

# The New Mexico Facetor

Volume 20, No. 2, March/April, 2001

## In This Issue

<b>The Prez Sez by Scott Wilson.....</b>	<b>1</b>
<b>LOUIS NATONEK .....</b>	<b>2</b>
<b>My Thanks to Louie Natonek.....</b>	<b>2</b>
<b>Minutes of NMFG Meeting .....</b>	<b>3</b>
<b>In the News .....</b>	<b>6</b>
<b>Betty Annis' Excellent Adventure</b>	<b>6</b>
<b>Facet Designer's Workshop.....</b>	<b>13</b>
<b>Let's Talk Gemology .....</b>	<b>14</b>
<b>E-Mail Addresses.....</b>	<b>18</b>
<b>GEM ROUGH FOR SALE .....</b>	<b>18</b>
<b>Dates for Future NMFG Meetings</b>	<b>18</b>

## The Prez Sez:

by Scott R. Wilson, Ph.D.

The Guild has lost one of its founding members, Louie Natonek, to a prolonged illness. Louie was one of the founding members of our Guild. Along with Louie's leadership in the early years of the Guild, he is also famed across the state of New Mexico for his faceting workshops. During those workshops held in his home, he exhibited his extraordinary skill in teaching beginners to cut, while imparting gems of expertise to advanced cutters. Sometimes, this was all done during the same workshop.

Nearly every faceter you meet around our state will have had some training under Louie. Many of his students have become competition-grade cutters, another testament to Louie's understanding of our hobby and his dedication to his students. I remember that Louie was a blue-ribbon cutter who designed several original diagrams for faceting.

The Guild has changed greatly since it began, but many of the programs and traditions that Louie helped start are still going strong. It would be our best tribute to Louie to continue and enhance these programs. The faceting workshop program that Louie started is perhaps the most visible of these, and I would like to encourage everyone to consider hosting one.

We will miss Louie's smiling face at our meetings and gatherings. His twisty little jokes and technical expertise will be missed, too. Our meetings just won't be the same. We will go on, though, to build in the traditions of our Guild and continue to explore the art and science of faceting. The spirit of the Guild that Louie imparted will live on.

Perhaps, Louie may now get to cut a 200-carat flawless indicolite in a SuperNova oval cut and not have to worry about cat-hair scratches.

Thank you, Louie, from all of us.



## LOUIS NATONEK

by Ernie Hawes

On Wednesday, April 18, 2001, Louis Natonek passed away. He had just turned 83 on March 25. Louie fought a long, hard battle with pancreatic cancer. Years before, he had successfully fought another cancer, but such was not to be this time around. Louie remained cheerful and kept a positive attitude most of the time over the past months, and he talked often of working on getting his strength back so he could do some faceting. Chemotherapy took its toll, as well as the cancer, so the hoped for strength never returned. The end came quickly over a period of three or four days, and Louie passed away in his sleep at Lovelace Hospital. He is survived by his widow, Harriet, her son, Robert Blake, a brother and sister in Illinois, and several grandchildren, and great grandchildren. Our thoughts and prayers are with them all.

Louie was one of the founding members of The New Mexico Faceters Guild back in 1981. The first Guild meetings were held in Louie's converted garage, a place where he also held numerous faceting workshops. Louie served at least one term as President of the Guild, and for many years was the Second Vice President and official Guild Faceting Instructor. On the Saturdays that Louie held workshops, he usually made a big pot of homemade soup, which attendees always relished. Louie knew how to cook as well as facet. The Guild just won't be the same without him.

Louie, old friend, we will miss you.



## My Thanks to Louie Natonek

By Nancy L. Attaway

I learned to facet in 1987 when Louie led me through three faceting diagrams, the *Standard Round Brilliant*, the *Cushion Square Old Mine Scissors* cut, and the *Supernova Oval*. Louie stressed to me the importance of meetpoint faceting and of correctly rendering complicated diagrams. He also showed me how to obtain a complete polish.

During the late 1980's, Louie guided Steve and I around the Tucson Gem and Mineral Show. We walked long distances through throngs of people, and Louie set a brisk pace. We returned the favor later by showing other faceters around.

Louie was the Guild's Vice-President of Workshops and Faceting Instructor for many years. He taught a lot of us how to facet and helped many Guild members to translate the faceting diagram to the doped stone. Many workshops held in his home brought faceters together to discuss techniques.

In 1980, Louie met Eldon Fleck and Ernie Hawes in Albuquerque when they demonstrated faceting at the Albuquerque Gem and Mineral Club Show. The next year at the Albuquerque Gem and Mineral Club Show, Ernie demonstrated faceting and spoke to Louie about forming a faceters guild. They formed the New Mexico Faceters Guild in 1981.

Louie competed in several regional faceting competitions, winning first place and second place honors. Louie's favorite faceting designs were the *Ultima* cuts by Clint Fruitman and the *Barion* series by Basil Watermeyer. Louie developed the *Cloud Nine* and the *Twelfth Nite* diagrams. Both of Louie's designs featured a round composition of facet slivers in the pavilion with fans of facets at specific intervals on the crown breaks. Not easy to do. He also liked the *Supernova*.

Louie Natonek was dedicated to faceting and served a long time as the Guild's Faceting Instructor. Louie was my faceting mentor. He expected me to undertake faceting gemstones very seriously and challenged me to render difficult faceting diagrams with sharp meetpoints and a complete polish. Louie's high energy level in faceting inspired me to cut a lot of stones, and he was always available to help solve any faceting problems. I am most grateful to Louie for being instrumental in instructing me to facet. Faceting gemstones has allowed me a new avenue in creating art, and I shall always treasure the opportunity to learn faceting from Louie.



## Minutes of NMFG Meeting

March 8, 2001

by Nancy L. Attaway

**President Scott Wilson** called the meeting to order at 7:15 p.m. and welcomed all members and guests. He asked the visitors to introduce themselves to the group.

### Old Business

**Ernie Hawes** said that **Louie Natonek** is not doing well. Ernie encouraged folks to send cards or call Louie.

**Ernie Hawes** saw nearly every hotel and tent at the February Tucson Show. He displayed the large 15x loupe that he purchased at the show. Ernie remarked that a 15-power loupe will allow a faceter a better view of the facets during polish. He purchased several 15x loupes and offered them for sale to Guild members at his cost.

**Treasurer Ina Swantner** reminded everyone that dues are due. Dues are \$20.

**President Scott Wilson** said that the 42nd annual Northwestern New Mexico Regional Science and Engineering Fair will be held at UNM's Johnson Center on March 16 and 17. Guild member **Bill Swantner** will be a judge and represent the New Mexico Faceters Guild.

### New Business

**Vice-President/Programs and Guild Mineralogist Paul Hlava** reminded members of the Albuquerque Gem and Mineral Club's 32nd annual Jewelry, Gem, and Mineral Expo - 2001 and invited everyone to attend. The Show will be held at the UNM Conference Center March 23 - 25. Several Guild members will be dealers at the show.

**President Scott Wilson** announced that he will provide a display for the New Mexico Faceters Guild that will pertain to the optical properties of a gem's dispersion.

**Editor Nancy Attaway** reminded members that the next meeting of the New Mexico Faceters Guild will be **May 9, a Wednesday**. The Guild had to reschedule from Thursday to Wednesday, due to a conflict with the New Mexico Museum of Natural History, where a large event on that Thursday evening, May 10, will be held.

