The New Mexico Facetor

Volume 20, No. 3, May/June, 2001

In This Issue

The Prez Sez:

by Scott R. Wilson, Ph.D.

Summertime for Americans is an interesting interlude. Folks are scrambling to deal with landscape needs, cleaning out the garage, planning road trips, fixing the air-conditioning system in the truck, organizing parties to celebrate the holidays, and running the youngsters to various outdoor activities. It seems to all combine together to form a whirlwind of activity that quickens in intensity with each passing day.

It becomes easy to miss a lot, though. Certain aspects of life fall between the cracks. Consider this case in point. I was recently on a collecting trip near Questa, New Mexico, in search of a rare mineral. I prepared to go the night before and rose very early for the long drive to get there. At first, I started to find just a few specimens, but the real treat came later. It so happened that amethyst crystals were often found near these rare minerals. Given as both would be considered micro-mount specimens (unfacetable, due to their small size), I did not look at them closely. Then one caught my eye. Upon closer inspection, I found the little 1/8-inch crystal to be of spectacular color, nearly perfectly formed, and with incredibly crisp "facets" and meets. I had been privileged to find one of nature's gems in an unlikely place. I felt very much enriched to have encountered this little beauty, and it made the scramble and madness peripheral to the trip be all worthwhile. If I had not taken the time to look for and enjoy the little things, I would have missed out on the experience. I think that holds true for all of our summer activities.

For those of you interested in going on a great field trip, the Albuquerque Gem and Mineral Club will hold its annual picnic July 28 at the San Pedro Mine. This is a historic area that has produced some spectacular garnet specimens. Some garnets may be facetable, although it will require some work to uncover a suitable one. If you would like to go, then attend the next AGMC meeting and pay your dues. You will then be qualified to go on the guided trip, enjoy touring the historic workings, and find a nice garnet specimen or two. The next AGMC meeting is July 23 at 7:30 p.m. at the Museum of Natural History. Have a great summer and be sure to take time to enjoy life's little rewards.

Minutes of NMFG Meeting

May 9, 2001

by Nancy L. Attaway

President Scott Wilson called the meeting to order at 7:10p.m. and welcomed all members and guests. He asked the visitors to introduce themselves to the group.

Old Business

Ernie Hawes announced the death of **Louie Natonek.** He spoke about Louie's contributions to the New Mexico Faceters Guild and his years of dedication to faceting. **Scott Wilson** remarked that Louie had probably taught faceting to most of the faceters in the state of New Mexico. This was Louie's legacy. Louie will most certainly be missed. The Guild thanks Louie Natonek for his service.

Guild Librarian Russ Spiering said that the Guild library contains many interesting and helpful books on faceting, lapidary arts, jewelry techniques, and mineral localities. Please contact Russ for a particular subject.

New Business

Ernie Hawes announced that he had a special offer for a pocket electronic carat scale from Diagem regarding multiple orders. He could get these carat scales for $145 each. Please contact Ernie if you want one of the carat scales.

Editor Nancy Attaway announced that the July, 2001 issue of Lapidary Journal will feature an updated version of the CAD/CAM article by Steve and Nancy Attaway. Pictures of new jewelry items will be included, along with the faceting diagram of the *Shield 2000.* Nancy remarked that Lapidary Journal published many articles and faceting diagrams by Merrill O. Murphy in the 1960's and the 1970's.

Ernie Hawes announced that he would now lead the faceting instruction for the New Mexico Faceters Guild. Ernie has several different types of faceting machines in his home that may be used for faceting workshops. He asked for assistants, and **Scott Wilson**, **Steve Attaway**, and **Nancy Attaway** volunteered to help as co-instructors. Scott Wilson also said that he could host some workshops in his home. Steve and Nancy Attaway could also host some workshops when their addition to their home is finished. Workshops will be announced in the newsletter.

Show and Tell

The Show and Tell Case tonight held newly cut stones and jewelry items recently rendered by Guild members.

Moderator Steve Attaway mentioned that he wanted to obtain a power-point projector to project the show and tell images on a television screen. He may be able to use the television owned by the Museum of Natural History and may be able to borrow a power-point projector from someone. This would help members attending the meetings to better view the items discussed during show and tell.

Jim Eker displayed a 152-carat chunk of rhodolite garnet that he recently purchased. The rough was clean and showed a rich reddish-purple color. Good luck on cutting that one, Jim. Can't wait to see the finished gem.

David Wimsatt displayed two large crystals from the Anahi ametrine mine in Bolivia. One showed a termination. David mentioned that he had a contact for the mine rough and asked members interested in buying ametrine to call him. **Steve Attaway** advised faceters who wanted to cut ametrine to take some time in studying the crystal. Orientation of the rough is important and should not be rushed.

Scott Wilson displayed two garnets and a sphene that he had used in the Guild display case shown during the Albuquerque Gem and Mineral Club's show in March. He asked members to note the difference in the dispersions.

Larry Plunket displayed an absolutely stunning large oval blueish-green tourmaline that he cut in the barion oval. Larry mentioned that he tried cutting the tourmaline three times before he was able to yield the final cut. Larry said that he used a 43-degree culet angle and polished the stone with alumina oxide. This fabulous gem would make a splendid ring stone.

Dylan Houtman displayed an assortment of gemstones that he had faceted. Among the display were several fine tanzanites, including a cushion-cut triangle, an oval, and a marquis style cut that Dylan terms his "Eye Cut". Dylan is a self-taught facetor and a new member. He said that he did not take notes regarding his cutting designs. **Steve Attaway** mentioned that **Ernie Hawes** and he are well versed in GemCad and could organize an original faceting diagram to be suitable for publishing. This would also allow a facetor to follow the prescribed faceting instructions. Steve advised faceters to take good notes when faceting new diagrams or when editing changes to existing faceting diagrams for solving faceting problems.

