consumer. The wholesaler's customer is a retailer. The retailer's customer is the ultimate consumer, who buys an item for personal use. "Wholesale" or "Wholesale to the public" are terms that will be deemed false, misleading, and deceptive if they are used in the context of sales or advertising directed at the ultimate consumer, who buys an item for personal use.

A business which is a true wholesaler, as defined above and in the rule, may continue to advertise that it engages in "wholesale" transactions, however. The rule simply prohibits the misrepresentation of a retail transaction as "wholesale." The Attorney General understands that some businesses sell wholesale to other merchants, as well as retail to consumers. Such businesses may refer to themselves as both wholesalers and retailers, but may not refer to their retail transactions as "wholesale".

List Price: The manufacturer's suggested retail price ("MSRP"), or "list" price, may not be used as a reference price by the retailer, unless that price is a real price charged by the retailer personally, or by others within the retailer's trade area. If, for exam-

ple, the MSRP is charged only by stores located in other states, and all New Mexico stores charge at least 50% less than the MSRP. A New Mexico retailer may not advertise "50% off list price", because the list price is not a real price in the trade area. "Trade area" means the geographical area in which a person's store is located. It may be a municipality (Albuquerque, for example), or a larger area (northern New Mexico, for example), depending on the number and location of a business's stores.

Price Reductions: You may discount merchandise under 2 circumstances: (1) You may have a "Sale" once you have offered merchandise at the full retail price openly and honestly, in good faith, for 90 consecutive days. (2) You may engage in negotiated price reductions not to exceed 10% of the marked price with customers in individual situations. If a customer says she is interested in a piece but wants a break, you may give her a reduction in the marked price of up to, but not more than, 10% of the marked price.

Comparison Advertising With Competitor's Prices: A store may do comparison advertising with one or more competitors ("Our price - \$50. Competitor's price - \$75"). However, you must be sure that the merchandise, which is subject to the price comparisons, is comparable in quality, design, grade, material, and craftsmanship, and that what you say is true. You must also keep records which will substantiate your claim.

Record Keeping: If you choose to do comparison price advertising in any of the forms covered by the rule, then you must keep all documents which establish or evidence the basis of the comparisons. The records must be kept for two years.

Violations of 1 NMAC 2.7: The Attorney General has authority under the Unfair Trade Practices Act to offer a business an opportunity to enter into a settlement agreement before a lawsuit is filed. Such a settlement agreement is called an Assurance of Discontinuance, and it is simply a form of contract by which a business agrees to stop doing things that may be illegal. Typically, a form of civil penalty is included. A violation of the assurance can be enforced in court, and is considered a violation of the Unfair Trade Practices Act.

The Attorney General may also file a lawsuit over a violation of the Act. **The office is authorized to ask a court for injunctive relief, restitution for injured consumers, and a civil penalty of up to \$5,000 per violation for willful breaches on the Act.**

This memorandum is intended strictly to summarize a few key points in the new rule. It is not exhaustive, however, and you must read the rule to become familiar with all of it. If you have questions about what any part of the rules means or requires, then you should contact your attorney immediately and ask for his or her advice. The burden will be on you to be in compliance as of August 15, 1998.



Texas Faceting Symposium 1998

By Nancy L. Attaway



Jill Rowlands, Texas Faceters Guild President

The Texas Faceters Guild held their annual Faceting Symposium October 10 and 11 in their new headquarters in Austin shared with the Gem and Mineral Society. TFG Newsletter Editors, Greg and Hollis Thompson served as chairmen of the organizing committee, and they scheduled the intrepid National Geographic photographer, writer, and world traveler, Fred Ward, G.G. for three different gemstone lectures during

the symposium. They also asked New Mexico Faceters Guild member, Stephen Attaway to discuss carving, the recommended tools, and crack propagation problems generated in gems when carving and faceting.



Greg and Hollis Thompson, TFG Newsletter Editors, pose with faceting legends, Glenn and Martha Vargas

Fred Ward, G.G. is the author of a series of gem books: *Jade*, *Emeralds*, *Rubies & Sapphires*, *Opals*, *Diamonds*, *Pearls*, and *Gem Care*. He released a new book on *Jades of Mesoamerica* and has revised versions of *Rubies & Sapphires*, *Diamonds*, and *Pearls*. Fred Ward selected "Rubies & Sapphires", "Jade", and "Emeralds" as the three topics of his presentation lectures with wonderful accompanying slides.