### Show and Tell

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

**Betty Annis** displayed her new 14Kt. gold ring made by **Steve Attaway** with SolidWorks (CAD/CAM) that held a sparkling oval Sri Lankan blue zircon in a half-bezel. **Mark Guerin** laser-welded the ring, which was cast in two parts. The ring had six small diamonds flush-set on both sides of the shank as accents to the blue zircon.

Betty also brought two mineral/rock specimens from her recent journey to Antarctica, the Shetland Islands, and Tierra del Fuego. She thinks that one of the specimens may be the same as what is found in the Andes Mountains. Betty saw lots of penguins, majestic mountains, and icebergs calving from glaciers. She will write an article on her experience and provide photographs for the next issue of the *New Mexico Facetor*.

**Ina Swantner** displayed a well-made box of charoite from Russia. Charoite is mined in a rugged and very remote location in Siberia and must be transported out by helicopter. She also had two faceted emerald cut Russian synthetic emeralds. Ina purchased these items from the Tucson Show.

**Ernie Hawes** displayed a bright citrine that he faceted in his "Winter Queen" design. He mentioned that he made several adjustments to the diagram and will include those changes in a future issue of the *New Mexico Facetor*.

**Nancy Attaway** displayed ten stones that she recently faceted in preparation for the Albuquerque Gem and Mineral Club show. She had a 10mm flasher-cut round dark pink Nigerian tourmaline and a very large pearshaped tablet of rutilated quartz. The rutilated quartz showed a spray coming from one side. Nancy used a similar facet arrangement in this pearshape to the one shown in the "Main Pear Meetpoint" design. She had four Tanzanian rhodolite garnets: a 10mm flasher-cut round, a 9x9mm square barion, and two matching 10x7.5mm pearshapes. Both the large round and square barion contained rutile inclusions that gave the stones a velvety appearance, much like that seen in Kashmir sapphires. She plans to call them "red velvet rhodolites". Nancy also had four Pakistani peridots: a 10mm flasher-cut round, an 11.75x7.5mm emerald cut, an 8x8mm square barion, and a 7mm flasher-cut round.

Nancy remarked that she polished the tourmaline on aluminum oxide ultralaps, purchased at the Tucson Show. She used a ceramic lap to polish in the crown star facets.

**Steve Attaway** displayed nineteen of his carved black opals from rough purchased at the Tucson Show. The solid black opals from Lightning Ridge, Australia exhibited deep blue and green hues. Some were crystalline and glowed with intense blue and green color. He carved the black opals in triangles, ovals, rounds, kites, and pearshapes that varied in sizes from large to medium to small.

Steve also cast four 14Kt. gold rings. He made a man's pinky ring and gypsy-set a 0.38-carat round Australian sapphire, cut by Al Huebler. He bezel set an oval Sri Lankan sapphire and accented it with six round Yogo sapphires, three set on each side in tiers. He set a cabochon Idaho six-rayed star garnet in a ring. He inlaid a black opal triangle in a ring and channel-set three princess-cut Yogo sapphires.

**Paul Hlava** remarked that the tourmaline from Nigeria that Guild members were able to purchase three years ago from Mamadou Dramah was determined to be liddicoatite and represented a significant find. These tourmalines showed red, reddish-brown, and pink hues, some with orange cores. From microprobe analysis, Paul found somewhat high concentrations of bismuth oxide in the Nigerian tourmaline. Paul was contacted by the senior editor of *Gems and Gemology*, Brendan Laurs, who wants Paul to perform further analysis on the Nigerian liddicoatite. Skip Simmons will provide the optical research. Their findings will be published by GIA and in other international journals.

**Merrill O. Murphy** brought a display case that held some large mineral and crystal specimens. He showed a big chunk of zerodur, a special lens material used for telescope mirrors that has a zero temperature coefficient for expansion. He found it at Holloman Air Force Base. Merrill remarked that the zerodur was easy to polish. He had a large piece of North Carolina blue-green aquamarine and a large chunk of North Carolina smoky quartz. Of his two large topazes, one was clear and the other a reddish brown. He also had a thick piece of boulder opal in ironstone.

**Douglas Irving** brought an unusual etched copper ingot from the Congo that was thin, about four inches long with tapered ends. The age of the specimen was undetermined. It may have been used as a type of currency.

## Refreshments

**Merrill O. Murphy, Betty Annis, and Waylon Tracy** brought home-baked refreshments to the January meeting. Thank you very much, and we thank **Jerry Murphy** for that yummy cake. **Glenda Plunket** and **Nancy Attaway** volunteered to bring refreshments to the meeting in March.

## Future Programs

### Guild Mineralogist and Vice-President/Programs

**Paul Hlava** announced the programs scheduled for the next two Guild meetings. Paul scheduled a talk by **Will Moats** on "The Adventures of Selling Your Stones and Jewelry on the Web" for the May, 2001 meeting. Paul scheduled a talk by **Scott Wilson** on "Opal Synthesis" for the July, 2001 meeting. Scott Wilson will share his first-hand knowledge of synthesizing opals and will discuss the problems he encountered. Will Moats wrote an article that was published in the September/October, 1999 issue of the *New Mexico Faceter* on his experience of selling gems and jewelry on Ebay. Paul needs more ideas for future programs.

### Program Speaker

by *Nancy L. Attaway*

Paul Hlava introduced Doug Irving as the scheduled speaker for tonight. Doug described his trip to southwest Africa (Namibia) and South Africa that he made some years ago. Before he began talking about Africa, however, Doug provided an update on Canadian diamonds. He remarked that three million carats were being produced per year from the Ekati mine, and that a Canadian diamond cutting factory has been established. He also mentioned that the Canadian government was objecting to the logo inscribed on Canadian diamonds, which the government thinks too closely resembles the official Canadian logo.

Doug Irving began by saying that South Africa is home to significant deposits of gold and diamonds. Gold ore is found near Johannesburg. The famous Premier diamond mine lies northeast of Kimberley and east of Pretoria. The diamond-rich ore of the Premier mine is kimberlite. The Premier mine was discovered by Thomas Cullinan in 1902.

Doug said that the beach sands of Namibia's west coast contain alluvial deposits of very fine quality diamonds. The diamonds found on the coast of Namibia have been weathered from inland deposits, from kimberlites in the interior of South Africa, and have traveled downstream. The lesser quality diamonds have been broken from the action of the tumbling water. The best quality diamonds remain intact. A railroad worker first found diamonds in the sand dunes near Kolmanskop, Namibia in 1908. Although there are kimberlites in Namibia, they do not contain diamonds.

Many of South Africa's game parks and wildlife preserves are located mainly in the north and eastern sections, surrounded by tall grass savannas. Doug said that visitors

stay overnight in rondavels, round structures that serve as motels. The parks and preserves are closed from dusk until dawn to protect visitors from wild animals. Many place names in South Africa reflect a strong German influence.

The famous Kalahari Desert lies north of South Africa and east of Namibia. The Tropic of Capricorn runs a horizontal line across the central part of Namibia, the southern part of Botswana, the northern part of South Africa, and the southern part of Mozambique. South of the Kalahari Desert and also between the Kalahari Desert and Namibia lies a vast region of desert shrub. Very little vegetation grows along the west coast of Namibia.

