

The New Mexico Facetor

Volume 20, No. 4, July/August, 2001

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NMFG President Scott Wilson

The Prez Sez:

by Scott R. Wilson, Ph.D.

In August, I was honored to attend a birthday party for a distinguished member of the New Mexico Faceters Guild, Merrill O. Murphy. Most Guild members will know Merrill as a quiet gentleman who shares his constant stream of knowledgeable tidbits and pieces of wisdom at our meetings. Merrill often brings samples of gem material or interesting faceted stones to show. However, there is a lot more to Merrill O. Murphy than casually meets the eye.

In the lapidary, gemcutting, and mineral collecting world, you will find that Merrill has been a prolific writer, gemstone designer, and a very important contributor to our hobby. Lapidary Journal alone lists 31 articles by Merrill. Topics include mineral collecting in various parts of the west, the discovery of new mineral and gem locales, the re-discovery of lost gem deposits, faceting instructions, new designs for faceting, and faceting tips for beginners and advanced cutters. Add to that broad range of topics his many years of service as the Editor of the *New Mexico Facetor* and the author of numerous published articles. Merrill is one of the very early members of the New Mexico Faceters Guild and has been a stalwart supporter of the Guild the entire time. He continues to advance the science and art of faceting and encourages new comers. I count myself as one who have been greatly assisted by Merrill.

Recently, Merrill has been having some difficulties with attending the Guild meetings, as he has just turned 80 years of age. He remains highly involved with our Guild, and I encourage everyone to e-mail Merrill with questions and observations that you might have. His e-mail address is: momurphy2@juno.com. Ernie Hawes has set Merrill with a very current PC, so Merrill can pass along scanned images, faceting diagrams, and gemological information. Merrill has a vast encyclopedia of knowledge about faceting, and he knows a lot of mineral localities in and around the Rocky Mountains, particularly in New Mexico, that have produced or have the potential to produce gem material. I wish all Guild members to join me in thanking Merrill for his many years of service. Merrill is a recognized distinguished American facetor.



A Tribute to an Outstanding Man

By Ernie Hawes

Venerate: *to regard with great awe and devotion; to pay tribute or homage to.* Yep, I think that fits the man. He just turned 80 in mid August. I have only known him for maybe twenty-five of those years, but if there was ever a man in the New Mexico Faceters Guild whom I would regard with great awe, or would pay tribute to, it would easily be this man, Merrill O. Murphy.

Merrill's contributions to faceting go back many years. He was designing gems before a lot of the current faceters were born. Several of Merrill's designs have been published in *Lapidary Journal* and have been reproduced in various faceting guild publications around the world. Some, like the Tripolar cut, have been used in master level competitions at the national level. The Aztec Triangle, which we are reprinting in this issue of *The New Mexico Faceter*, was first published in *Lapidary Journal* in November, 1966.

Merrill is not only an outstanding designer, he is also the distinguished author of a number of very interesting articles on faceting that have appeared in *Lapidary Journal*, and, of course, in *The New Mexico Faceter*, which Merrill edited for many years. Merrill's numerous articles have been reprinted many times in other guild newsletters around the world.

In the early years of our guild, Merrill was asked on several occasions to be the speaker at guild meetings. Merrill's talks were always well received for being both interesting and informative. Guild members, who had the opportunity to discuss faceting and New Mexico gem localities with Merrill during our informal meeting time, often found those discussions as important and interesting as the scheduled program.

I have been privileged to be a friend of Merrill's since the New Mexico Faceters Guild began back in 1981. Together, we have hunted rocks, minerals, and faceting material. We have camped and fished together, we have worked on our equipment together, and we have spent many an hour conversing about gems and gem locations in New Mexico and Colorado, Merrill's native state. Most of those discussions involved me listening as Merrill drew upon his vast store of knowledge and first-hand experiences hunting and finding minerals and gemstones. Over

the years, I have talked with a lot of very knowledgeable folks in our hobby, and I seriously doubt that there is anyone more generally knowledgeable about New Mexico gems and minerals and about faceting than Merrill O. Murphy.

Merrill never brags about what he knows. In fact, Merrill is quite modest when he generously shares his vast storehouse of knowledge. A gentle, friendly, and articulate man, Merrill is easily approached and will take whatever time is necessary to answer someone's question. If Merrill doesn't know the answer, then he takes it upon himself to research the question and find the answer, which is one reason why he is so very knowledgeable on many subjects.



