The New Mexico Facetor

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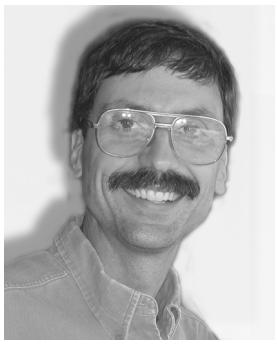


NMFG President Scott Wilson

In This Issue:

The Prez Sez:

by Scott R. Wilson, Ph.D.

A spooked public is a strange thing. While recently in Britain, I was watching the evening news one night when a peculiar commercial was presented. It was similar to those shown in the United States that advertise "branded" diamonds.

The marketing angle strove to convince the diamond-buying public that a "flawless" cut must now include some laser-scribed scribbling on girdle facets, marking the stone with a serial number and a corporate logo. This is all based on "fear of the unknown", where the buyer assumes that a "branded" stone must, by definition, have a better history or certified origin when compared to an unbranded stone, and is, therefore, a better deal (Hey, it works for pharmaceuticals!). Never mind the fact that a defaced girdle would have been noted as a considerable flaw a few years earlier.

The gemstone trade journals have been full of discussions of the pros and cons of this topic, so we will just leave that one lay. However, what was really interesting about this particular commercial was that it had extended the "branding" umbrella to include ALL gemstones, such as the many types of colored stones that we know and love.

The commercial subtly tried to insinuate that a colored stone is not "real" or genuine unless it is branded. A scared and spooked buying public may find itself being corralled into the arms of corporate gem suppliers due to a lack of knowledge about colored stones. A potential side effect is that supplies of rough to firms or individuals unwilling or incapable of "branding" may dry up, as the suppliers focus on selling their goods at higher prices to "branded" or accredited dealers.

If the marketing campaign is well accepted by the buying public, then this development is bad news for amateur cutters, who sell some of their stones at shows and other venues (Note that amateur cutters produce some of the highest quality cutting in stones, as they can afford the time to do so, whereas commercial cutters do not have that luxury.).

There is no evidence that this marketing game is taking hold at this time, but I would expect to see branded colored stones at Tucson within two years. AGTA has planned a similar type of certification on stones. It will be interesting to see what the overall response will be.

Minutes of the NMFG Meeting

March 14, 2002

by Nancy L. Attaway

President Scott Wilson called the meeting to order at 7:10 p.m. and welcomed all members and guests. He asked everyone to introduce themselves to the group. Several guests attended tonight's meeting.

Old Business

Ernie Hawes reported on the workshop held January 12 at the home of Scott Wilson. He was pleased with the input and discussion on rough selection from several experienced members. He was also happy with the progress made by members cutting their stones.

President Scott Wilson reported that the annual Guild party at Tucson for members and guests was a terrific success. He said it was well attended and thoroughly enjoyed the food and conversation. He thanked Nancy and Steve Attaway for organizing the event.

New Business

Ernie Hawes announced that the **next workshop** is scheduled for **March 16** from 9:00 a.m. until 4:00 p.m. at the home of **Scott Wilson**. Ernie provided a sign-up sheet and directions to Scott's home. Ernie wants to cover faceting angles during the morning session. He will provide his laptop and show computer programmed animations for several faceting diagrams done in different cutting angles. This is to show folks what angles work and what angles do not. Members will facet their stones after lunch. All members attending workshops are asked to give $5 towards food and the copies of information and faceting designs. Please contact Ernie regarding all workshops and any questions related to workshops. Ernie has a few faceting machines available for those who do not own their own machines. Please call him to reserve a machine for you at the next workshop.

President Scott Wilson said that he liked the new layout for the Guild newsletter. **Editor Nancy Attaway** remarked that the new publisher made a few typos on the inside cover, but that these would be corrected in the next newsletter. Everyone liked the new color photographs. **Editor Steve Attaway** asked members who want photographs of their work in the newsletter and in the gallery section of the Guild website to send him either j-pegs, discs, or bring the items to his house for scanning directly into the computer.

President Scott Wilson related that the Guild was shorter on funds this year than for the same time last year. He was looking for ideas to increase the Guild treasury. **Nancy Attaway** said that she plans to include more paid advertisements in the Guild newsletter. She said that the new publisher will cost the Guild less money than the one we used in recent years. **Marc Price** recommended donations from members attending workshop sessions, other than the stated $5 fee.

Steve Attaway brought up the idea of obtaining videos of master jewelers, like Alan Revere, that show stone setting and jewelry making. He watched Alan Revere demonstrate stone setting at Rio Grande's Catalog-in-Motion at Tucson and was impressed. **Librarian Russ Spiering** said that the Guild library has similar videos and will list the ones that the Guild has.

Nancy Attaway mentioned that *Lapidary Journal* has a jewelry contest this year, and she brought several entry forms for those interested.

Vice-President Paul Hlava announced that the Albuquerque Gem and Mineral Club has scheduled its annual Gem, Mineral, and Jewelry Show, called "Treasures of the Earth 2002" or "TotE 2002", for March 22, 23, and 24 at the Flower and Arts Building in the city fairgrounds. He invited everyone to come. He said that this year's show has expanded to include 38 dealers. Several Guild members will be dealers at the show.

President Scott Wilson said that he has planned a special display for the New Mexico Faceters Guild's case at the Albuquerque Show. The display will explain and show asterism, a particular gemstone phenomenon.

Show and Tell

The Show and Tell Case tonight held many faceted and carved stones and jewelry done by Guild members.

Larry Plunket displayed three very lively light green tourmalines, a standard round brilliant, an emerald cut with step cuts, and a square that was a simplified version of the barion square. The rough was obtained from the estate of Louie Natonek. Larry polished all three stones on a tin/lead lap with diamond.

Will Moats displayed some of the crystals that he purchased at Tucson. He showed three lovely aquamarine crystals with terminations from Namibia that exhibited light to medium range blue tones. He showed one light-colored aquamarine crystal from Afghanistan and a short aquamarine crystal attached to a pegmatite

base. Will also showed a large orthoclase crystal from Madagascar that weighed 13 grams.

Herb Traulsen displayed two halves of a Yowah nut from Queensland, Australia. Yowah nuts often contain beautiful colors of precious opal in an ironstone matrix. The Yowah nut is a rare type of opal, which is unique to Queensland's boulder opal territory.

Gary and Rainy Peters displayed some of the stones that Gary recently re-faceted from stones already cut. Having learned more about gem rough selection at the January workshop, Gary and Rainy decided to buy stones already cut and then re-cut them. The couple purchased several cut citrines and reddish/pink tourmalines at Tucson. A few of these stones were chipped, and some were badly cut. Gary re-faceted several of these stones, three tourmalines and two citrines, to have a more uniform shape with large pavilion facets, where he will carve on later. Gary's work rendered some beautiful stones that will be set in jewelry, and he polished all the stones on a Last Lap with diamond.

Elaine Weisman displayed a striking 14Kt. gold large freeform ring that she made from a wax and cast. The ring held a dark greenish-blue emerald cut tourmaline. Elaine said that she wanted light to be able to get into the stone, so she set the stone high in the ring.