Nancy Attaway displayed eight stones that she faceted. She showed four Mozambique aquamarines: a flasher cut round, an emerald cut brilliant, a square barion, and a pearshape. These exhibited good medium to dark blue hues. She also showed four rubellite tourmalines, liddicoatites, from Nigeria: a dark reddish-pink flasher cut round, a small dark reddish-pink emerald cut, a dark pinkish-red large emerald cut, and an intense dark pink elongated pearshape. The aquamarines were all polished on a cerium oxide dyna lap. The tourmalines were polished on a ceramic lap, a Last Lap, and a corian lap, all with 60K diamond. Nancy remarked that she had stretched the *Meetpoint Pear* diagram to better utilize the rough for the elongated pearshape. She also said that two long pieces of pink tourmaline developed serious stress cracks during the initial polish stage that ruined one stone and nearly ruined another, but she may be able to salvage the one.

Steve Attaway displayed several jewelry items rendered from SolidWorks CAD/CAM. Steve showed a 14Kt. gold pendant that held the large emerald cut blue tourmaline that Nancy cut, accented by three channel-set diamonds at the top with a black Tahitian pearl dangling at the bottom. He showed a 14Kt. gold pendant that held the 93-carat faceted ametrine tablet cut by Nancy. The ametrine tablet exhibited an interesting purple growth pattern. He showed an 18Kt. gold pendant that held a gorgeous solid black opal from Lightning Ridge, Australia that he carved in a 13-carat cushion-cut triangle. Four diamonds and three Yogo sapphires accented the top of the pendant. He showed a 14Kt. white gold pendant that held the fine Madagascar rose quartz that Nancy cut in the *Long Shield 2000*. He showed a 14Kt. gold pendant that held the 55-carat ametrine shield that was faceted by Nancy, where the pavilion was carved by Steve. He showed a two-stone 14Kt. gold pendant that held a large shield cut Brazilian citrine and a small shield cut Uruguayan amethyst. The blue tourmaline pendant and the black opal pendant were laser-welded in several places by Mark Guerin.

Refreshments

Glenda Plunket and **Nancy Attaway** brought homemade refreshments to the May meeting. Gourmet coffee was also served. It was certainly a chocolate lover's night. Glenda brought many types of homemade chocolate delights, including chocolate-covered cherries, and Nancy baked her famous chocolate-cherry cake. Thank you very much. **Eva Tordson** and **Jim Eker** volunteered to bring refreshments to the meeting in July, and **Scott Wilson** will bring homemade ice cream.

Future Programs

Guild Mineralogist and **Vice-President/Programs Paul Hlava** will present his vast talk on "Emeralds" for the July meeting. Paul's extensive talk on "Emeralds" will require two meetings, both July and September. The scheduled talk by **Scott Wilson** on "Opal Synthesis" will be during the November meeting. Then, Scott will share his first-hand knowledge of synthesizing opals and will discuss the problems encountered during the process. Paul mentioned that gem dealer Joe Kast might be a possible speaker. Joe Kast would discuss his gem buying travels.

Program Speaker

by Nancy L. Attaway

Professional geologist and facetor, Will Moats spoke to the Guild on "How to Sell Your Jewelry on Ebay". Will holds a masters in geology. He has worked on the Cochise Project for Phelps Dodge, was associated with copper projects in Bisbee, and worked for Pegasus on several gold operations. Will is currently a program manager for the New Mexico Environmental Department. Will is also a very accomplished facetor and is partial to tourmaline.

Will began by saying that he operates a small family business that specializes in low-end jewelry. He also sells antique postcards of Yellowstone, one of his favorite geologic areas, and some antique mining postcards. He is usually able to purchase these postcards at a low price from various antique stores and marks them up to sell on ebay.

Will defined ebay as an internet auction site. Sellers pay fees to ebay to sell their goods, which ends up as a certain percentage of the sale. Buyers pay no fees for shopping on the site. Will explained that ebay hosts the auctions, but they are not involved with the transactions. Will said that ebay runs auctions twenty-four hours every day all year, and that millions of customers world-wide shop for goods on the site. He said that you may limit your customers to just ones in the United States, or you may include the ones outside the country. The ebay website is: www.ebay.com

Will mentioned several selling tips that he has found to work well for him. He recommended showing quality pictures of your goods for sale and how to best describe those items. He discussed the category options, the timing of the auctions, how pricing works, credit cards and checks, state taxes, how he ships, and record keeping. Will has used e-bay for several years and has had success selling on it.

When taking pictures of your items for sale, Will recommended the use of a digital camera. The color reproduction from digital cameras is quite good. He recommended also scanning the items as a direct input to your computer. He said that scanning images at 100 DPI was acceptable. He said to use a j-peg format as a host on your ISP site. If your photos need correction for color or enhancement, Will recommended using a photo editor, such as Adobe Photoshop, to improve both the color and quality of your photos. Will also mentioned the importance of a good light source and recommended taking pictures of your items outside.

Will said that there are many categories to choose from regarding jewelry sites. He posts to the fine jewelry site, regardless of the price of the item listed for sale. The category of fine jewelry has recently been subdivided to expand the customer base. Will said to remember that we will be selling to educated customers and to shoppers who are not very well informed. He has found that the majority of the sales occur on the last hour of the last day of the auction.

Will stated that the description of your item is very important. He mentioned including such details as millimeter dimensions, carat weight, quality grade of the stones, and the type and grade of metals used. He said that it was a good idea to avoid using any fancy HTML programming language in your description, as it will be too distracting to the customers. Although there are some unscrupulous dealers selling on ebay who are not all that honest, Will still recommended disclosing any known treatments to the gems. He remarked that he occasionally loses sales to these dealers with questionable reputations, as the competition to sell goods on ebay is absolutely enormous.

As Will mentioned, the timing of the auctions usually have a common factor in that most of the sales occur during the last hour of the last day. He said that three to five days is an adequate duration for an auction to sell inexpensive items, and that an auction of ten days (the maximum duration for an auction) would be better for expensive items. He recommended ending an auction late on a Sunday evening to allow the shoppers on the west coast more time to bid. Will remarked that ebay auctions are slow during the summer, as most people are out doing other things besides accessing their computers. He has noticed a lag in his sales during the summer months.