Tsumeb lies in the north-central part of Namibia and is home to many world famous mineral specimens, such as the magnificent examples of the rich green and blue-green hexagonal crystals of diopside. Ore from the copper, lead, zinc, and silver mines there all showed high concentrations of arsenic. Doug remarked that over two hundred different minerals were unearthed from the mines, however, they are all now closed. When Doug visited the area, he noticed that the drivers of the tour buses were actually armed commandos. Doug mentioned that airplanes had to fly at an altitude of 18,000 feet to avoid getting shot down by missiles.

Doug showed slides of Aranda, a large uranium mine, where 170 tons per load by truck is mined. The work force lives nearby, and mineworkers have access to great medical and educational facilities. Doug also discussed the Ornetis mine, an underground copper and silver mine. He remarked that the region which encompasses Namibia's mining area receives less than one inch of rain per year, where 300-foot high sand dunes and 1,000 year old plants may be found.

Doug also visited the Namibian coastline, where diamonds were first dredged in 1965. Massive sea walls hold back the ocean during the mining of diamond-bearing terraces in the foreshore to depths of 66 feet below sea level. An offshore dike was built to mine the gravel. Doug explained that diamonds are found between the gravel and the bedrock. He noticed that workers swept diamonds by hand and labored in an area that was entirely cordoned off from visitors. This area was very heavily guarded. The workers usually stay six to nine months at a time.

Doug described how mechanized shape-sorters for diamonds at the mines in Namibia turned 3,000 cycles per second. Sorting was done by hand to separate diamonds from the concentrate. Most diamonds found there are colorless, but some colored diamonds are found. As many as 3,000 carats of diamonds are mined per day. Doug mentioned that

the mine managers must keep the different tribes separated or fights will occur. Some of the cultures are very different, and some of the tribes remain old enemies to this day.

Doug was interested in the mining history and visited some of the mining museums. Some of these museums displayed the old machinery used in the early days of mining.

Doug described one of the underground gold mines that descended nearly 8,000 feet into the earth. Doug said that underground gold mines are very labor intensive. Gold is poured into bars that weigh 1,000 ounces. Gold bars are then stacked on wooden frames known as wood packs. Under the tremendous weight of the gold, the wood is slowly squeezed until it all settles. Metal frames are not used, as they would be too brittle and would break. One gold mine now goes down to 12,000 feet, and there are plans to go down to 15,000 feet. Doug said that gold was formed in ancient placers that were washed downstream.

Doug visited Pretoria, the legislative capital of South Africa. Pretoria lies north of Johannesburg. He visited a mining operation where carbonate, copper, phosphate, magnetite, gold, and silver were all mined. Doug went to Barberton, northwest of Swaziland, to visit gold mines in that area, where 30 tons of gold have been extracted.

Doug described Capetown as an old and very picturesque colonial city. He said that Table Mountain, the famous geologic feature of Capetown, is an old sandstone. The southern region of South Africa along the coast is a very mountainous. Capetown is located at the tip of South Africa. The area receives enough rainfall to sustain a Mediterranean-like vegetation. Several vineyards grow varieties of fine white vines. Doug visited the Shellanvosch Vineyards and sampled some of their product.

Doug stated that a special permit, issued by both the mine and the government, is required to convey gold out of South Africa. The world demand for gold now runs 3,500 tons per year, or one hundred million ounces. In the US, 27,000 tons of gold are housed in Ft. Knox. Most of the demand for gold is industrial, as used in computer circuits.

Doug announced that a new lease has been issued in Tsumeb to explore the upper reaches of the mine for more of the fabulous diopside specimens. He remarked that many fine specimens were destroyed just to obtain whatever copper had been present in the specimen. Some of these specimens were truly magnificent and measured three feet tall.

Thank you, Doug for sharing your South African tour!



## In the News

### Sucher's Hope Diamond Replica

Source: Lapidary Journal March, 2001

Master faceter Scott Sucher once again has had one of his diamond replicas of famous diamonds in history published. The Hope diamond was the featured design. Scott provides the actual dimensions of the Hope diamond from his research. He recommends cutting diamond replicas in cubic zirconia to get optics that resemble those of diamond.

### GIA's Retrospective Issue on Gems and Locales

Source: Gems and Gemology Winter, 2000

GIA's Gems and Gemology provided a special publication that focused upon gems, gem locales, and gem-related issues of the 1990's. Included in the issue were reviews of new gems and sources, gemstone enhancement and detection, synthetic gem materials and simulants, technological developments and their impacts, jewelry with new cutting styles, design trends, and marketing approaches.

### DeBeers Will Go Private

Source: National Jeweler March 1, 2001

DeBeers made a restructuring move to go private by forming a consortium of three out of four entities that comprise the company. The consortium consists of the Oppenheimer family's Central Holding (45%), Anglo American PLC (45%), and Debswana Mining (10%). Anglo American is currently the world's largest mining company. Debswana Mining is a joint venture between DeBeers and the government of Botswana. DeBeers recently renewed contracts with the governments of Namibia and Botswana.

### New Demantoid Garnets in West Africa

Source: JCK March, 2001

A new source of demantoid garnets has been found in West Africa. After several years of exploration and mining, the first production lots consist of several thousand carats of fine green demantoid. The gems are marketed through Gem Demantoid and are available in a range of shapes and sizes. Most stones weigh between 1 carat and ten carats.



## Betty Annis' Excellent Adventure

### ANTARCTIA - My Tour

by Betty Annis

The travel brochure read: Tierra del Fuego, Antarctic Convergence, and Penguins. Mysterious? Ever thought you would see penguins en masse and seals on ice bergs? And, as for Tierra del Fuego, hmmm.

Quite frankly, when the literature said that the tour to Antarctica would sail from Ushuaia, I thought, oh, yes, the port of Buenos Aires. Tierra del Fuego never entered my mind. Yes, I had seen on maps Tierra del Fuego, an island at the tip of Argentina. However, I had not realized that Ushuaia was the capital city of this island, and nor that the Russian tour ship would actually leave from there. The best thing about Ushuaia is its name. The town is poor and struggles against very cold weather in the wintertime. Tourism seems to be their main industry, with the town having many souvenir shops.



Why did I want to go to Antarctica? Because I had never been there. Some people collect pins or dolls. Some travelers collect continents, with Antarctica being their seventh and final continent, and some tourists just wanted to travel new and different places. Did we have a good time? Yes, particularly the people, like me, who were not seasick!



My friend and I flew from Albuquerque to Miami, then red-eyed to Buenos Aires. In lieu of catching up on our sleep, most of us visited an estancia just outside of Buenos Aires. This estancia, an Argentine dude ranch, was interesting, but most of us were eager to get to our destination. Leaving Buenos Aires the next day, we flew to Ushuaia, then we spent a few hours wandering the streets and souvenir shops of the town, while the returning passengers from the Antarctica disembarked from our cruise ship and flew to Buenos Aires. Before we could go aboard, the ship had to be cleaned and restocked with supplies.

We boarded our cruise ship about 4 p.m. and found our cabins and luggage. Quite promptly we had the mandatory life board drill. The ship, by this time, had left the Beagle Channel and was starting to roll and toss in the rougher Darwin Passage. By the time dinner was over, many of the crowd were beating a very hasty retreat to their cabins. Rocking and rolling, tossing and turning, we traveled through the Antarctic Convergence and into the sheltering South Shetland Islands. It took us two days. We had 40 foot waves breaking over the main deck. Looking out our port hole was really interesting, as we had a sea-level view of the surge and spray of the waves.