Scott Wilson displayed some of his Tucson purchases. He showed some river-tumbled garnet nodules from Africa that were solid and gemmy. He thought that these were almandine garnets. He showed a large, clean chrome diopside crystal and a nice purple spinel crystal. Scott also showed several faceted Cambodian blue zircons that exhibited an intense blue color and a cut purple spinel with color-change. He had a lovely large star quartz cabochon that exhibited a strong six-rayed star. The impressive star quartz will be featured in the Guild display case at the Albuquerque Show.

Nancy Attaway displayed twelve stones that she cut in preparation for the Albuquerque Show. Nancy showed four aquamarines, two matching shields that varied slightly in color, another elongated shield, and a small emerald cut. She cut four tsavorite garnets from the rough purchased at Tucson, a 0.94-carat triangle, two half carat flasher cut (twelve-sided) rounds, and a pearshape that weighed 1.62 carats. Nancy said that she finally was able to cut two matching flasher cut round tourmalines that were the same color. She had re-cut a flasher cut round peridot from a broken pearshape, where the tip broke in a ring setting worn by the customer. Nancy will cut a pearshape to replace it. She also showed an 8 1/3mm flasher cut round tanzanite of a nice blue color that weighed 2.65 carats. The gem rough was from the estate of Louie Natonek.

Steve Attaway displayed loose stone carvings and finished jewelry that he rendered for the Albuquerque Show. He showed seven carved opals of various shapes that exhibited nice red pinfire, and he showed a lovely translucent green Australian chrysoprase carved in a lotus flower. In finished jewelry, Steve showed a CAD/CAM 14Kt. pendant that held Nancy's irregular pearshape faceted and carved aquamarine that was accented by five diamonds on one side. He showed a large 14Kt. gold pendant, where the gold was like ribbons, that held a carved Australian chrysoprase and Nancy's faceted pearshape orange beryl accented by a diamond. He showed a 14Kt. gold pendant that held a carved Namibian intense blue chalcedony that was accented by one of Nancy's flasher cut round dark pink tourmalines. He showed a small 14Kt. gold pendant that held Nancy's pearshape Pakistani peridot that was accented by a diamond. He showed a 14Kt. gold pendant that held his carved sugulite that was accented by Nancy's flasher cut round amethyst. He showed a CAD/CAM 18Kt. gold pendant that held horizontally Nancy's long, slender grass green tourmaline. Steve bead set 18 small diamonds in the bail of the green tourmaline pendant and hung a black Tahitian pearl with green tones at the pendant's bottom. He also showed a CAD/CAM 18Kt. gold pendant that held Nancy's large Nigerian red tourmaline emerald cut with fanned culet that was accented by three diamonds with a black Tahitian pearl showing reddish/pink tones hung at the bottom.

Refreshments

Rainy Peters, **Elaine Weisman, Marc Price, and Waylon Tracey** brought home-baked refreshments to the January meeting. Gourmet coffee was served. Thank you very much. **Bill Wood** and **Nancy Attaway** volunteered to bring refreshments to the May meeting.

Future Programs

Paul Hlava has scheduled **Joe Kast,** who owns Joe Kast Company in Albuquerque, to be the speaker for May. Joe travels often to Asia and will discuss his gem buying trips there, where he buys rubies and sapphires.

As **Vice President/Programs, Paul Hlava** will appreciate any suggestions regarding future programs. If there is any topic or a particular speaker who you want to hear, please notify Paul. Thanks.

Program Speaker

by Scott Wilson and Nancy Attaway

Scott Wilson's presentation centered around making and using a calcite dichroscope. Scott explained how to make a simple dichroscope with a crystal of calcite, plastic tubing, and a small lens. He explained that a dichroscope was used in gem identification to determine pleochroism in gems, a property of certain gems where more than one color is shown when the gem crystal is viewed in various directions.

Scott first explained pleochroism as the differential spectral absorption of polarized light in colored gem crystals, and he remarked that pleochroism occurs only in crystals. Pleochroic gems that crystallize in the orthorhombic, monoclinic, and triclinic crystal systems may show three colors when viewed in different directions, but one of those colors may be pale or very faint. Gems of the tetragonal and the hexagonal crystal systems show two colors when viewed in different directions. Pleochroism never occurs in glass (or in opal), in colorless crystals, in plastic or in any isometric (cubic) crystal. Scott said that pleochroism can be difficult to characterize in polycrystalline materials, like agate, because such materials scatter light instead of transmitting light.

Scott explained how light, transmitted through doubly refractive gems, vibrate in two planes at right angles. The two beams of light then undergo an unequal reduction in velocity, and, as a result, the two beams undergo unequal absorption in anisotropic gems to emerge as different colors. Those gems that show three different colors are said to be trichroic. Gems that show two distinct colors are said to be dichroic. Pleochroism can sometimes be seen with the naked eye, but a dichroscope allows us to see more than one color in any single direction. The measure of the ability of a gem to convert a single ray of light into two rays having unequal velocity is known as birefringence.

Scott said that a dichroscope identifies glass immediately. He said that many of the more expensive gems are not cubic, with the exceptions of diamond, garnet, and spinel. Scott remarked that some gems may show a very weak pleochroism. The dichroscope can help orientate gem rough for faceting, where no color change is seen, when it is aligned with the crystal axis. A dichroscope can also show the C axis, and with gems like peridot, the dichroscope helps to exhibit the best color when the table is oriented down the C axis. Scott said that the dichroscope proves double refraction if seen, but it does not prove the absence of double refraction if it is not seen. The dichroscope can also separate corundum from spinel (red and blue).

A dichroscope may be priced between $125 and $175, on the average, but Scott explained how a dichroscope can be made for under three dollars. The early models for dichroscopes used transparent Iceland spar calcite to separate the two colors seen in pleochroic gems in a direction other than parallel to an optic axis. Other types of dichroscopes used two pieces of Polaroid film set with their transmission directions at right angles. Scott said that when light enters the calcite, light is broken into two polarized rays that have vibration directions at right angles to each other. These rays are slowed down unequally by the calcite and are bent or refracted, one more than the other. Two images of a square aperture are visible through the dichroscope, and the images will show two different colors when a pleochroic gem is seen through a dichroscope at various directions. In the dichroscope with Polaroids, the colors seen through the Polaroids set at right angles will be different.

Scott's homemade dichroscope was composed of a PVC end cap that costs $0.30, a PVC coupling that costs $0.50, a clear calcite rhombohedron crystal that costs $1.00, and a cheap loupe that costs $1.50. Scott's instructions on building a dichroscope began with obtaining a crystal of water-clear calcite, one with no inclusions or colors due to twinning or fractures. He said to polish the ends, which may take some time. Some faceters use a wax lap to polish calcite. Then, get a cheap loupe. Buy a PVC fitting at a hardware store that the calcite crystal will almost fit into and also buy a PVC coupling that will fit that and the loupe. Use a file to cut some groves in the fitting to hold the calcite crystal snugly. Punch a hole in the center of the fitting. He said that a hot, square piece of metal about 1/16 of an inch in diameter was a good start. Assemble the calcite crystal into the fitting, the fitting into the coupling, the loupe into the coupling, then look through it. Widen the square hold until the two images just barely touch. Paint the inside black if you want to reduce the reflections. Hold it all together with glue, tape, or friction.