Merrill O. Murphy

Merrill, in a conversation about twenty years ago, said to me that we would be lucky if the Guild survived for more than five years. He said we would run out of speakers and topics for meetings, and folks would lose interest. That is what happened to the previous Albuquerque faceters club, and Merrill felt certain we were doomed, too. What Merrill may not have realized was that the first group was made up of fairly equally experienced and knowledgeable

men. Like some old married couples, I think they sort of ran out of things to talk about. With a combination of experienced faceters like Merrill, Eldon Fleck, Louis Natonek, Dick Ochsner, and Al Huebler, along with a steady stream of new faceters eager to learn, our guild has continued to thrive for more than twenty years. Every guild should be fortunate enough to have men and women with the kind of experience and willingness to share that Merrill has, and that these other men in our guild had also. As we younger faceters become knowledgeable experts, it behooves us to follow Merrill's and the others' examples in sharing our knowledge and skills.

Unfortunately, Merrill is the only one of the men I named who is still around. Hopefully, he will continue to be a source of both information and inspiration for years to come. I think I can speak for the entire Guild when I say, I am very proud to know Merrill and to have him for a friend.



Paul Hlava's Nigerian Liddicoatite Analysis

Source: *Gems & Gemology*, Summer 2001

GIA's *Gems & Gemology* published Paul Hlava's findings from his electron microprobe analysis of a "bismuth-bearing liddicoatite from Nigeria", set on pages 152 and 153 of the Summer 2001 issue. Nancy Attaway donated the crystal for testing, a tourmaline that showed a pale orangy-pink core surrounded by a purplish-pink rim. The crystal was determined to contain manganese in the rim, manganese and iron in the core, with elevated bismuth contents throughout the crystal, particularly in the rim. From the chemical data collected, Paul now wonders how much of the tourmaline from Nigeria is actually liddicoatite.



New Mexico Faceters Guild Members Win Awards at the 2001 "All That Glitters" Jewelry and Gemstone Competition

The New Mexico Jewelers Association hosted their annual "All That Glitters" Jewelry and Gemstone Competition during a special dinner on August 11. Karen Fitzpatrick won the People's Choice Award for her green Lundazi trillion cut tourmaline prong set in an 18Kt. green gold ring with white diamond accents set in a platinum strip. Karen won a second place award for her checkerboard cushion cut brown zircon set in an open-sided bezel in an 18Kt. yellow gold ring with black and white diamond accents. Her associate, Marsha Kern, won the Premier award with a carved black druzy set in a sterling silver pendant accented with black and white diamonds, which will be sent to New York for the national competition.

Steve Attaway won first place in the gemstone category with a carved triangular white pinfire opal from Mintabie inset with a triangular solid black opal from Lightning Ridge that was surrounded by a 24Kt. gold frame. He won second place with a large carved chalcedony from Namibia.



"Twelve Best" Faceting Designs Published in the Year 2000

by Ernie Hawes

It is always nice to see an original faceting design by a New Mexico Faceters Guild member in other publications, especially in a major magazine like *Lapidary Journal* or *Rock and Gem*. Nancy Attaway has a very nice design in the October, 2001 issue of *Rock and Gem* (her third). She had one faceting design published in *Lapidary Journal*. Both Nancy and I have been most fortunate to have one of our designs selected to be one of the "Twelve Best" published in the year 2000. Nancy's *Emerald Cut With Fanned Culet* was selected, as was my *Millennium Classic*. This is Nancy's first time for this honor and my third. I am sure I speak for both Nancy and myself when I say that it is really quite an honor to be recognized in this way. Pardon me for bragging, but we are right up there in the company with famous folks like Charles Covill, Jerry Capps, Fred Van Sant, and Jeff Graham. Feels real good.



Minutes of NMFG Meeting

July 12, 2001

by Nancy L. Attaway

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

Old Business

President Scott Wilson reminded Guild members that **Ernie Hawes** still had some faceting rough for sale from the estates of Louie Natonek and Rhonda Mills. Scott remarked also on the regional science fair winners who won prizes from the New Mexico Faceters Guild on projects that related to geology and crystallography. Scott thanked **Bill Swantner** for serving as one of the judges.