We had three wonderful clear and calm days in the South Shetlands. Because tour companies can do nothing about the weather, some unfortunate passengers are scheduled for seven or nine days in the South Shetlands and only get to go ashore once or twice! For our scheduled three days, we had a morning trip ashore and an afternoon trip ashore. We saw two of the five types of penguins everywhere, chinstrap and gento, both about 27 inches tall. We saw fur seals, who are recovering from their near extinction after being hunted for their fur. We saw marvelous, simply fantastic icebergs, huge bergs, big bergs, and bitty bergs. One particular bitty berg calmly floating in the ocean had 16 seals on it, all sleeping and relaxing.

The ROAR of a well maintained Zodiac motor is a most welcome sound, when a group is in a Zodiac and cruising around the ocean. The water is about freezing, so a person falling into the ocean could live only about five minutes.

The South Shetlands are mountainous with rocky beaches. To get ashore, the Zodiacs are steered as close to dry land as possible. Then, passengers step into the water and wade a few feet to shore. Every one wears rubber boots with waterproof pants that keep the passengers dry. Passengers are also very careful not to slip on the rocks.

When our three days of shore visits were over, we then had the return trip of tossing and rolling and twisting to endure. We also had an extra thrill of Force 8 winds, about 35 knots. The ship had to slow from 15 to 5 knots. By this time, most of the passengers had their sea legs and ate heartily. When not going ashore, passengers have little to do by eat and drink. Because of this storm, we did not get to see Cape Horn, and we were half a day late getting into port. The cruise ship personnel rushed us ashore so they could clean and restock the vessel for the next group of tourists.

All in all, I had a wonderful time. However, if you ask me, "Should I go on this cruise?" my answer is, "If you have to ask, the answer is, No."



## ANTARCTICA

The cruise to Antarctica should properly be called swing and sway to the drumbeat of diesel engines. Now for the details, as recorded in my trip diary.

**February 13, 2001, Tuesday.** Today was rush, rush, rush. I spent last evening looking for a key to unlock the big suitcase. Fortunately, my daughter, Alison had a key that fit. I needed the big suitcase to put in my rubber boots and my plastic waterproof pants. After a very restless night, in which I thought about packing and repacked everything, I got up early, found a smaller suitcase, and repacked totally. In a smaller suitcase, I put my down coat and carry-on items. I do not have to carry anything except a purse

with my tickets and money in it. We drove to the airport early along with Tippy Dog and left for the airport about 6:10p.m. We arrived at the airport about 6:30p.m., and I checked in. Albuquerque had blue skies, but it was raining in Atlanta. My friend, Sybil and I flew business class, and it was marvelous. In Miami, we went to the area for Aereo Argentina. We left Miami about 9:00 p.m. and had to sleep sitting up. We were fed as soon as we were airborne. I slept a little bit, but I find it hard to sleep sitting up. Sybil takes a sleeping pill, puts eye patches on, and she has a plastic pillow she uses. So, she sleeps well. I had two seats but could not sleep lying down.

**February 14, Wednesday.** After a breakfast on the plane, we arrived at Buenos Aires early in the morning. We found our luggage and went through immigration and customs. A bus was waiting outside to take our luggage and us to the El President Hotel. Then, we found our rooms. I went on a one hour walking tour of the hotel. Buenos Aires has downtown buildings with a European flavor. The buildings have balconies with plants growing on them. The roofs of many of these buildings are like little patios with plants and even small trees. Downtown Buenos Aires is very clean.



Sybil and I went to the restaurant next door and ate. I translated the menu, since it was entirely in Spanish. That evening, a couple from Chicago and Sybil and I went to the Immortales Restaurant. We arrived very early, so we had superb service. The food was excellent. We had San Telmo cabernet savignon wine, which was absolutely marvelous, exquisite, and very smooth. The evening was beautiful, but Buenos Aires has many pickpockets and other undesirables in the streets, so we went directly back to our hotel for a good night's sleep.

**February 15, Thursday.** We ate a buffet breakfast at the hotel. The food was quite like European food in many ways. Then, most people went on a bus to the Estancia Susann, a version of a dude ranch, outside of Buenos Aires. It was rather boring. We had a great deal of food. The sou-

venirs were very expensive, so I just bought two or three postcards. Argentina uses US dollars, therefore, paying for items is easy. I tried to ride on the back of a horse, but my tennis shoes would not fit into the stirrups. Eventually, I made it onto the horse. However, the horse trotted, and I thought I would get sick. That particular motion makes me seasick.

**February 16, Friday.** We were up and ate breakfast by 4:00a.m. Then, we and our luggage were at the local airport, and soon we were off for

Ushuaia. We flew into Ushuaia, the capital city of Tierra del Fuego about 10:00a.m. This airport was new, having been built by private capital. The roof had huge beams across the ceiling. The theory is that more and more tourists, including large cruise ships, are going to be coming to Ushuaia. Ushuaia is the jumping off place for the Antarctic. The weather was cold. Being as far south as it is, the weather is probably always cold. Alas, I was wearing my black wool jacket only. I could have certainly used my khaki and orange down coat.

The group was rather unceremoniously let out in front of a hotel within a short walk of the pier and told to come back to the hotel about 4:00 p.m. So, the entire group wan-



dered the streets for approximately four hours. I bought some postcards and mailed them to Russell. I also bought a map of the Antarctica. Sybil tried to find a store that sold seashells, which she collects, but she had absolutely no luck. At last, the bus returned. The reason for the delay was so that the cruise ship could be cleaned, since it had just returned from Antarctica with a group of tourists.

This ship was Russian, not the American flagship we had been promised. The captain had very fair skin, very black curly hair, and a full beard. He really made quite an imposing figure.

We found our cabins, #418 in our case, got the suitcases inside, and immediately had a life raft drill. We took our life jackets out of the top of the wardrobe. They had probably never been near water and did not look like they could save anyone. We all went up on the proper deck to receive a short lecture on life rafts and how they swung easily out over the side of the ship should the need arise. A discussion arose as to whether we should put our arms through the loops on the life jacket, or just how was it that we were supposed to wear the things. After that was straightened out, we all answered to roll call. Attendance at this type of drill is mandatory.

Back to our cabins, to unpack. About 8:00 p.m. we ate dinner, as we steamed across the Beagle Channel. By bedtime, the ship was rolling somewhat, so Sybil and I each took a preventative dramamine and fell into our bunks.

**February 17, Saturday.** The ship was rolling much more as we were in the Drake Passage, which is just beyond Cape Horn. The Drake Passage leads to the Antarctic Convergence, which we had to cross. The Antarctic Convergence sometimes is called the Antarctic Polar Front. The convergence is a natural boundary between the cold, north-flowing Antarctic Surface Water and the relatively warm Subantarctic Surface Water. The Antarctic water is low in temperature and salinity, as a result of summer melting of sea ice and icebergs. It sinks to the bottom, as it flows northward. It plays a major role in governing the planet's climate.

Sybil and I took a second dramamine and went to breakfast. The only tourists eating breakfast then consisted of a small handful of hardy souls. The chairs at the end of each side of the table were chained down, and the tablecloths were wet. Many passengers took no medicine. Patches behind the ear were the fashion. However, the patches required a doctor's prescription. Some people had dilated pupils and were rather giddy. Ginger was also used

in food to keep the squeamishness down. Neither Sybil nor I took more than two pills and survived very nicely.