Scott then explained how to use the dichroscope. Look through it at a stone that is illuminated in transmission (a tungsten light source is usual). Rotate the dichroscope around its axis while looking for a change in color. Note when the color is strongest and which

colors or shades that you see. Rotate the stone at various orientations and then repeat the process.

Scott said that when the colors change, the material is doubly refracting and, therefore, is not isometric (cubic) or amorphous (glass). When the colors do not change in one direction of the material, you are along an optical axis. When only two colors are seen, the material is likely to be uniaxial (tetragonal or hexagonal). When three colors are seen, the material is likely to be biaxial (orthorhombic, monoclinic, or triclinic). Scott also said to look for special effects of the light source, as fluorescent lights are bad for giving those.

Scott remarked that the size of the calcite crystal would determine the size of the square seen through the dichroscope. A long calcite crystal would show a small square, and a short calcite crystal would show a large square. Scott said that a square hole allows you to rotate 90 degrees easier than a rounder hole.

Scott warned that colors may show such subtle differences that you might think that they are the same, which is common in biaxial materials. Color differences may be stronger in one part of a crystal than in another, possibly due to strain, twinning, or color zoning. The tables of dichroic colors describing a gemstone may state something like: "pale blue-green/ pale yellow-green to colorless". That leaves room for interpretation and may be confusing. The reference may not identify the light source as natural (north daylight) or artificial (tungsten, most likely).

Scott concluded his talk by providing several sources for more information. He recommended the following references: *Gem Identification Made Easy* by Matlins and Bonanno for tables of dichroic colors for common gem materials; *Gemology* by Hurlbut and Kammerling for data on special properties; *Mineralogy* by Sinkankas for more data and very good explanations of crystal relationships; and *Handbook of Gem Identification* by Liddicoat for data, definitions, and tables. He then passed around his homemade dichroscope with a gem crystal tourmaline and a light source to show members how it works.

Thanks to Scott for a good lesson in making a practical gem identification tool from simple objects. We can actually do this one at home!

Slides from a Trip to Japan

by Nancy Attaway

Steve and I visited Japan during the first week of March and showed slides of the trip. Steve was invited to present his work relating to parallel computing at a conference held at Tokyo University, and I went, too.

We arrived in Tokyo after a thirteen hour flight from Dallas. We flew over several dramatic mountain ranges in British Columbia and Alaska during the daylight hours. We stayed the first two nights in Chiba, east of Tokyo, at the new home of a friend, now a professor at Tokyo University. He and Steve attended graduate school together at the Georgia Institute of Technology in Atlanta back in the early 1980's.

Steve and I spent the first day in Japan visiting Kamakura, a city by the sea that lies about an hour and a half southwest of Tokyo. Kamakura was the capital of Japan's first military government, the Kamakura Shogunate (1185 to 1333). A center for Zen Buddhism, Kamakura is known for its temples and shrines and is home to the world's largest bronzed statue of Buddha.

The Buddhist temples and shrines of Kamakura all have a deep sloping roof accented with tiles and very ornate wood carvings. Many of the tile arrangements showed a special triangular design that was said to represent the Hojo family, a powerful family of that time period. Dragons and eagles were often depicted in the wooden carvings. Eagles flew overhead and swooped down toward the temples as they screamed their wild cries. One particular temple that we visited had many very interesting statues beside the long flight of stone steps to the top. These metal statues were guardians, winged creatures with monkey-like faces and long noses, and they held spears and clubs in their hands.

As Kamakura is a traditional Japanese city, many weddings are conducted at the Buddhist temples, where the wedding party sports traditional attire. Also, grandparents and parents of newborns carry the children up the steps to Buddhist temples to register the infants. The woman bearing the child is often wrapped from the front (over her clothes) in an embroidered silken cloak, usually red or white, that is tied in the back. Many visitors of different nationalities make pilgrimages to the Buddhist temples and shrines of Kamakura.

When in Japan, we think that it really helps to enjoy eating fish, particularly sushi. Sushi is fish served raw with seaweed and steamed rice, very artfully pre-

sented. Tuna, salmon, eel, octopus, and squid are some examples of fish served in sushi restaurants. Tempura cooked fish and vegetables are also served with soups hot enough to cook raw fish, like salmon meatballs. All is washed down with tea or saki. Since Steve and I enjoy sushi, we visited Tsukiji, famous for being one of the world's greatest wholesale fish markets.

Opening at 6:00am every morning, the great Tokyo fish market sells fish that has been netted, gutted, and flash-frozen on board ships that dock in Tokyo's harbor. Steve remarked that it was the "Tucson of fish". Roadways and alleyways swarmed with people, on mopeds, motorized carts, or on foot. All were in search of fresh fish for restaurants stocks or for personal consumption. The buildings near the pier served as the fish slaughterhouse. Workers in long-sleeved tunics, pants, and knee-high rubber boots used long sharp knives to chop and slice fish of many varieties. Vendors set up shops, rammed in the narrow alleyways and streets, to sell fish, vegetables, and all types of kitchenware and dishes. Steve inquired about the big, long knives that the sushi chefs use, but he was told that a special permit was required to purchase such a knife. I bought traditional dishes for serving sushi and some tea.

Another Japanese tradition is the Kabuki-Za theatre, and Steve and I saw several live performances while in Tokyo. Kabuki theatre is performed by males only, with the exception of a part played by a little girl, and encompasses a four hundred year old tradition. Actors in the Kabuki-Za are much revered, and the acting tradition is passed from father to son. Plays depict historical events and the lives of warriors, aristocrats, and concubines, often to the accompaniment of Japanese instruments and songs. Subtle hand gestures by the actors speak volumes, and the movement of fans by the actors' hands express great meaning. It helps immensely to have English translations while watching these performances to better understand the stories.

Downtown Tokyo is one of the world's most cosmopolitan places, and the Ginza District houses many upscale jewelry stores. Steve and I visited Mikimoto, the famous pearl house, and viewed fabulous pearl jewelry listed at astounding prices. Other jewelry stores nearby showed displays of gorgeous colored stone jewelry, very high quality pieces set with aquamarines, emeralds, sapphires, rubies, tanzanites, tourmalines, rhodolites, and peridot accented with diamonds.

One particular store on a side street contained an amazing collection of jewelry, mineral specimens, and carved gemstone art. Many of the carved gem art pieces were from Idar Oberstein. Steve noted an exceptional carving of a Buddha rendered in smoky quartz that was really a dark citrine color. Both Steve and I recognized several superb mineral specimens of emerald and aquamarine crystals on matrix, and we noted one extraordinary specimen of Colorado rhodocrosite on matrix.