Rubies and Sapphires

Fred Ward began his talk on rubies and sapphires with the statement that rubies and sapphires come to nearly outselling diamonds, not in dollars, but in carats. He engaged the audience by asking the question, "How red does a sapphire need to be in order to be termed a ruby?" "After showing slides of rubies with varying shades of red, Fred replied, "It depends upon whether you are the buyer or the seller." He explained that rubies from different locales vary from pink-red, orange-red, red-red, to purple-red. Burmese rubies have a high chromium content and an absence of iron, which imparts a red-red color. Rubies from Thailand and Viet Nam are more pink. The very rare padparadscha, whose name in Sri Lanka means lotus blossom, is a pink-orange salmon color. Fred said that the rubies and sapphires exhibiting a six-rayed star have a looser classification in regard to color, as clarity of the gem and the strong lines of the star are as important as color saturation. Inclusions of rutile needles impart the star effect.

Fred's gem travels have taken him all over the globe, especially to sites that are very remote. He has traveled to the Mogok Stone Track in Burma, where most of the high quality rubies and sapphires are found. His slides showed that digging in alluvial deposits is the predominant way to mine. Strip mining is prevalent in Thailand, but rarely is the land reclaimed. One slide showed where the land had been striped down to the bedrock. Cambodia mines most of the ruby and sapphire melee. Fred explained that Kashmir only had a twenty year mining history, but the few stones from there retain their mystique. Sri Lanka and Viet Nam are also sources of fine ruby and sapphire.

Fred related that the rubies from Kenya are mined from a hard clay found in a canyon, where mica coats the ruby crystals. He said that the Songea and Tunduru deposits in Africa are new, and the sapphires from the deposit in Tanzania's Umba Valley show the most color variety. The Longido mine in Tanzania produces large opaque ruby crystals surrounded by green zoisite. Fred showed slides of the wonderful carvings from this material by gem artisans in Idar-Oberstein. Sapphires are also dug in western Australia, but many of these are dark.

Fred explained that Burma has had a long history of cutting rubies and sapphires, while the gemcutters in

Thailand, who came late to cutting, use more modern equipment. Fred remarked that the dreadful cutting of rubies and sapphires done overseas was a way to sell carat weight only. Consumers now demand better cut stones and in calibrated sizes. Fred described how sapphires are sorted by country, with regard to the color expected from a particular country and not necessarily by the true origin of the stone.

In the U.S., Fred said that several sapphire deposits run along the Missouri River in Montana. The famous sapphire mine at Yogo Gulch yields sapphires of superb color and quality. Near the Yogo Mine lies the Vortex mine. Fred told the story of how three men have tunneled 100 feet down and 300 feet into the earth at the Vortex mine. Fred noted that the rubies from North Carolina are generally of poor quality.

Fred explained that the diffusion-treated sapphires have titanium and iron penetrating the stone just beneath the surface to impart a blue hue. Diffusion-treatment of ruby is difficult, as the penetration of chromium requires over a year's time. Chatham created ruby utilizes a seed crystal in the flux growth process. Flux-grown rubies contain inclusions. The Osmer Ramura flux-grown ruby involves spontaneous nucleation. Fred has visited the Chatham gem labs and manufacturing facilities, and he remarked how extensive and complex it all was. Besides jewelry, Fred related how synthetic rubies and sapphires are also used for watch movements and bearings.

Jade

Fred Ward began his talk on jade by stating that the situation surrounding the two types of jade, nephrite and jadeite, could not be more confusing for the consumer. Both are metamorphic rocks with a fixed chemical composition. Neither one is a mineral. Fred described nephrite as serpentine with calcium and jadeite as a silicate of magnesium and calcium. Tools and weapons were made of jade. Fred stated that jade is the toughest material known, due to its interlocking tufted fibers that show a resistance to breaking. He explained that jade is found in boulders from relatively new mountains, where boulders had been remelted and brought to the surface again. The Polar jade, nephrite from British Columbia's Cassiar Mountains, is found at 6,000 feet elevation and had been formed under water.