Today, the ship changed course slightly. Instead of lying in our bunks and rolling side to side, we were suddenly going up and down, head to foot. The waves were about 22 feet from bottom of the trough to top of the crest.

**February 18, Sunday.** Sybil has a towel that she wraps items in when they are wet. This towel wicks the water out of the items so they dry quickly. Sybil ordered the towel from a catalog and said that the towels were very expensive but that they seemed to work.

The ship was really rolling, but we ate breakfast anyway. Getting to the tables with food was tricky, because we did not have our sea legs. I always eat oatmeal for breakfast. The coffee served is that very strong European coffee, so I take two swallows and do not drink more. We had a lecture on penguins. The penguins on shore will be young penguins that are molting, and we are to leave them alone. Molting takes all their energy. Should they not have a successful molt, they will die. Also we saw dolphins jumping out of the water in the wake of the ship. The weather is getting cooler. The ship is doing 14 knots, its maximum speed., and the seas are very rough. Sybil has been taking moving pictures of the waves breaking above our porthole.

To change from Centigrade to Fahrenheit, double the C and add 26. This formula works for positive Centigrade only.

**February 19, Monday.** We arrived at our anchorage about 1:00a.m. Suddenly, the ship was not rocking. The ocean was calm. The temperature outside was 32 degrees F. We will see chinstrap penguins and gento penguins. They are about the same height, approximately two feet tall. There are also white birds, sheath bills, and fur seals. The fur seals have increased greatly in number, now that they are no longer hunted. The penguins sound rather like chickens. They walk, and they hop. Penguins look like ducks in the water, with a duckbilled head and a perky little tail showing.



The Zodiacs had Yamaha motors attached. The Zodiacs and their motors are what keep us alive out in the ocean. Because the water is so cold, we would live only a maximum of five minutes before we died of hypothermia. We needed our calf-high waterproof boots and our waterproof pants when we landed. The shore and the landing area in the water were full of cobblestones. While we were on land, we heard the ice wall calving several times but never saw where the ice was falling off, nor did we see any waves. On shore, we saw many penguins, mostly young birds, standing around, and one fur seal. A fur seal tried to steal someone's camera case and take it into the ocean. When we go on shore, we put our life jackets down, outside down, and put rocks on them to hold them down. People also put their camera cases on the rocks. A sheath bill bird tried to steal someone's purple scarf. The bird was busy pulling the scarf away from where it had been held down by a rock. Someone chased the bird away and hid the scarf.

The first landing was on Hannah Point on Livingston Island. Then, we went to Deception Island, a volcano that erupted in 1970. We are having beautiful weather. Deception Island has a few pools of hot water and people can swim in the water. Several people from our group swam. Neither Sybil or I swam.

**February 20, Tuesday.** We traveled on to Paradise Bay off of Anders Island. The temperature was 5 degrees C this morning. That would be 36 degrees F. The weather was warm and sunny. We saw a minke whale on our bow. We saw gento penguins today and fur seals. We also saw crab eater seals, and I took a picture of a crab eater seal. We are surrounded by beautiful snow covered mountains. On shore was an Argentine Rescue Hut. We looked at it but did not go inside. Then, we took a 45-minute cruise with Steve looking at an iceberg graveyard. In this cove, a great vari-

ety of icebergs were floating around. I found the fantastic forms of these icebergs really interesting.



The weather is incredibly warm. I am not wearing the various clothes I brought for extremely cold weather. At lunch time, we moved to another anchorage. Next time, small binoculars will suffice. I must bring more film and a more flexible camera. Movie cameras are ideal here.

We are at Paradise Bay now and going through some narrows. The scenery is fantastic. The mountains have really been carved, etched, and chiseled by glaciers and have very steep sides. Sometimes they have snow and glaciers on them, and sometimes not.

We went on an hour and a half Zodiac cruise around the bay. We saw fur seals and heard some calving of glaciers but never saw any. The mountains are almost perpendicular and rise about 5000 feet high. Around the corner, where we cannot see, there is an 11,000 foot high mountain. These are really fiords, such as are found in the Scandinavian countries. While we were in Paradise Bay sightseeing, on top of the mountain, a man and a woman from the ship were married. They had made previous arrangements. The couple will need to make it official when they return to the United States.

Tonight, because the ocean was so calm, we had free champagne and a BBQ on the bow of the ship. This was a welcome change from your usual meals indoors. Once the sun went down, of course, the temperature dropped. I wore a micro fiber suit with a jacket of micro fiber and was quite comfortable without a coat. However, my hands got cold.

At 10:30 p.m., I bathed and washed my hair. I could not dry it, because Sybil's hair dryer did not work with the ship's electrical system. I just combed it out and then wrapped a dry towel around my hair and hoped that I did not get pneumonia. The mountains out the porthole were beautiful.

**February 21, Wednesday.** I took some photos of the iceberg graveyard at the north end of Lemaire Channel. We landed at Pleneau Island and saw a king penguin with orange ears.

Incidentally, yesterday we landed on Antarctica itself! Today we saw many fur seals. One iceberg had approximately 18 fur seals on it. We saw also a leopard seal looking for dinner. I took a picture of a young Japanese man "driving" the Zodiac. Many bitty bergs drift by with fur seals on them.

We have had three beautiful days in a row, and tomorrow we go back to Ushuaia. After lunch, we landed at Port Lockroy. It is British and has a PO. Port Lockroy has a new name and is being run by Ukraine scientists doing research on the ozone hole. The ozone hole only happens in the middle of winter, and February is the middle of summer here. When they are outside in the winter, they wear hats that cover their head and face, put on a great deal of sunscreen, and wear sunglasses. Without ozone, the rays of the sun are really headed directly toward people.

A gale warning is out for the Drake Passage, so we leave hurriedly after the Captain's dinner tonight. The storm is going east, and we hope it goes east fast enough so we can head for Cape Horn. The sun is always in the north. Not much calving occurs, even though the ice is quite rotten. Sybil and I are fortunate to be invited to eat with the captain at the head table, and this table was served wine. The captain is tall and very impressive. He has a great mass of curly black hair and a curly black beard. His skin is exceedingly white. Heads would turn if he walked down the sidewalk. We both received printed signs, indicating the captain's table and signed by the captain.

**February 22, Thursday.** Wow! Such high winds and rough seas. The ship is going about five knots an hour, instead of the normal 14 or 15 knots, and is encountering force 7 and 8 gales. Force 8 gales are winds of 35 miles per hour. No one goes out on the open deck. At breakfast, only about half the passengers ate. People are getting their sea legs. The ship rolls, wallows, and swings up and down and sideways. The footing is very unreliable, as we never know which way the ship will swing. The rule is never let go of a handle unless you have a destination in mind. Walk fast and

grab hold of the support that you were heading. The chairs are chained down at the end of the tables again, and the table clothes are damp. When getting your breakfast food, always keep one hand free to grab a support, if necessary.

We hear big bangs and then a silence that is quite nerve racking. The engines just keep going. I think the silence is because the screws are out of the water for a short time, but I am not sure. I assume that the BANGs are caused by the front of the ship being very high and then banging down into the ocean. The ship should reach the Beagle Channel at about 11:00 tomorrow. We will not see Cape Horn, as the ship was delayed by the storm too long. At Beagle Channel, a pilot is picked up and stays with the ship until the ship docks in Ushuaia, approximately four hours later. Because we were approximately six hours late in arriving, due to the storm, all sorts of people had to change their airline tickets.