I was excited to recognize a few carved items from famous German carver, Helmut Wolf. One of the most spectacular Helmut Wolf pieces in the collection was the carved clear quartz hollowed out from one crystal to be a wine cask. This item was displayed at the 1994 Tucson Show. The quartz barrel depicted a Bacchus scene carved on one side and a grape harvest scene carved on the other. The size of the barrel is 50.5cm x 49cm. (The raw crystal originally weighed 85kg.). Bands of gold accented the quartz barrel, with rubies and sapphires on the bands. It is a true work of art. Steve and I met Helmut Wolf at the Tucson Show in 1994, where many of his fine pieces were displayed. {See the February, 1994 issue of Lapidary Journal for more information on Helmut Wolf and pictures of his gemstone art, including that magnificent wine cask.}

I visited several museums in the Ueno Park area while Steve attended conference proceedings. I saw many marvelous works of Japanese fine art, including scrollworks and wonderfully painted ceramic urns many hundreds of years old. One particular exhibit featured the work of one of Japan's most cherished artists. This exhibit displayed several grand paintings of Mt. Fuji in various seasons and two very long scrolls depicting the four seasons of an area near Mt. Fuji.

When strolling around Ueno Park, I noticed the different school uniforms worn by the children. The girls in middle schools wore dark navy skirts and blazers with white blouses, while the boys wore dark navy pants and nehru jackets with white shirts. The grade school children wore different colored clothing with matching caps, according to the school they attended.

Steve and I were most fortunate to be able to take advantage of the very low prices in air fare that were offered. The yen was also at an all-time low against the dollar, making the prices for hotel accommodations and meals less expensive than in the past. When Steve visited Tokyo in 1991, the yen was very strong against the dollar, and prices were very high at that time.

Steve and I thought that visiting Japan was a very interesting cultural experience, and we wished that we had more time there to explore the country, including climbing Mt. Fuji. We recommend learning some words and phrases in Japanese, as well as learning to ride the Japan's reliable mass transit rail system.

In the News

Diamond Fakes with Salt

Source: New Scientist March 2, 2002

A new patented process developed by DeBeers changes a low-grade diamond into one of finer quality. However, DeBeers will not be selling these diamonds but will use them to help jewelers spot fakes. Some treaters (Russia has this technology.) use a similar technique to enhance a diamond's quality. The process transforms low-grade diamonds that have a distinctive brown surface tinge caused by structural deformations into more valuable colorless diamonds (pink and blue) by annealing and flattening out the deformations. The low-grade diamonds are embedded in loose crystals of a metal halide salt, like potassium bromide or sodium chloride, depending on the desired color. They are then placed in a graphite cylinder and pressurized at 85,000 bars. An electric current passed through the graphite heats the contents to more than 2,000 degrees C for several hours and allowed to cool. Under this HP/HT technique, salts exert an even spread of pressure on the diamonds' surface, smoothing out the deformations.

Smuggling Diamonds Still Easy

Source: The Economist March 16, 2002

Diamonds, precious, small, and easy to hide, are still smuggled out of Belgium. Antwerp's diamond exchange reported 900,000 carats in 2000 from Belgium, but only 500,000 carats were officially exported from the country. Smugglers take local diamonds out of the country to avoid taxes, as licenses to mine or trade in diamonds are distributed by the president. Other smugglers import the stones into Africa's war zones, mix them with local stones, and re-export them as Central African Republic gems to circumvent the UN embargo. Experienced buyers recognize where a bag of uncut diamonds originates, but a diamond's origin is difficult to prove once the gem is cut and polished.

Synthetic Yellow Diamonds Mass-produced

Source: JCK March 2002

Gemesis Corporation of Sarasota, Florida grows 100 stones a month and is increasing its production by adding two new facilities. The company, working with the University of Florida, is planning a fine jewelry line for spring. Besides yellow, Gemesis produces blue, green, and colorless diamonds (which takes longer) and hopes to market the synthetic diamonds as "cultured". GIA recommends that jewelers looking to identify synthetic diamonds should expect to see clues like color zoning, metallic inclusions, zoned fluorescence, magnetism, and typically smaller sizes with intense color.

More on the New Sapphire Treatment

Source: Colored Stone March/April 2002 and JCK April 2002

The process that turns Madagascar pink sapphire a pinkish-orange, changes green sapphire from Songea, Tanzania to orange, and converts purple-red Thailand rubies an orange-red remains a mystery. When large quantities of treated padparadscha sapphires appeared on the gem market last year, Thai-based suppliers and laboratories promoted the gems as heat-treated. Some American gemologists remained skeptical and called the treatment a type of surface-diffusion. GIA believes that the treatment involves a type of HP/HT but does not dispute the surface-diffusion claim. Concentrations of beryllium were discovered on the surface of the gems, about 300 to 500 parts per million, when tested that diminished as it traveled into the gem's core.

Montana Sapphire Mining Update

Source: Colored Stone March/April 2002

Many companies, both large and small, mined in Montana for sapphires since their discovery in 1865. Digital Gem Corporation, formerly American Gem Corporation, sold their Montana sapphire mines, equipment, gem supply, and jewelry inventory in 2000. Heat-treating experts John Emmett and Troy Douthit of Crystal Chemistry in Brush Prairie, Washington purchased the heat-treating facility. Chris Cooney of Butte, Montana purchased the mine and processing facility at the Gem Mountain mine on Rock Creek and opened it to the public as a fee dig. Other properties were released or returned to their prior owners. AGC's inventory of between 6 and 8 million carats of cuttable sapphire rough, along with rough sapphire and jewelry, was purchased by Fine Gems International, formed by Robert E. Kane. Kane, who counts 25 years in the gem business, has matched and mixed thousands and thousands of carats of heat-treated rough and cut Montana sapphires from the 2mm to 5mm range. His company offers precision-cut closely-calibrated American sapphire in many sizes, especially the smaller ones.

Red Beryl Mining Update

Source: Colored Stone March/April 2002

Reclamation finished on the last of the red beryl mines in Utah's Wah Wah Mountains in early January, 2002. Gemstone Mining, Inc. held the claims until last year, when the company collapsed. Gemstone Mining, Inc. represented Amelia Investments, Ltd.'s Utah-based corporation to mine in the US, as Amelia's was based in Gibraltar, UK and not in the US. Gemstone Mining, Inc. mined the red beryl and sold the gems to Red Emerald, Ltd., the company established by Amelia that was responsible for cutting and sales. The Canadian-based Neary Resources provided investment funds for GMI and REL (who had no experience with gemstones) in exchange of 51% of the profits. Troubles hit financing and sales during 1998 to 2000. In 2001, REL refused a QVC red beryl promotion and jewelry supply contracts with Stuller, Inc. In June, 2001, the mining contracts went into default. REL has about 6,000 carats of cut red beryl that reside in a bank vault in Gibraltar. Tens of thousands of tons of red beryl ore mined by GMI was left at the mine and used for reclamation. A new mining application was recently filed by Red Emerald, Inc., the original owners of the mine.

Orange Spessartite Garnet

Source: Colored Stone Magazine March/April 2002

A deposit of brilliant orange garnet was discovered in the rugged mountains of northwestern Namibia in 1991. Another deposit was unearthed in the remote bushlands of Nigeria in 1999, but the African alluvial deposits for spessartite garnet ended in 2001. Namibia, Madagascar, and Brazil are now looking to establish new mining operations for the bright orange gem. The garnet was first discovered in the mid-1800's in Spessart, Bavaria. It has also been mined in Australia, Sri Lanka, Kenya, Tanzania, Mozambique, Zambia, and Pakistan. Manganese gives the orange color to spessartite, also called Mandarin garnet. The untreated gem is found in pegmatites and metamorphic rock. A pegmatite dike near San Diego, California yields spessartite.