Will advised us to use a low minimum bid to encourage bidding and to avoid reserves, defined as the price below which the seller will not sell. Although it was common to receive only one bid on an item, Will said that it was still cheaper to sell on ebay than at a gem and jewelry show.

Will stated that having credit card usage was a likely advantage for customers purchasing expensive items. Accepting major credit cards increases buyer trust. Other purchasing options include personal checks and PayPal. PayPal involves transactions from your checking account.

Will explained his terms of business, and he said to be specific about them to avoid any confusion. He sets a payment due date and only accepts US currency. The types of acceptable payment methods that Will recognizes are cash, personal check, and credit cards. He holds personal checks for a certain amount of time to allow the check to clear.

Will tries to keep his shipping costs and ships as fast as possible. He said that it was important to clarify who pays the shipping and how much it will cost. He usually uses first class US mail, and he insures packages valued over $20. Gross receipts applies to New Mexico customers, and you need to report those sales. He said that he pays sales tax on goods sold to New Mexico residents, but that the vast majority of his sales are to out-of-state customers.Will could not stress enough the importance of good record keeping. He keeps detailed records of all transactions, as to who paid for what item, how much was paid for the item, when and how it was paid for, and when it was shipped.

Will stressed the importance of receiving good customer feedback. He said that you always want positive comments from your customers, and that you should post positive feedback first on your good customers. Will posts nothing about the few bad customers out there, as he tries to avoid posting negative comments that could come back to haunt him. He never wants to be involved in a situation that could damage his reputation. Will did say that he will report any bad, problematic customers directly to ebay.

Will told us that ebay fees involve taking a percentage of the selling price of an item when it sells. You still pay a listing fee even if the item does not sell. Will said that the fees for selling on ebay are low, and he said to check the ebay website for the current list of fees charged.

Will said that there were advantages and disadvantages of selling your goods on ebay auctions. By selling on ebay, he has greatly expanded his customer base. However, he has increased his computer workload and record keeping. He can sell his bulk-produced items easier and cheaper on ebay, compared to the fuss and expense involved in selling your items at a gem and jewelry show. He said that anyone can give it a try and list items for sale on ebay, providing first that you have a computer. Will closed by saying that virtually anything can be offered for sale on ebay.

In the News

Tensions Erupt at Merelani Tanzanite Mines

Source: Colored Stone May/June 2001 & JCK 5/16/01

The hostility between the local tanzanite miners and African Gem Resource Company has risen into violence AFGEM guards reportedly shot and killed several local miners, and a bomb was thrown into AFGEM's Merelani processing plant. Local miners have condemned the Tanzanian government for allocating Block C of the Merelani mines to AFGEM. Currently, Blocks B and D are being mined by local, small scale miners, and AFGEM was given the mining rights to Block C in 1998. Block A is currently not producing any tanzanite. An advertisement by AFGEM published in international jewelry magazines stated that the local small scale miners are illegal, and that tanzanite sold by TAMIDA (Tanzanite Mineral Dealers Association) members is inferior to gems sold by AFGEM. AFGEM is accused of marketing campaigns to establish a monopoly.

New Tanzanite Deposit

Source: Colored Stone May/June 2001

A new source for tanzanite has been discovered in the village of Usangi-Kifinyu, Mwanga District, Tanzania, located in northern Tanzania 93 miles north of Merelani. Samples of rough tanzanite, along with graphite and other indicator minerals similar to those found at Merelani, have been unearthed. One estimate of the rough tanzanite from this new deposit has determined it to be top-quality gem material, comparing well with that from Block D in Merelani. However, other reports question its existence, calling it a zircon deposit instead. More research and exploration will reveal what is really there and any marketing potential.

New Cat's-eye Alexandrite Deposit

Source: Colored Stone May/June 2001

A new deposit of cat's-eye alexandrite was discovered in the Tanzanian village of Mayoka, located in the Lake Manyara region of Arusha. The area has been producing large quantities of the rare gem, including sizes of one to one and a half carats; also emeralds. The area is located next to a national park. Land ownership is now in dispute.

Australia's First Ruby Mine

Source: Colored Stone May/June 2001

Cliff Resources holds the rights to Australia's first major ruby mine and a processing plant and mining camp are established at the site. The company is currently waiting for the results of its first bulk sampling run, consisting of 2,250 metric tons of gem-bearing gravel. Reports estimate the deposit to contain 4.6 million carats of ruby and sapphire. From September to December of the year 2000, the mine produced nearly 70,000 carats of large, gem-quality sapphires and an additional 97,000 carats of small gems.

New Jade Find in Myanmar

Source: Colored Stone May/June 2001

In a region known for its jadeite deposits, a remarkable discovery has been made in Phakant, a town in Kachin State in northern Myanmar. One single piece of jade, a jade dyke, was found that measured 70 feet by 20 feet by 16 feet, with an estimated mass of 2,000 tons. Instead of mining the massive jade wall, visitors are charged for a view.

A History of the Jade Age in China

Source: Colored Stone May/June 2001

Frank Doonan described the jade age in China as the heart of Chinese civilization, pre-dating the first known writing found in China. In Part One, he reported that jade culture was established around 5000 B.C., that the technology, social structure, and trade developed around the jade culture. He explained how the discovery of nephrite jade in east-central China was critical in the evolution of the jade culture, and he related that the Chinese has mastered carving and established carving centers before jade's discovery.

Canadian Diamond Mine to be Open by 2004

Source: JCK May 2001

DeBeers plans to open its first underground diamond mine in Canada's Northwest Territories by 2004. DeBeers acquired the Snap Lake concession in a hostile bid last December. The mine will be the first mine owned and operated by DeBeers outside of Southern Africa.