The people on this tour were very young. Only about ten people were over sixty. We had Shubert, a Japanese man from New Jersey who knows David Wu, another Japanese who lives in Albuquerque. We had Fred, who had been on the tour that went bankrupt in Tahiti last year. Two young married couples from Japanese were also aboard. Several 30ish women were around. One was a registered nurse, and she worked a while in one place, saved her money, and then traveled. When she returned, she had another job somewhere, saved her money, and then traveled. She had just finished a job in Minnesota. After this cruise, she was going to Hawaii to work. The other women were variations on this theme. One was entering law school

in Lubbock, Texas in the fall. She had just been notified that she had been accepted. Her home was in Amarillo. One couple had an RV, and they were traveling around South America. She was American, and he was German. He had retired early. They had left their RV in Ushuaia. A small group of RV'ers were with them touring the world. The Gomez family was also on board. Westin, their son, was about seven years old. He was sick a great deal of the time and was also very, very picky about what he ate.

**February 23, Friday.** We had more violent weather.

**February 24, Saturday.** When we docked, we were unceremoniously told to walk to the hotel at the end of the pier so we could be picked up about 4:00p.m. The ship's crew had to clean the ship immediately, because another group of tourists was arriving on the 4:00 p.m. plane to begin their cruise of the Antarctic. We were soon back in El Presidente Hotel in Buenos Aires with our luggage.

**February 25, Sunday.** I bought a one-way ticket to Iguassu Falls at the domestic airport, because I had lost my tickets. Sybil, Donna, a psychiatrist from Anchorage, and I were met by our tour guide, Dalma, and taken to our hotel, the Sheridan. We were on the Argentine side of the falls. Our guide led us along the path beside the falls. Seven major cataracts were running. Sometimes the water is clear, but this time, it was muddy because of a recent rain. These falls are fantastic! The falls are on the boundary between Brazil and Argentina, with the falls themselves being visible from the Brazilian side. Brazil had built a walkway out in front of the falls at the end. This walkway was built to last! Sybil and I both walked out to the end. Unfortunately, I got very wet from the spray of the walls. I had already acquired a sinus infection, and now I had a terrible cough. Because I had not realized that I had no change of clothes, I ate dinner in my wet clothes. We then went to our room and hung the wet clothes up around the room. By morning, they were all dry, but I still had my cough.

We also went to an aviary run by a nonprofit organization to save endangered species of tropical birds. We did not have enough time at this aviary. We would have had to return to Brazil on Monday, and the return was impossible because of time restraints.

**Monday, February, 26.** Because I had lost my tickets, Dalma, Sybil, the driver and I spent Monday in the town of Iguassu, Argentine, at the travel agent who specializes in Marine Expeditions work. Since I was returning to Buenos Aires in the afternoon and then leaving Buenos Aires that night for Miami, I needed tickets replaced. This matter took

all morning! I had to go to the police station with Dalma and sign a paper stating that I had not stolen them. Marine Expeditions usually does not replace tickets, or acknowledge problems, for 24 hours. Because I did not have 24 hours to wait, the agent finally called Toronto and received the necessary number to reissue the tickets. At last!

We went back to the Sheridan, picked up Diane, and bought some souvenirs. We then ate a quick sandwich in the bar at the Sheridan, and left for the airport. We arrived back in Buenos Aires to find Noreen Thompson sitting there. Her passport had been stolen when she and a group of our tour had shopped at a seedy Sunday market. She had spent all day getting her passport renewed so she could return to the US. We all went to the airport to leave in good time. I went with Noreen for another necessary paper, indicating that Argentina knew she had a duplicate passport. Then, Noreen and I both had to sign papers indicating we had lost our exit papers. Fortunately, we had no problems with customs, and finally we were on the plane for Miami. We parted ways there. Sybil and I had electronic tickets with Delta. We were lucky in that we caught an earlier flight from Miami to Atlanta to Dallas/Fort Worth to Albuquerque. We went standby and fortunately made the list every time. Therefore, we returned to Albuquerque about 6:00 p.m. instead of 9:30 p.m.

When I had lunch ten days later with Sybil, she handed me my tickets. Her suitcase and my suitcase that we had taken on the trip were identical. While my suitcase had been searched and researched, neither of us thought of searching her suitcase.





## Facet Designer's Workshop

By Ernie Hawes



Scott Wilson

### A NEW QUEEN and A QUEEN REVISED,

#### PLUS SOME NOTES ON BRIGHTNESS

After I published the *Winter Queen*, I realized that several of the angles, which are in hundredths of a degree, were a little tough to cut. I was constantly making angle adjustments for previous slight errors. There obviously was a better way. I decided to adjust the angles as much as possible to tenths of a degree and to develop a meetpoint cutting sequence. Thus, we have a revised design that is only slightly different from the original, but one that is much easier to cut. I recommend that you throw away the old design, except for the preform, and use the *Winter Queen (Revised)*. The preform pattern, as you will soon read, is still useful for other designs that use the *Winter Queen's* crown.

The cushion crown that I used for the *Winter Queen* is one that I especially like. Consequently, I have toyed around with other possibilities for matching pavilions. Some were disasters, but one seemed to stand out as worth publishing. It is a fairly simple barion cushion that I feel adds some sparkle that was somewhat missing in the original *Winter Queen*. This new design I have given the name *May Queen*. (Ok, it is a little hard to be original. It is May

as you read this; things are brighter in spring; the design sparkles more, so...what the heck.) Be sure to use the *Winter Queen* preform when cutting this pattern.

I hope you will cut both of these and compare them. I think that you will find them both to be nice gems and worthy of the name "Queen".

While working on the *May Queen* design, it hit me that the angles I used, while intended for corundum, were appropriate, according to Schlagel, for several other gems materials. I like the angles worked out by Charles Schlagel. For me, using his angles results in a brighter looking stone and a nicer proportion to the stone's overall shape. So, I wondered about what might change in the brightness and/or appearance of the stone, if the pattern were cut in one of these other gem materials.

I decided to do raytracings of the design with the only variable being the refractive index. I also ran GemFrame and GemFlick to see what visual changes I might expect. I used *May Queen* as my reference design. Different designs could have different results from an appearance standpoint, but I am guessing not from the standpoint of brightness. The following table shows what I found.

Material	RI	COS	ISO
Almandine garnet	1.81	64.6%	80.0%
Chrysoberyl	1.75	65.5%	80.5%
Corundum	1.76	65.3%	80.4%
Grossular garnet	1.74	65.7%	80.5%
Rhodolite garnet	1.76	65.3%	80.4%
Spessartine garnet	1.80	64.6%	79.8%
Topaz	1.63	64.3%	76.0%
Tourmaline	1.64	64.5%	76.5%
Zircon	1.94	60.8%	78.3%

Overall, the materials in the mid-range of refractive indices appeared to yield the best brightness figures. Interestingly, the best overall appearance in GemFrame and GemFlick, for me anyway, was found in the two lowest RI gems, topaz and tourmaline. Brightness was more even with less noticeable windowing, as the stone was moved around in the simulation. Obviously, there may be differences in actual stones, as the raytracing only takes into account a limited set of variables. Someone with more time than I have may want to give it a try. Whatever they find, I know that they will end up with a beautiful suite of gems.