110-Carat Diamond Unearthed

Source: JCK on the Net 4/29/02

A mine in Kono district of government-controlled Sierra Leone unearthed a flawless 110-carat diamond. The district produces 80% of West Africa's gems.

New Tucson Tanzanite Protocol

Sources: Colored Stone March/April 2002, JCK April 2002, and Lapidary Journal May 2002

Leaders of the world gem industry met with officials of the US and Tanzanian governments in a closed session February 8 in Tucson. Seeking a resolution to the alleged links between tanzanite and the al Qaeda terrorist network, they announced their "Tucson Tanzanite Protocol" the next day. The protocol enacts a system that will track tanzanite from the mines to the consumer. Law enforcement officers will remove unauthorized people from the mining areas. Anyone associated with the tanzanite business is now required to have identification and licenses. Tanzanite exports will operate under a certification system similar to the Kimberly Process that is used to combat "conflict" diamonds. Evidence for an official link has yet to be established.

Ernie Hawes' "Easy Square Emerald"

Source: Lapidary Journal May 2002

One of Ernie Hawes' many original faceting designs were published in the latest issue of Lapidary Journal. The "Easy Square Emerald" cut shows a simple pattern for both pavilion and crown but does not sacrifice brilliance to do it. Congratulations, Ernie! A picture of the cut stone in citrine is on the page for the diagram, on the bottom of the cover, on the inside cover, and at the top of another article that explains how to align your faceting machine. Well done, Ernie! Look for Ernie's "Queen's Fancy" cut that is scheduled to be published in a future issue of Lapidary Journal.

Pueblo Park Bytownite

Source: Rock and Gem June 2002

Robert Beard wrote about collecting gem quality feldspar, also known as bytownite, at Pueblo Park in southwest New Mexico near Reserve. The collecting area lies in Catron County in the Blue Range Wilderness of Apache National Forest. The Pueblo Park Campground is on Forest Service Road #232. The author described his hike to the actual collecting area on top and around a mesa. Bytownite is a plagioclase feldspar found in basic plutonic rocks, some metamorphic rocks, and meteorites. The feldspar occurs as reddish-colored and pale yellow pebbles. Facet-grade material can be found. Faceted bytownite makes lovely pendants and earrings but is too soft a stone for rings.

Faceters Guild Workshop

by Nancy L. Attaway

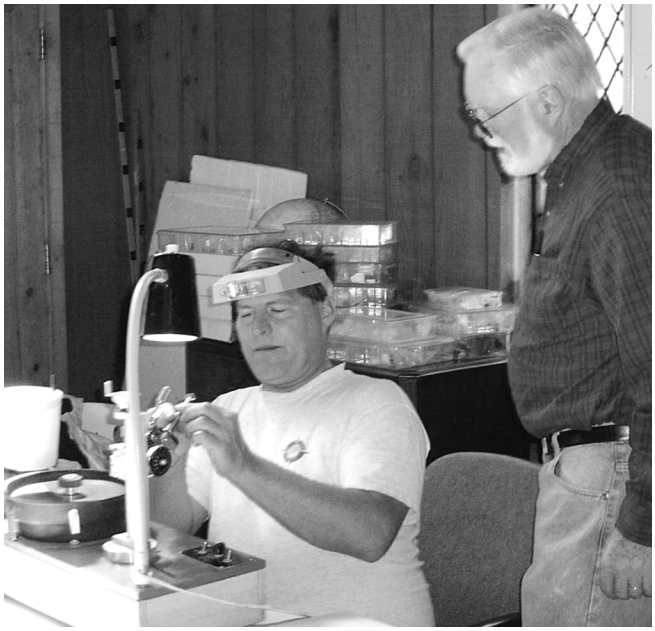
The New Mexico Faceters Guild held a workshop at the home of **Scott Wilson** on **March 12** that lasted all day. **Ernie Hawes** organized the workshop and served as its moderator, assisted by **Scott Wilson.**

During the two-and-a-half-hour morning session, Ernie Hawes discussed cutting angles recommended for faceting by various authors. He made a comprehensive list of these angles and passed handouts to the group. With the aid of his laptop and GemCad programs, Ernie took Guild members through the different recommended cutting angles for several different faceting diagrams. He showed how a stone cut at one set of cutting angles for a particular diagram would actually appear different from a stone cut in the same diagram with another set of cutting angles. Guild members noted the change in brilliance for many of the sets of cutting angles using the same faceting design. Some sets of cutting angles increased the sparkle in a gemstone, while other sets of cutting angles diminished it.

Scott Wilson ordered pizza for lunch and served chips and salsa. **Rainy Peters** baked an apple crisp coffee cake. **Elaine Price** baked date-filled scones. Cookies, coffee, and iced tea were also served. Thank you all very much for bringing home-baked goodies.

Gary Peters, Marc Price, and **Carsten Brandt** all worked on several stones that we hope to see at the next meeting. **Laura Kirkpatrick** used one of Ernie's Facetron faceting machines to cut a large round, pale-colored Oregon sunstone. She cut the crown of her sunstone and got it ready to polish. Good job, Laura. **Doug Stone** worked on a round amethyst, and his daughter, **Arianna,** worked on one of Ernie's Facetron machines to cut the pavilion of a stone. **Bill Wood, Elaine Weisman, Rainy Peters, Elaine Price, Magail Medina,** and **Waylon Tracey** attended the morning session and observed part of the afternoon session. **Steve** and **Nancy Attaway** arrived during the afternoon session, after a successful morning of casting in their studio.

It is so very good to see folks actively faceting at workshops. Thanks to all who participated. We all look forward to the next workshop on May 11.

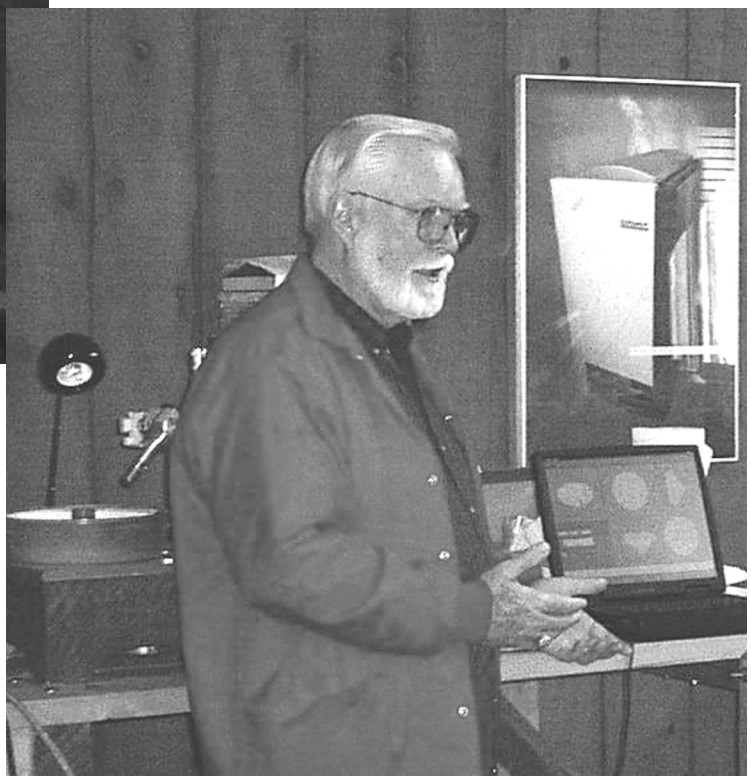


Ernie Hawes instructs Arianna Stone in faceting.