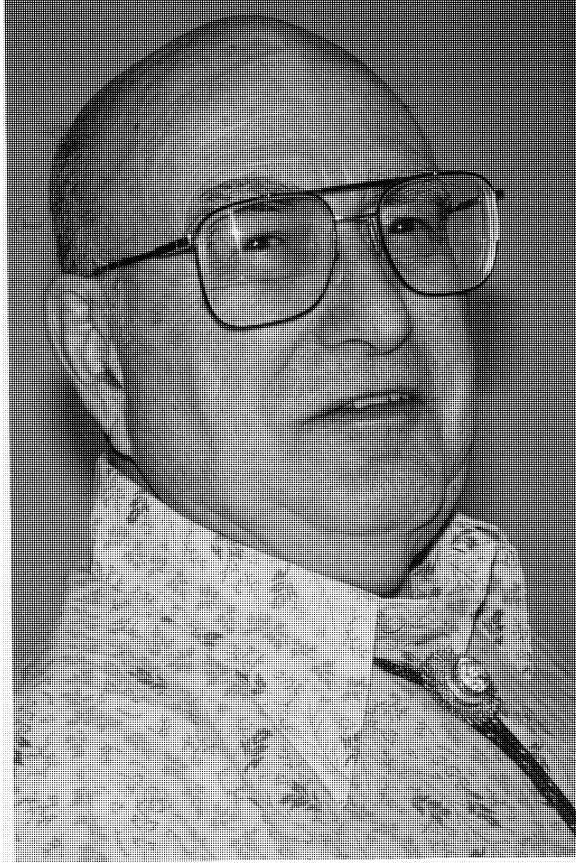
China marks a five thousand year history of carving jade, the green and white nephrite. Fred related how jade was treasured above any other gem, and that the Chinese centered their culture around it. The Chinese obtained white nephrite jade from Turkestan, west of China. Fred explained that the Chinese consider jade to be the stone of heaven and a sacred item to possess. The disc with the hole in the center symbolizes the emperor conversing with God through the hole in the jade.



The globe-trotting Fred Ward, National Geographic photographer and author

In his research of jade, Fred said that most jade is dated by style, and each dynasty established its own designs for jade carving. Tool marks, or the lack thereof, also provide clues to the ages of these styles, as diamond tools were only a recent invention. Fred remarked how amazing the old carvings were, as these were accomplished with primitive methods. Jade artisans of old would contemplate what to carve from a piece of jade for months, even years. Fred's slides

showed that a basic style would subsequently be repeated, but it would be done with more detail or with a different flair. The dramatic switch from nephrite to jadeite occurred in 1784, he explained, when a new type of crystalline jade of a bright green hue was found and marketed.



TFG faceting guru and designer, Charles Covill

Fred showed slides of the jade auction in Rangoon, Burma. It occupies an entire street, where jade boulders of all description lay in piles. Fred explained how the jade workers rub a window, a small polished section, onto the surface of individual boulders to yield a clue to its quality. Fred related how much gambling is enjoyed there, and he said that many jade buyers wager large sums of money based upon what is revealed through those windows. There are no jade mines as such, Fred said, as jade is picked and not mined. Burma has fine quality jadeite, New Zealand has black nephrite, and Guatemala has black jadeite. The addition of iron changes the color of jade to black. Many old and new carvings rendered from jade were depicted in Fred's slides, and he showed the audience how magnificent

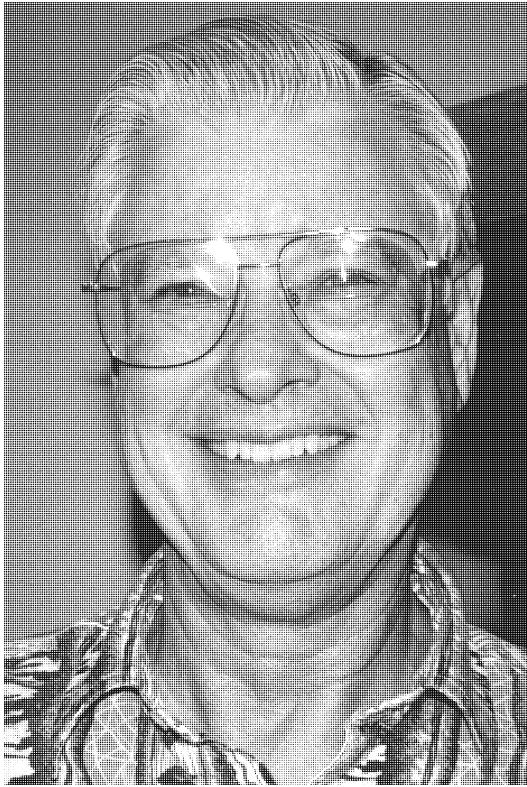
they all truly were. {See Fred Ward's article on Polar Jade in the November 1998 Issue of Lapidary Journal.}

Emeralds

Fred Ward began his talk on emeralds with the statement that Brazil, Columbia, and Zambia mine most of the world's emeralds in volume of carats. Brazil has an undisputed first place, followed by Columbia, and then Zambia. Muzo, Cosquez, and Chivor are Columbia's famous emerald mines. Fred related his experience photographing the various mine sites in Columbia. From his stories, it seemed that his safety was occasionally in jeopardy. No where in the world is the search for emeralds more violent than in the mining areas of Columbia.

In his research on ancient emerald sources, Fred explained that the emeralds worn by Cleopatra were from a mine in Egypt, but also could have been from a mine in Austria. His slides of ancient Roman and Egyptian jewelry showed many opaque emeralds. Some stones were later identified as green beryls and peridot. Fred said that it was not until the Spanish discovered the emerald mines in South America that fine quality, large emerald crystals made their impact upon the world gem market. The event also initiated the carving industry in India, where this art form was highly developed.