## Let's Talk Gemology

By Edna B. Anthony, Gemologist



Scott Wilson

### THE GARNET GROUP

#### [A NESOSILICATE]

#### AN INTRODUCTION TO THE GARNETS

The garnets are a complex group of nesosilicates of the silicate class of minerals. In nesosilicates, only ionic bonds formed with interstitial cations (positive charged atoms) connect the isolated  $\text{SiO}_4$  tetrahedra. The size and the charge of these cations generally determine the structures of these minerals. An equidimensional crystal habit and a lack of distinct cleavage planes are the result of the independence of the  $\text{SiO}_4$  tetrahedra. Dense atomic packing causes the characteristic high specific gravity and hardness of the structures. In the twentieth edition of the *Manual of Mineralogy* by Cornelis Klein and Cornelius S. Hurlbut, Jr. after J. D. Dana, we are told that garnets "crystallize in the hex octahedral class of the isometric crystal system." The most common crystal habits for this class are the cube and the octahedron. The arrangements of the atoms in their structures are such that these habits are rare in garnet. (It is interesting to note that only pyrope occasionally exhibits cubes with curved faces.) Garnets usually occur in the dodecahedral and trapezohedral forms or combinations of these forms. The dodecahedral form is so typical that the dodecahedron was once known as a garnetohedron. Richard M. Pearl states in his *Garnet, Gem and Mineral* that

"Twinning of garnet crystals shows only in the effect of double refraction." This anomalous double refraction may indicate internal strain that may cause complex or sector twinning. ("Sector twins consist of 12, 24 and 48 pyramids meeting at the center of the crystal." -quoted from Pearl) However, some mineralogists think that such double refraction in garnet may be evidence of crystallization in the tetragonal crystal system. In the *Color Encyclopedia of Gemstones*, Dr. Joel Arem presents an excellent diagram of the relationships between the garnets. Under the formulas for the garnet species, one is instructed to note "*Henritermierite*:  $\text{Ca}_3(\text{Mn,Al})(\text{SiO}_4)_2(\text{OH})_4$ . Tetragonal, very garnet-like, often twinned."

$\text{A}_3\text{B}_2(\text{SiO}_4)_3$  can represent the structural formula of garnet. The 8 coordinated cationic sites represented by A are occupied by rather large divalent cations. B represents 6 coordinated cationic sites occupied by smaller trivalent cations. In garnets, the A cationic sites can be occupied by the large divalent atoms of calcium, magnesium, iron or manganese. The 6 cationic sites represented by B are occupied by smaller trivalent cations of aluminum, chrome, or iron. The chemical compositions of the garnets allow them to be grouped in two series known as isomorphous series. One of the series is composed of garnets, where calcium atoms occupy the A sites. This series includes uvarovite, grossular, and andradite and is referred to as the **ugrandites**. Arem notes that the large atoms of calcium in the structure of the ugrandites cause them to exhibit birefringence. X-ray data reveals that the ugrandites can crystallize in the orthorhombic and, perhaps, in the monoclinic crystal systems. The occupation of certain crystallographic sites by specific cations may cause such crystallization. Twinning occurs frequently in andradite and grossular garnets, and color zoning is the norm. Hydrogrossular is formed when tetrahedral  $(\text{OH}_4)$  groups (hydroxyl) replace some of the  $\text{SiO}_4$  tetrahedra in the grossular composition. The water content of some hydrous garnets may be as much as 8.5%. Melanite, the black variety of andradite, develops when sodium replaces calcium and  $\text{Ti}^{4+}$  enters the B cationic sites.

In the other garnet series, no calcium is present (magnesium, iron, or manganese atoms occupy the A sites) and the B sites are occupied by aluminum cations. This series is known as the **pyralspites** and includes pyrope, almandine, and spessartine. Pure end members of either series are seldom found. Extensive substitution occurs in each of the series, but there is little solid solution between the two series. Richard M. Pearl mentions such a combination called spandite. It is a link, which involves titanium, between spessartite and andradite. He also makes the state-

ment that, "As long as any chemical element can fit into the atomic structure because its size is right, the composition of garnet is variable." Phosphorus, vanadium, yttrium, and zirconium are other elements that sometimes replace atoms in garnet's structure.

Garnet is a common mineral distributed worldwide. It occurs as crystals, in massive and granular forms, and as tumbled pebbles. It can form under a wide variety of geological conditions, but high temperatures are essential for its development. It is of major importance as a rock-making mineral in igneous, metamorphic, and sedimentary rocks. It alters frequently to chlorite, serpentine, and talc. Chemical stability and resistance to weathering permit excellent crystals to be found in alluvial deposits. It is known that inhabitants of the American southwest still recover crystals from the desert sands and ant hills there. Garnet has imperfect cleavage, but it can exhibit an unusual angular fracture. This ability allows it to retain sharp cutting edges. Industry takes advantage of this property and its hardness to produce abrasive papers and cloths that are two to six times more efficient than those of quartz. The large crystals of almandine recovered at Gore Mountain in New York provide a major source for this industrial use. The physical properties of pyrope (its elasticity and heat conductivity) make it ideal for bearings used in the manufacture of very accurate watches, clocks, and other fine instruments.

The use of garnet as a gemstone is historic. Before the technique of faceting was developed, material from the underside of well-formed domed crystals was often removed to facilitate the transmission of light through the stone. It is known that garnet was used before 3400 B.C. in Predynastic Egypt and in Sumeria as early as 2350 B.C. Artisans of the Bronze Age (2000 to 1000 B.C.) in Sweden incorporated garnet in their works. Caravan traders with sources in Africa brought to Carthage garnets that were highly prized in Rome. Pliny, quoted from an early Hebrew writing, said, "for the traveler the well formed image of a lion, if engraved on a garnet will protect and preserve honors and health, cures the traveler of all diseases, brings him honor and guards him from all perils incurred in traveling."

The Persians frequently carved images of their great men on garnets. The inhabitants of the Middle East regions and Egypt obtained garnets from India as early as 1000 B.C. through trade with Arabia. A garnet was one of the twelve gems mounted in the breastplate of Aaron, sacred to Jews, which symbolized the twelve tribes of Israel. Some of the peoples of Asia used garnets as "magic" bullets. They believed such missiles were more accurate and lethal.

Relics of the Aztecs in central Mexico show they used garnets frequently.

In the American southwest, the Pueblo Indians began to use them as gems in their later works. Garnets collected by the Comanche Indians at Jaco Lake in Chihuahua, Mexico have been found at the Pueblo of Picuris in New Mexico. We know this pink glossularite recovered from white marble deposits at Xalostoc, Lake Jaco, and Morelos, Mexico as *xalostocite*, *rosolite*, and *landerite*.

In Europe, pyrope from deposits in Bohemia supplies some of the finest gems to jewelers. The Victorian era is renowned for the use of these gems. Melanite was used extensively in "mourning" jewelry during this period.

Attempts to synthesize garnet for industrial purposes began during the 1960's. These materials possess the structure of natural garnet but differ in chemical composition, and they have no counterpart in nature. YAG (yttrium-aluminum-garnet) is produced in a range of colors and colorless. Its dispersion exceeds that of diamond. Faceted YAG is frequently used as a diamond substitute. Twenty-eight of its trade names are listed on page 234 of the second edition of the *Color Encyclopedia of Gemstones* by Dr. Joel Arem. GGG (gadolinium-gallium-garnet) also serves as a diamond imitation. YIG (yttrium-iron-garnet) is opaque and black with a metallic luster and is sometimes used by the trade to imitate hematite.