Ernie Hawes helps Doug Stone solve a faceting problem.

All photos by Gary Peters.

Workshop Photos



Waylon Tracey observes faceting techniques.

Ernie Hawes, with the help of his laptop computer, explains how different sets of faceting angles can change the appearance of a gemstone.

Arianna Stone and Laura Kirkpatrick cutting stones on Facetron faceting machines.

All photos by Gary Peters.

Faceting Gemstone Tablets

by Nancy L. Attaway

When sorting through various parcels of gem rough, I examine the pieces and note what shapes might be yielded. Not all pieces of gem rough in a parcel will allow a facetor to cut the traditional shapes of rounds, ovals, triangles, squares, pearshapes, and emerald cuts. A few of the pieces of rough will just be too thin and not have the depth required for a stone with a fully-faceted pavilion. Consider then faceting these thinner pieces into tablets. Gemstone tablets in amethyst, citrine, ametrine, tourmaline, emerald, sapphire, peridot, and aquamarine all make lovely cut stones quite suitable for jewelry. Faceting tablets provides a creative means to utilize those thin pieces of gem rough.

It is a lot of fun to create your own patterns for the outline of a tablet, and some of these can get pretty fancy, depending upon the overall size of the piece. Look for distinct crystal sides and use them in the outline. A thin piece of rough of a gem in the hexagonal crystal system often exhibits a six-sided pattern. Locate those sides with a faceting machine at 90 degrees and make them the main sides of the tablet outline. Memories can also inspire pattern outlines. Remember the ornate picture frames you have seen, those antique windows with the beveled glass, and the shape of gorgeous stained-glass windows in church. Think about how you might fan out a series of facets at the top of the tablet, at the bottom, on the sides, or even at the corners.

After establishing the tablet outline, I usually facet three step cuts on the pavilion side and then a large culet facet, which is really a table facet. Tablets have double-sided tables. After the transfer, I facet two step cuts on the crown side and then a large table facet. If the gem material is too thin for three step cuts on the pavilion, then I just cut two. On thicker and larger gem material slated for tablets, I like to cut a very thin step cut around the table that outlines the table facet.

The angles I use varies according to the depth or thickness of the gem material, as well as the type of gem material being faceted. For gems usually faceted at quartz angles, I have used a set of pavilion angles at 55, 49, and 43 degrees, with 45 and 35 degrees or 40 and 30 degrees for the crown. It all depends upon the optics and depth of gem material and whether I need to work around any inclusions. Sometimes, I add some decorative facets, other than step cuts, to a tablet design.

Now that the gemstone tablet is finished, how can these tablets be set into jewelry? Some pendant mountings can be fabricated at the jeweler's bench, while others can be cast with a little bit of fabrication added afterwards. Steve has hand-fabricated some very nice pendant mountings for my gemstone tablets. We also use CAD/CAM (SolidWorks) to design pendant mountings and make wax patterns for casting. These are tailor-made for the stone, as the cutting angles are incorporated into the setting. We use CAD/CAM (SolidWorks) for designing and manufacturing jewelry for some of our faceted and carved gemstones, also. (Please see our article on using CAD/CAM programs in the July, 2001 issue of Lapidary Journal.)

The main reason that I differentiated between the pavilion side from the crown side in gemstone tablets was that my husband, Steve, often renders a reverse intaglio carving that he hand-carves in the pavilion table facet. (He has three types of carving tools, and one is what the dentists use on our teeth, noise and all.) These reverse intaglio carvings show up well when viewed from the table facet of the crown. Steve likes to carve scenes with hummingbirds and flowers or scenes with jumping frogs. For gem material not quite deep enough for a traditionally-faceted pavilion with a pointed culet, you can still use traditional cutting for most of the pavilion. However, instead of a pointed culet, cut a flat culet facet. This can be carved later, whether in bubbles, a sphere, lines, or a scene.

Other faceters we know have utilized particular areas in faceted stones for carving. Guild members Gary and Rainy Peters purchased faceted citrines and pink tourmalines. Gary re-cut these stones to improve the meetpoints and to make the stone more symmetric. In doing so, he cut several large facets in the pavilion. Gary then carved spheres on those larger facets for a really unique look. Also, several GANA artists (the Gem Artisans of North America) are noted for their special carved enhancements of faceted stones.

Gem rough in the finer grades usually cost a lot of money to buy. It then becomes important to be able to facet most of the pieces in a parcel of high quality gem material, particularly if the parcel was expensive. Many of the pieces of a parcel will yield traditional shapes. Some might even yield a cut stone if the facetor is willing to alter known designs to accommodate an irregularly-shaped piece of nice gem material and facet something truly original. Faceting tablets is another avenue to explore that I highly recommend.

{Please see our website at: www.attawaygems.com for pictures of gemstone tablets set in jewelry.}

Facet Designer's Workshop

By Ernie Hawes

The Source of Creative Ideas

Where do designer's get their ideas for new faceting designs? That is a question I have often pondered. I have read at different times that a designer was inspired by the shape of a flower, the design of a medal, a mosaic on a floor, or the stained glass window in a cathedral. Certainly, many designs originate from mistakes in cutting, but some designs just seem to come into the designer's mind with no apparent basis. Many designs are also inspired by the patterns created by others. Of the nearly 4000 designs in the DataVue2 data base, any casual observer will see many similarities among the patterns. Considering that we are dealing with geometry and a limited number of outline shapes, it should not be surprising that the two designs for this issue were inspired by the work of others.

Merrill Murphy was creating faceting patterns long before we had personal computers and specialized software to aid in designing faceting diagrams. The ray-tracing programs that now allow us to evaluate many different sets of angles to determine what will likely result in the best scintillation and light return were unheard of until a few years ago. Designers like Merrill could calculate workable angles and cut a design to evaluate its general effectiveness, but the probability of cutting many different variations to determine what worked best was highly unlikely. Sometimes, a designer would draw a two-dimensional diagram on paper that simply could not be translated into any set of cutting angles that would result in a stone with the same appearance as the paper pattern.

Relative to this, I have had the privilege of looking through Merrill's sketch book and was awestruck by the variety and beauty of his work. Some of these drawings were completed, angles calculated, and stones finished. Some of Merrill's designs had been published in ***Lapidary Journal*** and in other publications elsewhere. Some of his designs were even used in major faceting competitions. However, not all of Merrill's ideas ever got beyond the paper drawing stage. Merrill was not sure if all of his designs would be workable.

Over a year ago, Merrill gave me copies of a couple of these unproven patterns and asked me to see what I could do with them in GemCad. As it turned out, neither could be turned into a design with appropriate cutting angles that would look much like the original drawings. Somehow, I felt that these ideas of Merrill's could be modified into something that was workable. I thought about them off and on for quite awhile and tried different things in the computer, but I was only minimally successful.