Fred said that the Spanish, at that time, were only interested in gold, silver, diamonds, and pearls. They sold many fine emeralds to the potentates from India, Turkey, and Persia. Fred showed slides of wonderful gem emeralds set into jewelry, swords, and religious items fashioned for royalty from these magnificent emerald crystals. Fred believed that this treasure trove of emeralds contributed to the myth that cites the existence of a vast emerald mine in the Middle East from an ancient time, now lost.



Winning The 1998 International Faceting Award brings a big smile to TFG faceter, Wing Evans.

Fred remarked that 99% of the emeralds mined world-wide are oiled. He mentioned the various treatments of oils, resins, and polymers used today for filling inclusions in emeralds. Fred stated that Carroll Chatham was the first person to successfully manufacture emeralds. Emeralds continue to hold a high regard in the gem market. Fred ended his talk on emeralds with a slide of him sitting next to famous film star, Elizabeth Taylor. She is adorned with a magnificent pearshape emerald ensemble accented with many carats of diamonds.

The Texas Faceters Guild remains an active group who demonstrate their joy in faceting, and the more experienced members share that expertise with others. Faceting guru, Charles Covill helped a member with a faceting problem during a symposium break. Wing Evans, a 1998 International Award Winning Faceter, also serves as a faceting instructor. We exchanged many faceting techniques and opinions with Texas Faceters Guild members during breaks. We thank the Texas Fac-

eters Guild for inviting Steve and I to their faceting symposium. The friendly folk of the Texas Faceters Guild were excellent hosts and provided delicious refreshments. I especially enjoyed Jill Rowlands' chocolate cake. Steve and I were glad to visit friends, Charles and Paddy Covill, and we were pleased to meet the members of the Texas Faceters Guild and connect faces with familiar names.

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Robert Strickland, author of Gem Cad, was rumored to have been seen at the TFG symposium.

Be sure to attend next year's Texas Faceter's Guild Symposium, held every year the second weekend in October.



You could win this door prize by just showing up at the November 1998 AGATE Jewelry and Gemstone Show. Guild member Tony Anthony constructed this lovely blue topaz pendant from silver and gold.



We exchange newsletters with the following guilds

Anglic Gemcutter, Beaver Creek, Oregon
 Facets, Portland, Oregon
 Tacoma Faceters Guild, Tacoma, Washington
 Stoney Statements, Houston, Texas
 The Permain Faceter, Midland, Texas
 Angles, Woodland Hills, California
 Texas Faceters Guild, Cedar Park, Texas
 Albuquerque Gem and Mineral Club, Albuquerque, N.M.
 The Roadrunner, Big Springs, Texas
 Intermountain Faceters Guild, Port Townsend, Washington
 The Midwest Faceter, Birch Run, Michigan
 The Transfer Block, Sacramento, California
 USFG, Kalispell, Montana
 Facet Talk, Ashgrove West, Queensland, Australia
 Calgary Faceters Guild, Saskatoon, Saskatchewan, Canada
 North York Faceting Guild, Markham, Ontario, Canada
 Ottawa Gem Faceter's Guild, Ottawa, Ontario, Canada



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 Stephen A Vayna: Vayna@transatlantic.com

TABLE 2. Shows of Special Interest

<i>Name</i>	<i>Location</i>	<i>Date</i>
19th Annual New Mexico Mineral Symposium	Socorro, New Mexico	Nov. 7 & 8
Best Bead and Glass Show	Albuquerque, New Mexico	Nov. 13 to 15
AGATE; Albuquerque Gem Artisans Trade Expo	Albuquerque, New Mexico	Nov. 21 & 22
Los Alamos Geological Society's Annual Earth Treasure's Show	Los Alamos, New Mexico	Dec. 5 & 6
Gem and Lapidary Wholesalers, Inc. Show	Tucson, Arizona	Jan. 31 to Feb. 4
Atrium Productions Show	Tucson, Arizona	Feb. 1 to 4
AGTA Show	Tucson, Arizona	Feb. 3 to 8
Arizona Mineral and Fossil Show	Tucson, Arizona	Feb. 3 to 13
Gem and Lapidary Wholesalers, Inc. Show	Tucson, Arizona	Feb. 4 to 12
The Best Bead Show	Tucson, Arizona	Feb. 4 to 9
Atrium Productions Show	Tucson, Arizona	Feb. 5 to 13
Gem and Lapidary Wholesalers, Inc. Show	Tucson, Arizona	Feb. 5 to 13
Tucson Gem and Mineral Society's Show	Tucson, Arizona	Feb. 11 to 14