Lapidary Journal, July 2001, featured an article on CAD/CAM in the jeweler's studio by Stephen and Nancy Attaway. It also included her original faceting design.

Facet Designer's Workshop

By Ernie Hawes

Scott Wilson

FACET DESIGNER'S WORKSHOP

By Ernie Hawes

The Queen Series Continues and Another Design from Nancy Attaway

"Evolving" may be a more appropriate definition of my design for this issue. I have been intrigued with developing different pavilions for the designs that I have been creating these past several months. All have essentially the same crown, but the pavilion has evolved into a more complex pattern with each variation. I usually prefer to be somewhat simple in my designs, believing that too many facets can cause a design to become a bright blur when the stone is actually cut. Altogether too many designs have far more facets than are necessary to cut an attractive stone, unless, of course, one is cutting "doorknobs". A large number of facets may look interesting in the plan view drawing, but they often do little to add to the character of the design when cut. This is especially true when the finished gem is under 12 to 15 millimeters across its width.

After quite a bit of experimentation, I have created a new pavilion, based on that of the ***May Queen***. The facet angles on the crown have been changed so that all are now in exact tenths of a degree. The pavilion contains three additional rows of facets, and most of the original angles have been changed. Again, all facets are in exact tenths of a degree. I call this new design, ***The Queen's Fancy***. Use the new preform accompanying this design to create the outline, as the length-to-width ratio is slightly different from the previous patterns in this series. Try to be as exact in cutting the preform as you can. Otherwise, some angles may have to be adjusted slightly. I consider this design to be only moderately difficult, and it should give an experienced faceter few, if any, problems.

You will notice something new in this issue as to how we publish our designs. I have seen patterns printed elsewhere that included the ray-traced images from GemRay. I asked in a post to the Gemking Daily Faceter if anyone could explain how to capture these images so they could be printed. All the usual procedures I knew simply did not work. Thanks to Walt Heitland, I now know how. Now, you can have some idea of what the finished gem will look like before cutting it. For Nancy's design, we also have an actual scan of the finished stone, a beautiful citrine.

The rest of this article is Nancy Attaway's commentary on her new design, ***Oval Flair***. This is not a meetpoint design, and the cutting order is exactly as Nancy faceted the stone. With a little care and measuring of facets in the design, you should be rewarded with a beautiful ***Oval Flair*** gem of your own.

"Steve and I subscribe to many professional gem and jewelry magazines to view the latest jewelry fashions and read the articles pertaining to gems and mine sites. One advertisement showed a photo of a new emerald cut for a diamond, where the long sides were flared to a point instead of being merely straight. Thinking that the new diamond shape was a very interesting idea, I dopped a large piece of citrine rough for a new faceting project to see if I could design a pavilion similar to the one I saw.

The shape began with the traditional short sides of the girdle at 24 and 72 on the dial, with cut corners at 12, 36, 60, and 84. Instead of using 96 and 48, the facets normally used on the long sides of a traditional emerald cut, I had to figure out what facets to use as the facet pairs needed to comprise the side flair. Facet pairs of 90 & 6 and 42 & 54 were soon determined as the sets of facets that would give the best outward angle to make the side flair and come to a

point. I also wanted to make the flair more pronounced than what I saw depicted in the advertisement.

I began cutting the facets of the pavilion by cutting facets 12, 36, 60, and 84 to meet at a center point. I then moved to the short sides at 24 and 72 and cut those below the centerpoint. Cutting the pavilion facet pairs of 90 & 6 and 42 & 54 left an interesting "V" notch pattern that I thought would accommodate a "fan" quite nicely. So, I cut a series of five long and slender facets on each of the long sides of the emerald cut. These five facets "fanned" out from the culet point and spread out across the long sides of the emerald cut, coming to rest above the flared sides in and on either side of that "V" notch.

Returning to the short sides at facets 24 and 72, I wanted to cut a facet or two on either side of facets 24 and 72 for more sparkle. These additional facets were to have their points just below the centerpoint of the culet. I ended up cutting one facet on each side of facets 24 and 72 that accidently ran below the already-established girdle line. My emerald cut design became an oval when I cut four new girdle facets at 18, 30, 66, and 78. The crown facets relate to the pavilion facets pretty well. I thought about using a few star facets around the table but chose not to do so. The finished gem appears to have concave facets, but it is just an illusion. I named the new faceting diagram the ***Oval Flair***. This design was accomplished without the aid of GemCad, as I developed the design as I sat at the faceting machine, faceting the stone in its various stages as I went.

I will tackle an emerald cut flair next. I am thinking of having the two short sides and the two long sides of the emerald cut flared out to some degree. If I am successful, then the diagram will appear in the July/August, 2001 issue of *The New Mexico Facetor.*

Let's Talk Gemology

By Edna B. Anthony, Gemologist

Scott Wilson

Garnet Group

[A NESOSILICATE]

The Ugrandites

Uvarovite

It was noted in the *Let's Talk Gemstones* article introducing garnets that garnets containing calcium include the species **uvarovite**, **grossular,** and **andradite**. These are frequently referred to as the **Ugrandites**. Uvarovite [calcium chromium silicate: $Ca_3Cr_2(SiO_4)_3$] develops in the cubic crystal system and forms a series with grossular. It was named to honor the Russian Count S. S. Uvarov, once a president of the St. Petersburg Academy. The chrome-bearing emerald green mineral occurs as small, opaque crystals that rarely yield a transparent portion suitable for cutting a tiny faceted gem. Seams in chromite deposits permit the deposition of usually well-formed rhomboid dodecahedral crystals with striated faces. The icositetrahedron (isometric trapezohedron) habit and combinations of the two habits are known.

The largest and finest uvarovite crystals (1 to 2 inches) are found in an atypical deposit in a copper mine in Outokumpu, Finland. Deposits in the Sverdlovsk region near Saranaya and Sysert in the Urals are also well-known. Other sources include Quebec, Canada, the Texas mine in

Pennsylvania, northern California, Oregon, Spain, Italy, Polish Silesia near Jordanow, at Makri in Turkey, and India.