Merrill recently showed me another pattern for a pavilion that really intrigued me. Once again, it just would not work when translated into three dimensions on a stone. I was determined to come up with a pattern based on Merrill's idea that would work. Using the programs GemCad, GemRay, RayWin, GemFrame, and GemFlick, I was finally able to meet my goal far more easily than any designer could have done just ten years ago. Thus, the first design presented here, while ultimately my creation, was strongly influenced by Merrill's drawing of thirty years ago. Therefore, ***Merrill's Inspiration*** seems to be the most fitting name, and, I hope, a well deserved tribute to one of the great contributors to our hobby. The design is only moderately difficult and cuts a really bright, scintillating gem.

The second design is almost wholly another person's creation with only slight modification by me. Dylan Houtman asked me to put his design in GemCad, and we published it in the November/December 2001 issue. However, there was something non-traditional in his design that just seemed to beg me to modify it. As the design moved around from the end to the side, the upper corners of the crown girdle facets gradually lost contact with the lower edge of the step-cut facets adjoining the table. I am not sure what Dylan's premise was. As I understand his procedure, he first cut the stone, and then drew it, based on his cutting record and how the stone actually came out. I wanted to see those facets all meet as they went around the stone, and that is what I modified. While I feel I can take credit for the

modification, I feel it is only appropriate to call the design, ***Houtman's Oval Revised.*** Most of the credit for this diagram belongs rightfully to Dylan. What I challenge other faceters to do is cut this pattern in very small stones as Dylan has. It will look great in larger stones, and I suggest cutting a bigger stone first, before undertaking anything under seven millimeters long.

Alpha Taurus For Sale

As many local faceters know, I have more machines that anyone with good sense needs. I just bought a new Alpha Taurus to use as my primary machine. Although I want to keep some of the other machines to use in the Guild's workshops, I have decided to offer the two older Alpha Taurus machines for sale. Both have been carefully calibrated by me and are in good working condition. Each has a 96 index gear and comes with a basic set of laps and a standard set of dops. New Alpha Taurus machines, without laps, list in Alpha Supply's catalog for $2,250. I will take $1,100 for the older one and $1,200 for the newer one. I will even throw in some gem rough to sweeten the deal. Call me, Ernie Hawes, at (505) 821-3201 if you are interested. I can also be reached by e-mail at ehawes7@comcast.net.

Next NMFG Workshop

The next workshop of the New Mexico Faceters Guild will be held May 11 at the home of Steve and Nancy Attaway in the East Mountains. We will begin at 9:00am and continue until 4:00pm. Ernie Hawes will have a sign-up sheet at the meeting May 9 with directions to Steve and Nancy's house. See you there.

LET'S TALK GEMSTONES

Edna B. Anthony, Gemologist

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Garnet Group

[A NESOSILICATE]

The Pyralspites

The following is a continuation and the conclusion of the series of articles on the garnet group.

PYROPE

$MG_3Al_2Si_3O_{12}$Magnesium Aluminum Silicate

It is confusing that the term "pyrope" is used as a designation for an intermediate member of the almandite-pyrope solid solution series. Neither iron nor manganese is present in the chemical composition of this end member of the two solid solution series, almandine-pyrope and pyrope-spessartite. However, it is a component of the intermediate members of the two series and is present with spessartite and grossular in the spessartite-grossular-pyrope type of color-change garnet. The pure state of pyrope (it would be colorless) is not known to exist in nature. A possible refractive index of 1.714 is the lowest exhibited by a garnet. Joel Arem lists its physical and optical properties as follows: possible variation of the refractive index of 1.730

to 1.766, a dispersion of 0.022 and a variation of specific gravity of 3.65 to 3.87.

Intermediate members of the Pyrope - Spessartite solid solution series

As the chemical composition of the end member pyrope grades towards that of the end member spessartite in the pyrope-spessartite series, the physical and optical properties again change. The presence of manganese becomes more pronounced. Intermediate members of this series can closely resemble the hessonite variety of grossular garnet, but the granular "treacly" appearance of hessonite under the microscope is absent. Brown, red, orange, and yellow hues dominate the color range with peach and pink tones appearing as the chemical make-up approaches the chemical composition of pure spessartite. A dispersion of 0.027 combines with the high refractive index [1.79-1.81] to make well cut gems of the intermediate members of this series especially bright.

Malaya [Pyrospessartite]

The name of this variety of the pyrope-spessartite series is not related in any way to the area of southeast Asia known as Malaya or its people. It is derived from the word of the Swahili tribe in Africa meaning prostitute. Joel Arem in the *Color Encyclopedia of Gemstones* attributes it to the Bantu tribe word for "outside the family" or "deceiver". According to unconfirmed reports, miners, frustrated in their search for a different mineral and disgusted by the frequent presence of such a similar material, bestowed the unflattering name on the similar substance. The sources in Africa provided the name, but, perhaps, the use of the term pyrospessartite combined with the designation of the place of origin, Tanzania, would create less confusion. As with most varieties of garnet, it is necessary to closely examine pyrospessartite's physical and optical properties and/or subject the stone to chemical analysis to make a positive identification. It can resemble hessonite of the grossular garnets, but the diagnostic roiled "scotch in water" appearance of hessonite under the microscope is absent. Colors range from brownish red to lighter orange and yellow hues as the chemical composition nears that of pure spessartite.

Spessartite

$MN_3Al_2Si_3O_{12}$Manganese Aluminum Silicate

This end member of the two garnet series formed with pyrope and almandine was discovered in the 1800s in the Spessart area in northwest Bavaria (Germany). The deposit was small, and commercial exploitation of the material was limited. Subsequently, sources of attractive materials (intermediate between pure spessartite and almandite) were found in Sweden, Italy, Myanmar (Burma), Sri Lanka, Pakistan, Australia, Mozambique, Kenya, Tanzania, Zambia, Madagascar, Brazil, and the United States. The designation "spessartite" was applied to all and continues today. A "pure" spessartite was unknown in the jewelry trade until the discovery of the bright orange material in Namibia in 1991. With a high refractive index of 1.79 to 1.81, spessartite ranks second only to andradite in the wide range of indices exhibited by the garnet group. The dispersion of 0.027 equals that of almandite and grossular but is less than half that of andradite [0.057]. Specific gravity can vary from 4.12 to 4.18 with 4.15 being the norm. In addition to inclusions of tremolite, irregular "cobwebs" caused by dispersed drops of included liquid may be present.