Most sources indicate the name *garnet* is derived from the Latin word *granatus* meaning "like a grain." Before the science of mineralogy developed, most red gems (including garnet) were known as *carbuncles*, also from the Latin meaning "a live or burning coal." Natural garnet is known by numerous appellations. Some are more familiar than others. The glossary compiled and published by Richard M. Pearl is enlightening. It seems appropriate to present the alphabetized list, to which has been added information deemed pertinent, at the end of this article, rather than fragmented in the separate articles concerning the origin and specific properties of the species and varieties of garnet.

# Glossary

“Adelaide ruby”	Red garnet from South Africa
“African jade”	Massive green grossular garnet
“Alabandine ruby”	Almandine garnet
Allochroite	Andradite garnet from Switzerland (colorless)
“American ruby”	Pyrope garnet; also rose quartz
Aplome	Dark-brown, yellowish-green, or brownish-green andradite garnet (contains manganese)
“Arizona ruby”	Pyrope garnet
“Arizona spinel”	Garnet
“Australian ruby”	Garnet
Black garnet	Andradite garnet
Blythite	Manganic manganese garnet
Bobrowka garnet	Demantoid-alluvials Nizhniy Tagil in Urals; parent rock banks Bobrovsk, Sysertsck region
“Bohemian ruby”	Pyrope garnet; also rose quartz
Bredbergite	Magnesium andradite garnet from Sweden
Calderite	Manganous manganese-ferric iron garnet [Mn <sub>3</sub> Fe <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub> ]
“California ruby”	Garnet
“Cape ruby”	Pyrope garnet (implies Cape of Good Hope or South African origin)
“Ceylonese ruby”	Almandine garnet
Cinnamon stone	Hessonite garnet
Colophonite	Resinous coarse cloudy yellow-brown andradite garnet; also non-gem variety vesuvianite
“Colorado ruby”	Pyrope garnet
“Elie or ely ruby”	Pyrope garnet (implies Isle of Ely or Scotland origin)
Emildine or emilite	Spessartite garnet from South Africa
Fashoda garnet	Pyrope garnet
“Fashoda ruby”	Pyrope garnet
“Garnet jade”	Massive green grossular garnet
Garnetoid	Hydrogrossular garnet
Goldmanite	Vanadiferous andradite garnet [Ca <sub>3</sub> V <sub>2</sub> Si <sub>3</sub> O <sub>12</sub> ] crystals tiny, dark green
Gooseberry stone	Grossular garnet
“Green garnet”	Enstatite
Guarnaccino	Yellowish-red garnet
Haplome	Andradite garnet (contains manganese); syn. Aplome
“Hematite garnet”	Synthetic iron-rich garnet
Hyacinth	Hessonite garnet; also zircon
Hydropyrope	A synthetic garnet
Hydrosspartite	A possible synthetic garnet
Jacinth	Hessonite garnet; also zircon
“Kandy spinel”	Almandine garnet
Kelyphite	Pyrope garnet inside chlorite
Kimseyite	Calcium-zirconium garnet from Arkansas [Ca <sub>3</sub> (Zr,Ti) <sub>2</sub> (Al,Si) <sub>3</sub> O <sub>12</sub> ]
Knorringtonite	A chromiferous garnet [Mg <sub>3</sub> Cr <sub>2</sub> Si <sub>3</sub> O <sub>12</sub> ]
Kollin garnet	Almandine garnet
Landerite	Pink grossular garnet from Mexico
Leuco-garnet	White garnet from Bohemia
Majorite	Purple garnet [Mg <sub>3</sub> (Fe,Al,Si) <sub>2</sub> Si <sub>3</sub> O <sub>12</sub> ] found in a meteorite
“Montana ruby”	Red garnet



“Mountain ruby”	Red garnet
“Olivene”/“olevene”	Demantoid garnet
“Oregon jade”	Grossular garnet
Partschinite	Spessartite garnet from Rumania
Polyadelphite	Brownish-yellow andradite from New Jersey
Pyreneite	Grayish-black andradite garnet from France
Rhodolite	Intermediate pink, rose, or purplish to violet-red garnet between almandine and pyrope
“Rock ruby”	Pyrope garnet
“Rocky Mountain ruby”	Pyrope garnet
Roddingite	Hydrogrossular garnet from New Zealand
Romanzonite	Dark-brown grossular garnet
Rose garnet	Pink grossular garnet; also rhodolite
Roselite or rosolite	Pink grossular garnet from Mexico
Rothoffite	Brown andradite garnet from Sweden
Schorlomite	Dark-brown to black andradite garnet [Ca <sub>3</sub> Ti <sub>2</sub> Fe <sub>3</sub> O <sub>12</sub> ]
“Siberian chrysolite”	Demantoid garnet
Skiagite	Ferrous-ferric iron garnet from Scotland
“South African jade”	Massive green grossular garnet
Spalmandite	Intermediate almandine-pyrope garnet
Succinite	Amber-colored grossular garnet from Italy; also amber
Suriam garnet	Violet-red almandine garnet
Syriam/Syrian garnet	Violet-red almandine garnet
Topazolite	Greenish-yellow to yellow andradite garnet
Transvaal jade	Massive green grossularite from South Africa
Vermeille or vermeille garnet	Brownish-red almandine garnet; also pyrope garnet
“Vesuvian garnet”	Early name for leucite whose crystal form resembles that of garnet
“White garnet”	Translucent variety grossular garnet resembles white jade in appearance; also Leucite
Wiluite	Green variety of grossular garnet; also a greenish variety of vesuvianite
Xalastocite	Pink grossular garnet from Mexico
Yamatoite	Manganese vanadium silicate (Mn <sub>3</sub> V <sub>2</sub> Si <sub>3</sub> O <sub>12</sub> )



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## 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 me (Ernie Hawes). I will have some representative rough, as well as many of Louie's finished gems, on display at the Guild meeting on Wednesday, May 9. Because there is a very extensive amount of rough that both Louie and Rhonda collected over the years, it is not practical time-wise to have a big sale at the meeting. Therefore, I will have a special sale on Saturday, May 12, from 9:00a.m. to 4:00p.m. My motorhome, a Windsong, will be parked in the northwest corner of the Walmart parking lot located on the southeast corner of Wyoming and Academy. Please stop by 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. I can be reached that day on my cell phone number, 350-4389.

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. I am taking no commission for myself from either estate. However, I will have some equipment and supplies for sale that I purchased from the estates. If you have any specific interests, please call me before the sale at 821-3201. Material not sold at the sale will continue to be available until January of 2002, at which time I plan to take whatever is left to Quartzite.

Harriet Natonek is donating 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.



**Don't forget:  
next meeting  
is May 9, 2001  
at 7:00 pm.**

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



## Dates for Future NMFG Meetings

Every year, the contract between the New Mexico Faceters Guild and the New Mexico Museum of Natural History is renewed. The following dates will represent meetings scheduled for the Guild during the year 2001: **January 11, March 8, May 9, July 12, September 13, and November 8.** As most of you know, the New Mexico Faceters Guild meets every other month on the second Thursday. Please note that there was a scheduling conflict for the date of May 10, a Thursday, which would have been the date scheduled. However, the museum will be opening the observatory at that time, and the date of May 9 was selected instead. Please note that **May 9 is a Wednesday.**