Uvarovite develops in a metamorphic environment in serpentines with chromite (ferromagnetic formations in South Africa, Norway, and Finland are examples) and in metamorphosed limestones. It is highly resistant to attack by acids until fused. Fusion occurs with great difficulty. Crystals leave a white residue on a streak plate and exhibit a sub-conchoidal to hackle fracture surface. Its hardness, 7.5, approaches that of topaz, and the density can vary from 3.4 to 3.8 on the Mohs scale. The usual reading falls between 3.71 and 3.77. Although brittle and fragile, there is no discernible plane of cleavage. The luster can vary from sub-adamantine to vitreous to resinous. The single refractive index reading is 1.86 or 1.87. In his *Gemstones of the World*, Walter Schumann lists the diaphaneity of uvarovite as "transparent to translucent", but he also states there is no dispersion. Other references make no mention of this property, nor of any inclusions typical of this specie.

Uvarovite's gemstone characteristics are outstanding, but its rarity and the very small size of its crystals make it practically unknown as a faceted gem. Fine crystals closely resemble the best emerald. Today, the crusts of small crystals on matrix are available at many trade shows, and the public is more aware of this lovely mineral. Many modern designers are using the druzy material for unusual freeform jewelry creations.

Grossular

A greater variety of colors occurs in grossular garnet [calcium aluminum silicate – $Ca_3Al_2(SiO_4)_3$] than in any of the other garnet species. The presence of small amounts of other elements produces various shades of green, black, orange-brown, red, and pink crystals. Its typical environments are regional and contact-metamorphosed zones of impure calcareous rocks (calcium carbonate rocks, i.e. limestones and shales). Less frequently, serpentines and metamorphosed basaltic lavas are sources of the isometric dodecahedral or trapezohedral crystals of this mineral.

The unusual transparent colorless crystalline grossular called *leuco* or *white garnet* is found in Italy (Cantanzaro), Norway (Telemarken), and at Jordansmuhl, Poland. It is seldom faceted and used as a gemstone. Massive white grossular found in China is carved.

{Part Two of Edna Anthony's garnet report will appear in the next issue of *The New Mexico Facetor.}*

Science Fair Winners

Bill Swantner served as a judge at the annual Northwest Regional Science Fair last spring. He selected a first place award winning entry and a second place award winning entry. The first place award went to a group of three students: Adriane C. Jiron, Vanessa A. Jamarillo, and Melanie C. Arellano, all from Washington Middle School. Their award-winning project was "How Do Crystals Grow?". Sue Peters was the teacher advisor. Since the New Mexico Faceters Guild usually gives a $100 US savings bond to the first place winner, Bill chose instead to give each participant $20. Each one also receives a one year subscription of *The New Mexico Facetor.*

Bill selected Nathan P. Rieb of Annunciation Middle School as the second place award winner. His award-winning project was "Making a Double Hologram". Debra Allen was the teacher advisor. Nathan is the recipient of a $50 US savings bond from the New Mexico Faceters Guild and a one year subscription of *The New Mexico Facetor.*

"All That Glitters" 2001, NMJA's 9th Annual Design Competition

The New Mexico Jewelers Association's ninth annual "All That Glitters" Design Competition will be held August 11, 2001 at 6:00 p.m. in the Hyatt-Regency in downtown Albuquerque. Deadline for entries is July 18, 2001. Dinner reservations must be paid by August 8, 2001. Awards and cash prizes will be presented to the first and second place winners of each category. All competition entries will be displayed at the Museum of Natural History for one month. All entries that are submitted by July 18, 2001 will be photographed, video-taped, and shown in the Museum of Natural History's Dynamax Theatre. Late submissions will be subject to a late fee and will also not be photographed, nor video-taped, nor shown in the Dynamax Theatre.

The design competition will entertain six categories. **Division 1** is for gold and platinum jewelry that retails over $2,000. **Division 2** is for gold and platinum jewelry that retails under $2,000. **Division 3** for is silver jewelry that retails over $750. **Division 4** is for silver jewelry that retails under $750. **Division 5** is the non-traditional use of materials in jewelry. **Division 6** is the gemstone category. All entries must be submitted to Mark Diamond's Jewelers, located at 2801-L Eubank Blvd. NE in Albuquerque.

IN SIGHT OF THE OLD HOME TOWN

By Merrill O. Murphy

Strange indeed are the workings of happenstance!

This is a story of many parts, many times, many places. It began when there were no Rocky Mountains in Colorado, when the present Garfield County was a shallow inland sea inhabited by swamp vegetation and primitive water creatures. Dinosaurs had yet to tread the land. Today, the Colorado River (once known as the Grand River) runs east to west down a deep valley, and the little town of Rifle sits about 5,000 feet above sea level and occupies both banks. US Highway #70 parallels the river. To the south ten to twelve miles, the terrain rises abruptly to a high ridge running east and west. Somewhat to the south on this ridge, there is a volcanic pimple called Mamm Peak (or North Mamm Peak). Mamm Peak soars upward to 11,123 feet above sea level, and most of its area lies within the Grand National Forest.

To the northwest of Rifle is another mountain or high plateau rising nearly vertically to about 9,000 feet above sea level. Its height would lead one to think it a part of the National Forest. My road map, however, does not so indicate it. It is a solid mass of shale reaching west into Utah and north nearly to the White River fifty miles away. I have no idea how deep the shale may penetrate below the river level. This region is locally called the Book Cliffs, because of the layered structure of the rock and its tendency to form cliffs dropping hundreds or thousands of feet nearly vertically. On some maps, this high region may be named Book Plateau. The shale of this huge area contains vast amounts of carbonaceous material left over from the plants and swamp water creatures of ages ago. These once living things are now a source of oil and gas in the shale. It has been said that this mountain range contains more usable oil and gas than all the rest of our nation, but the problem is to find a cheap method of extraction. The rock is white to grayish-white and locally called oil shale. This same shale extends to the south and southeast but isn't so obvious as on the north side of the river. Like most of the Colorado mountains, a phenomenon called plate tectonics caused the Book Cliffs to be slowly raised upward. The same phenomenon is still at work today.