Mandarin Garnet

The discovery of the iron-free, brilliant orange spessartite in Namibia in 1991 in commercial quantities created a sensation in the jewelry trade. The deposit lay in mica schist along the course of the Kunene river in the mountainous northwest area bordering Angola. Few inclusions marred the excellent crystals. The name "hollandine" was chosen for its introduction as a spectacular new gemstone. This was changed to Mandarin garnet when it was discovered that "hollandine" denotes a little-known metal. Within less than five years time, the deposit was depleted, and the area closed. The planned recovery of material from metamorphic bedrock in the rugged terrain surrounding the first find will be more difficult. Crystals recovered from the surface layer of this area contain numerous inclusions of tremolite, but cleaner material lies below. In 1999, a new source of the pinkish-orange gemstone was discovered in a remote area of Nigeria. Though the material was more yellow than the orange Namibian crystals, the size and abundance of the material made the public more aware of and increased the demand for spessartite gems. Despite great expectations, this deposit, too, was quickly depleted. Acquisition of material from the Nigerian area is sporadic and available only in small amounts from local native traders. Currently, developers are investigating a promising new deposit of a high (reputedly 90% or more) manganese content material located in the gem-rich Alto Mirador pegmatite dike of Paraiba in Brazil. Mandarin garnet brought spessartite wide acclaim. It is confusing that the terms "spessartite" "spessartine" and "manda-

rin garnet" are frequently applied to intermediate members of the spessartite-almandite garnet series.

Iron-bearing Intermediate Members of Spessartite-Almandite Series

As the ratio of iron to manganese increases and the chemical composition grades from spessartite to almandite, the refractive index rises and brown tones appear. However, the substances retain a vivid color caused by the presence of the manganese. This is typical of gems from Madagascar and the other sources noted above. The orangy-red material produced in Amelia, Virginia and Ramona, California set the standard for the most desired color for such spessartite gems until the Namibian discovery. Opened in 1903, the Little Three and the Hercules mines situated in a pegmatite dike near San Diego, California were the best known sources for iron-bearing spessartite gems until the late twentieth century. The high cost of production caused the close of the mines in 1997. As noted above, the intermediate members of the spessartite-almandite solid solution series are frequently and incorrectly referred to as spessartite or spessartine or mandarin garnet. These terms are no longer exclusive to iron free spessartite.

Color-Change Garnets

It has been noted earlier that the chemical composition of garnet can vary widely, so long as the "size" of an atom can be accommodated within the structural lattice. An intermediate member of a garnet series is often said to contain a "mixture of the molecules" of the end members of the series. This is a simple way to say that the ratio of chemical elements in the chemical composition changes in a progression from one end member to the other. In the pyrope to spessartite series, the elements involved are magnesium and manganese. In the chemical composition of pure pyrope, there is no manganese. If manganese is present in the surrounding matter as a garnet crystal develops, then it may occupy an atomic site in the lattice that could be occupied by a magnesium atom. It is thus said that a manganese atom has replaced an atom of magnesium. As the ratio of manganese to magnesium increases, the series "grades" from the end member pyrope to the end member spessartite until manganese has completely "replaced" magnesium in the chemical composition. It is important to remember that atoms of other elements can occupy sites in the atomic lattice. The color-change garnets are excellent examples of the complexity of the chemical make-up of the garnets.

The color-change garnets found in East Africa involve "a mixture of the molecules" of spessartite and grossular, with a substantial amount of chrome and vanadium incorporated into the chemical composition. Spessartite is the major component, but grossular can be almost half the composition, with almandine or pyrope also in the mix. In the *Color Encyclopedia of Gemstones,* Joel Arem gives the following information. The spessartite-grossular-almandine color-change garnet has a refractive index of 1.773, with a density norm of 3.98. It appears greenish-yellow brown in transmitted fluorescent light. In reflected fluorescent light, it changes to purplish-red. In incandescent light, it exhibits a reddish-orange to red color.

The spessartite-grossular-pyrope color-change garnet exhibits a change of color from "light bluish green" in transmitted fluorescent light to purple in reflected fluorescent light. In incandescent light, the color is "light red to purplish red". The refractive index is 1.763 with a specific gravity norm of 3.89.

Again, the *Color Encyclopedia of Gemstones* is the source of the information concerning the pyrope-spessartite color-change garnet found in the Umba Valley of East Africa. Calcium and titanium are a part of its chemical composition. A refractive index of 1.757 and a specific gravity of 3.816 are normal. The spectrum exhibits "absorption bands at 4100, 4210, and 4300 that may merge to form a cutoff at 4350." A wide definite band at 5730 occurs in material that exhibits a strong change of color. Acicular rutile and hematite platelets are common inclusions. These gems change from reddish purple in tungsten light to greenish-blue in daylight.

Joel Arem mentions color-change garnet crystals of less than a carat that have been recovered in Norway. The material exhibits a refractive index of 1.747 with a density of 3.715. The color changes from "violet in daylight" to "wine-red in incandescent light." He also mentions "alexandrite-like garnets" with a color change from "violet-red to blue-green." He notes only that although they "are small, -- a stone of 24.87 carats was sold in 1979".

[Author's note: This article concludes a series written about the garnet group. Some were published earlier in the **New Mexico Facetor**. For a clearer understanding of the material, the complete series should be read in sequence if possible.]

New Mexico Faceters Guild Website

The New Mexico Faceters Guild has a website that may be accessed at: www.attawaygems.com/NMFG. The site contains many interesting articles written by Guild members, informative reports on our noted guest speakers, and gemological articles composed by Guild Gemologist, Edna Anthony. We will update the archive section to include selected articles from the 2001 issues. We need also more photographs of jewelry made by Guild members for the Gallery section.

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Advertisement

FOR SALE

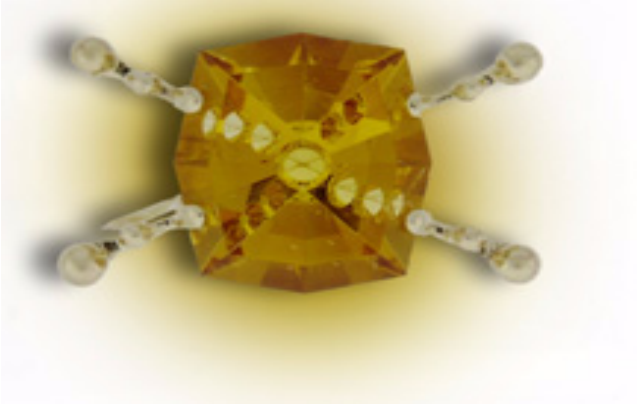
Graves Mark IV

John Roberts, a former member of the New Mexico Faceters Guild has for sale a Graves Mark IV faceting machine. Ernie Hawes has examined the unit and believe it to be in very good condition. The machine comes with 96, 64, 32, 80, and 120 index gears, 65 dops with a wood holder, two 45 degree dops, a transfer block, and two notebooks full of faceting designs. No laps are included, as John will use them on another machine. John is asking $500 or best offer. For those interested, please call John at (505) 299-8209.

Don't forget: next meeting is May 9, 2002 at 7:00 pm.

Meeting Location: NM Museum of Natural History.

Dues are $20.



Gary Peters re-cut this octagonal citrine to improve its symmetry. In doing so, he also faceted several large pavilion facets, and he later carved spheres into those facets. His skillful hand-wrought goldwork rendered a unique pin, where the citrine is the focal point.

Gary and Rainy Peters designed and hand-fabricated this lovely dragonfly pendant. They used a large freshwater pearl as the body and bezel-set opals as the lower parts of the wings. They set two small pearls into the eyes. Note the fine details in their goldwork on the long upper wings and on the head.

Gary and Rainy Peters designed a unique pendant around a carved piece of onyx. Their finely-done hand-wrought goldwork mimicked the curves of the stone. They set small amethysts around the onyx as colorful accents.