To the north and northeast lies another range of very steep sandstone mountains called the Hogbacks. The Hogbacks have no part in this story except to complete the rude triangle enclosing the little town of Rifle. For many reasons, I call Rifle my "*old home town*". For one, I more or less grew up in Rifle a long time ago. Then, too, two sets of grandparents and a number of other relatives lived there when I was young. Even as a youngster, I was always interested in gems and minerals. I found dinosaur bone and agate and other "stuff" that never interested my father. Gold was his thing. Gold was the only thing that could rescue his family from the terrible depression of the period between 1929 and 1940. In a way, Dad found his gold in the mountain range just to the south. He found it in the form of exceedingly rare minerals that were not a yellow metal, and he found it too early in time. In those depression days, there was no demand for rare minerals, but Dad never gave up the hunt for gold. When he was not working on local ranches, he was combing the mountains for gold. Had there been any gold in our area, he surely would have found it.

As kids do, I grew up, married, and moved away from my "old home town", doing all this before I learned of the "sapphire" high in the mountains to the southeast of town. One of Dad's gold hunting cronies just happened to mention it in the presence of one of my younger brothers. My kid brother passed the information on to me. When I questioned Dad, he told me the little he knew about the "sapphire", but I still could not interest him in it.

Sometime after World War II, my little family and I visited our home folks in the "old home town". Of course, we had to go and take a look at the "sapphire" far across the Colorado River, atop the rock slide. Though the slide was ten to twelve miles away by air, its white color against the dark green background made it quite visible from most of town. Four Murphys went, my next younger brother, Lloyd, a still younger brother, Cyril, my youngest son, Raymond, and, of course, I went, too.

We took a rather devious course. The location we were interested in was within the Grand National Forest but isolated on all sides by ranch fences bearing "PRIVATE PROPERTY, KEEP OUT" signs. (Not legal, I think.). Luckily, I had gone through high school with a young lady who lived in a house close by a gate in that east/west running fence. Her name was Mary Jane Von Dette, and she or the Von Dette relatives probably live there still. Anyway, Mary Jane just happened to have a key to the padlocked gate. We drove through, heading south on a steep and rutted road. Had we been able to continue on that route, we would have topped the ridge a few miles east of Mamm Peak. Our old Ford pickup clawed its way only about a half mile before giving up the climb. From there, we walked a more

direct route angling southeast toward the slide. If we had reached the ridge top in the pickup, I think we could have driven east to the slide. There were no brush or trees on the ridge top.

The going was rugged and steep, as we hiked through brush and pines. Finally, we topped the high west-to-east ridge no more than 50 yards above the head of the slide. From there, it was awesome. Near the top, the slide was made up of compacted, solid, shale-like rock cut horizontally by thin layers of nearly black volcanic rock. Only far below was the rock face loose enough to be truly termed a slide. There were indications that the slide was unstable at the top and about to extend itself to the very top of the ridge. The slide was no more than 30 yards wide at the top, widening to about 200 yards at the bottom. We guessed the slope to be about 60 degrees. Dangerous? You bet! Anyone trying to cross it near the top would inevitably tumble all the way to the bottom, sliding about a quarter mile. **IT AIN'T NO SKI SLOPE!**

We skirted the slide well back from its top and immediately met a rough trail down an intersecting north-south ridge. Down the trail, perhaps 100 yards, we found a spike of volcanic rock about 10 feet in diameter at the base and rising to a height of about 15 feet. Along its base, we found a few rude, elongated crystals, looking in length and width like inch-long pieces of gray miniature bricks. Just lying there, the rough-surfaced crystals were dull but appeared to be somewhat translucent. When looking down on specimens and slowly rotating them, they suddenly flared with an internal blue-violet light. Obviously, they were not sapphire. I guessed them to be cordierite, also known as iolite. Obviously, others had preceded us to this site.

There were hammer-broken pieces strewn about. Many years have passed, now, and perhaps my memory exaggerates sizes. However, it seems to me that some of those broken pieces were over an inch on a side. Were they gemmy? Again, I don't know. I saw those pieces a few years before I learned to facet stones. They were simply stored away in boxes for years with other stones.

As interesting as the presumed cordierite was, the small, adhering, bright yellow crystals were at least as interesting. These were all about 1/ 4 inch across. Although many years have gone by, I think it was John Sinkankas to whom I sent specimens. He verified my guessed identification as cordierite and said that the little yellow crystals were sodium harmotome. I did quite a bit of bookstudy trying to find a sodium harmotome. I have never found reference to any such mineral, but I think it is a possibility. Harmotome, I found, is Ba (Al 2 Si 6 O 16) 6 H 2 O, a hydrous barium-alumina-silicate. Possibly, a bit of sodium may substitute for barium to give us a sodium harmotome. At any rate, harmotome is rare in the United States and not particularly plentiful anywhere. Its hardness is only 4.5, and the color is white, colorless, or slightly gray. Crystals are monoclinic and always form as interpenetrant twins. Could a touch of sodium turn them to bright yellow?

Cordierite has a somewhat similar chemical makeup. It is (Mg,Fe)2 Al 4 (Si 5 O 18), a magnesium/ iron-aluminum-silicate with a hardness of 7. It is transparent to translucent and is usually colorless, gray, yellow, or brown. It has a very strong pleochroism, where faceting grades show straw to pale or deep violet, depending on orientation. The index of refraction runs 1.54 to 1.55. In good grades, it can be cut into rather spectacular gems.

In our younger lives, Jerry, the kids, and I moved around a lot. Somewhere in the process, the rock samples from the top of the Mamm Peak Ridge did not make the move with us. We have never been back to that slide area, and I may be getting too old to go up there again. I decided to write what I know about the strange and wonderful minerals "*in sight of the old home town*". Perhaps, Lapidary Journal would be willing to print it if I could get two or three pictures. If not, our New Mexico Faceters Guild newsletter could use the story. Trouble came again when I began to research the happenstance that brought about the formation of those minerals. I now have maps that show where prospectors dug for "sapphire" east of the location we visited. I wrote letters several times to a Mr. Paul Pitman, whose ranch fences and locked gates block access to those old diggings. Mr. Pitman will not answer me. I do not think he wants me up there.

I then decided to begin the technical research. The most productive information was found on several pages of *Gems, Crystals, & Minerals* written by Anna S. Sofianides and George E. Harlow. The well-illustrated book was published by Simon and Schuster in 1990. Chapter 28, pages 363 and 365 are devoted to composition and were particularly informative. They describe the changes that take place in "*shale when extremes of heat, pressure, and ages of time*" are simultaneously applied to it.

Shale is mostly composed of clay minerals and tiny bits of quartz. These clay minerals consist of aluminum, sodium, calcium, magnesium, potassium, iron, other minor elements, and carbonaceous materials, such as those remaining when ancient plants and animals die and disintegrate. These clays remain stable at normal pressures and

temperatures at or below 300 degrees C. Few, if any, mineral changes occur. At or slightly above 300 degrees C, pyrophyllite appears from the reaction between quartz and the clay mineral kaolinite. If temperature continues to rise to 400 degrees C, then the pyrophyllite breaks down into one of the aluminum silicate minerals, such as kyanite or andalusite. The shale rock becomes harder and more shiny and actually becomes slate. If temperature (and pressure) continue to rise above 400 degrees C, then the slate rock changes to phyllite. At temperatures between 400 and 500 degrees C, chlorite and mica appear, and the rock becomes a schist. If pressure also increases, then almandine garnet may appear. With pressure increasing and temperature reaching 500 to 700 degrees C, minerals such as staurolite, sillimanite, cordierite, feldspars, and quartz may appear. The rock then changes from schist to gneiss. Thus, on the south side of the river, the rock we have called a shale is really a gneiss. Geologists can derive from the minerals and rock forms the temperatures and pressure levels the "shales" have experienced.

"Whoa", you say! "We started out with a shale rock on the north side of the river, extending into the high ridge on the south side. From whence came all that heat and pressure?"

I would have to reply, "Remember Mamm Peak? Somewhere far back in time, old Mamm Peak began to push up very hot lava. In the process, the shale rock on the south side of the river was forced upward, with the help of plate tectonics, to form the high ridge we see today, complete with pimple-like cone. Heat and pressure are always paired. Heat causes pressure in closed areas. Pressure in closed areas results in heat. The heat and pressure made a lot of changes to the original shale rock, and the shale was more than pushed upward and changed. Very hot lava was squirted between the horizontal *leaves* that were an original characteristic of the shale. Remember that I mentioned those horizontal, thin, black layers between *shale leaves* near the upper end of the slide area? The tremendous pressure against the liquid lava can and does force the lava into weaker areas of the base rock. This injected lava can be found many miles from the central cone. In our case, the weak areas are at the contact line between *leaves* of altered shale. Remember **shale, heat, pressure, and time!** Taken together, they can build or move mountains. Remember also happenstance. Consider the likelihood of a volcano appearing smack in the middle of the largest known deposit of shale!"

So, what does all this mean? 1t absolutely **must** mean the presence of a huge amount of rare minerals in the contact zones between lava and altered shale, millions of tons of it! Cordierite we know is there with sodium harmotome. Other strong possibilities are kyanite, andalusite, staurolite, and sillimanite. Weaker possibilities are almandine garnet, amethyst, and harmotome. Consider a like example. When **hydrogen** is mixed with **oxygen** and heated to **ignition temperature, water must result.** In exactly the same way, certain gym minerals **must** result when **shale** is **heated** to 500+ degrees C for a **long time** while under **high pressure**. If billions of tons of shale is so treated, then huge amounts of these strange minerals **must** result.

Yes, Dad found his gold in those mountains south of the Colorado River. However, he was born into the wrong time. He thought in terms of yellow gold because, in those depression days, there was no market for such strange minerals. Today, the true worth of those rare minerals and gemstones is difficult to imagine. In all probability, only a low percentage of stones will be faceting quality, but a low percentage of the tons that are there still means a huge amount. I believe that this area has the greatest gem and rare mineral possibility of any place in the United States.

How would I get into this area today? I might go in by the route we chose years ago but use a four-wheel drive vehicle. The Von Dette's are probably still there, and I think I could borrow the key that opens the fence gate. To get there, one drives south across the river. The road reaches the first sharp rise of the mountain and forks left and right. Take the right hand (west bound) fork. The road soon bears south and climbs to Talkembaugh Mesa. From there, the road you want runs due south. Follow that route to the Grand National Forest gate. The Von Dette house is about 50 yards east along the fence. But I am told that someone has built another home just inside the fence. If so, there is no simple way into the Forest unless you can gain permission from that homeowner. Check with the Von Dette's and tell them that I knew Mary Jane a long time ago.

Except for other locked gates, there is, possibly, an easier and better way. Instead of taking the right hand fork to Talkembaugh Mesa, take the left hand fork a few miles to a wide valley You could walk up the valley easily enough to the slide base. There must be lots of specimens in the debris, **except** that the Paul Pitman Ranch is beyond the fence. I am relatively certain he will not give you permission to enter. The entire Grand National Forest seems to be maintained for the benefit of Pitman and about a half dozen other ranchowners. I think I know of one more entry possibility, but it will require some special maps, planning, etc. Let us wait a bit on this one.

I mentioned why I call Rifle my "*old home town"*. There is more to the story than I first led you to believe. The larger story explains where my people came from. Perhaps you would like to hear what I know of it.

Obviously, the Murphys must have left auld Ireland and migrated to the U.S.A. I think they entered by way of Baltimore, Maryland. From there, they must have moved west in search of land they could claim as their own. They settled down in Kentucky in the area haunted by the notorious Hatfield's and McCoy's. In some way, they became involved in the feuding between the two families. Fearing for their lives, the Murphy family fled first to Colorado Springs, Colorado. Unable to find suitable land to prove up on, they moved to Rifle in the late 1880's, when Dad was still a youngster. There, they claimed land northwest of Rifle against the Book Cliffs and right at the lower end of the JQS Trail. That famous trail was the cattlemen's route to summer grazing atop the Book Cliffs. In those days, horses found it difficult to climb the trail. Nowadays, a fearless driver can take a four-wheel-drive vehicle to the very top.

My mother was a Randolph. The Randolphs claimed Scotland as their original home, but I am unable to find any Randolphs there today. The name sounds more French than Scottish. Anyway, they migrated through Baltimore, settled for a time in Iowa, then moved to a little farm about 25 miles northeast of Rifle and behind the Hogback Mountains. There, they grew wonderful potatoes in the rich black soil and sold them in Rifle. However, the winters were terrible. Snow was deep, and the temperature often dropped to nearly -40 degrees F. (Much colder than it gets there nowadays). The nearest neighbors were several miles away. Wolves howled at night and followed the horse-drawn sled when they went to country dances. Grandma Randolph often told me about all her children. She had 13 of them, but only five survived the harsh land they lived in.

My mother and father worked terribly hard to make a living for my brothers and me. Both my parents died in homes for the aged. Jerry's mother and father were also very hard working farm people. They, too, have been gone many years now.

And, that's the way it was a long time ago.

NMFG Information Exchange With The Gemking Daily Faceter

Paul Ahlstedt, the host and monitor of The Gemking Daily Faceter, has initiated an Information Exchange Program between faceting guilds and his internet faceting digest. In the Information Exchange Program, information relating to gems and faceting will be freely exchanged from The Gemking Daily Faceter for information from any guild newsletter. The New Mexico Faceters Guild is the first guild to respond to Paul's request for participants in his new program. *The New Mexico Facetor* has published many very informative and technical articles written mostly by guild members, as well as comprehensive reports from the programs given by our guest speakers. Paul will be posting many of our articles on The Gemking Daily Faceter website over the course of this summer and fall. The New Mexico Faceters Guild, in exchange, will be able to publish articles and postings from The Gemking Daily Faceter, providing that permission is obtained from the particular author. It is a part of New Mexico Faceters Guild credo that we promote the art and science of faceting and provide a means of communication between faceters and those interested in faceting, as it aids in the education and improvement of knowledge and faceting skills. The New Mexico Faceters Guild welcomes the continued flow of information and ideas and encourages other guilds to participate in the Information Exchange Program.

The New Mexico Faceters Guild's New Website

The New Mexico Faceters Guild now has a new website at: attaway gems.com/NMFG, where those interested may learn how to become a member and know where and when our meetings are held. Ernie Hawes has written a wonderful introduction that covers the history of the New Mexico Faceters Guild, and you will find it in the NMFG website. Many informative, technical, and very interesting articles are posted in the archives section, including comprehensive reports of many of the programs given by our guest speakers. The website plans to have a gallery of photos that will show the work of our guild members. We want to include any work rendered by all Guild members for this section of the NMFG website. Please contact the Editors for photos of your work.

E-Mail Addresses

Edna Anthony:	eba@bwn.net
Bill Andrzejewski:	sierragm@uswest.net
Nancy and Steve Attaway:	attaway@highfiber.com
Moss Aubrey:	drsaubrey@aol.com
Charles Bryant:	crbryan@swcp.com
Ernie Hawes:	ehawes7@home.com
Paul Hlava:	hpf1@qwest.net
Mariani Luigi:	ENVMA@IOL.IT
Will Moats:	gemstone@flash.net
Merrill O. Murphy:	momurphy@flash.net
Gary and Rainy Peters:	albpet@aol.com
Russ Spiering:	DesignsByRKS@email.msn.com
Jim Summers:	commish1@worldnet.att.net
Stephen A Vayna:	Vayna@transatlantic.com
Elaine and Al Weisman:	almgtcons@aol.com
Scott Wilson:	swilson@nmfiber.com

Don't forget: next meeting is July 12, 2001 at 7:00 pm.

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

GEM ROUGH FOR SALE

The faceting rough from the estates of both Louie Natonek and Rhonda Mills, who passed away almost a year ago, have been placed on consignment with Ernie Hawes. Ernie has some representative rough, as well as many of Louie's finished gems. There is a very extensive amount of rough that both Louie and Rhonda collected over the years. Please contact Ernie to see one of the biggest collections of faceting rough available outside Tucson. This is truly a great opportunity to buy some good quality faceting rough at fair and excellent prices. Ernie may be reached on his cell phone number, 350-4389 or by e-mail.

This is not going to be a fire sale, as both Louie's and Rhonda's families need the money. However, there will be bargains, and almost all rough will be priced below current value. Ernie is taking no commission for himself from either estate. However, Ernie will have some equipment and supplies for sale that he purchased from the estates. If you have any specific interests, please call Ernie at 821-3201.

Harriet Natonek has donated to the Guild whatever synthetic rough that is not sold for use by beginning faceters in workshops and at home as they learn to facet.

Future NMFG Meeting Dates

Every year, the contract between the New Mexico Faceters Guild and the New Mexico Museum of Natural History is renewed. The following dates will represent meetings scheduled for the Guild during the year 2001: **January 11, March 8, May 9, July 12, September 13,** and **November 8**.

Change of Meeting Room for July

The New Mexico Museum of Natural History has changed our meeting room just for the July meeting. Instead of gathering in the usual meeting room just inside the museum's entrance, we have been asked to meet upstairs in the Sandia Room, near the atrium. This is just for the July meeting only. We will resume our usual place in our regular meeting room downstairs in September.