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.

Russ also reminded members that the deadline for the *All That Glitters* Jewelry and Gemstone Competition, sponsored by the New Mexico Jewelers Association, was drawing near. The deadline for submitting entries is July 18.

New Business

President Scott Wilson praised **Steve** and **Nancy Attaway** on their article that appeared in the July, 2001 issue of *Lapidary Journal*, "CAD/CAM in the Jewelers' Studio". Steve and Nancy described how they use CAD/CAM in their jewelrymaking techniques. They explained the various software programs available for making and designing jewelry and defined the associated terminology. Steve and Nancy's CAD/CAM article first appeared in the March/April, 2000 issue of *The New Mexico Facetor*

Steve Attaway announced the new website created for the New Mexico Faceters Guild: www.attawaygems.com/NMFG. He said that Yahoo! gave the best website deals and remarked that the website was receiving five hits per day on the average. Steve related that the archives section was very popular, and that the gemological articles written by **Edna Anthony** received a lot of attention. He reminded Guild members that the NMFG gallery section needs pictures of gemstones and jewelry from the membership.

Nancy Attaway brought the July/August, 2001 issue of *Colored Stone* magazine, which included an article that debated the difference between synthetic opal and opal simulants. FTC Guidelines state that "for a stone to be called laboratory-created or synthetic, it must have essentially the same optical, physical, and chemical properties as the stone named". Manning International says that the polymer-impregnated opal does not meet those standards. A case is currently being tried before the Southern New York District Court, where Manning International of New York is suing several opal dealers, manufacturers, and retailers for false advertisement that claims polymer-impregnated manufactured opal is synthetic rather than a simulant. Manning is also suing Created Opal Company of New Mexico, who sell "lab-grown" opal. GIA notes that synthetic opal contains resins and/or epoxy, zirconium, and has no water.

Steve Attaway related a story about opal confusion in Santa Fe. Nancy and he were showing a guest around the jewelry shops in Santa Fe recently, and they saw a lot of created opal mixed with natural opal in the displays. Some created opals were shown in the same display case with natural opals, and some jewelry items were composed of both natural opal and created opal. One particular dealer called the opal in his case "doublets" and explained that they were composed of the "opal left over from cutting that was all melted back together". Steve could just imagine how confusing such explanations and descriptions must sound to the untrained and uninformed jewelry customer.

Guild Mineralogist and Vice-President Paul Hlava remarked that precious opal is composed of spheres of silica that are encased in hydrous silica. Opal is 5% to 15% water. The closer in size the silica spheres are, the more intense the color will appear. He fears that the lawyers will make a mess of the definitions and criteria for opal.

Show and Tell

The Show and Tell Case tonight held newly cut stones and objects of art recently rendered by Guild members.

Dylan Houtman displayed his latest object of art, a carved jade letter-opener with an unusual carved handle. Dylan carved a piece of cocobolo wood in an open, double spiral design and topped the wood design with a carved dragon's head with rubies as the eyes. He carved a beautiful piece of nephrite jade from Russia into a six-inch knife blade and had it extend as a jade rod into the spiral of the wooden handle. He used 14Kt. gold wire to attach the handle to the very sharp knife blade. This piece was very well done and is most certainly a one-of-a-kind work of art.

Laura Kirkpatrick displayed her first gemstone that she cut, a 7x7x7mm triangular “Apollo Cut” peridot from Pakistan. Faceting instructor, Nancy Attaway said that she explained to Laura how the peridot will have value added upon its completion, but that working with natural gem material can be problematic. A white mineral coated parts of the gem rough and ran somewhat deep in the culet area. The stone became smaller than expected, due to the necessary removal of the white coating. Peridot can chip while being faceted, because its volcanic origins make it brittle. This peridot developed some chips in the culet area after Laura had polished it. Making a flat culet to remove the damage would have resulted in too large of a flat facet, as the damage was off to one side rather than in the center. Nancy decided to polish in six small sliver facets in the culet with the ceramic lap to remove the damage. Laura was able to grasp some of the elemental techniques of faceting, and she had a soft touch when she used the grinding and polishing laps. She could see the difference between a polished facet and one that was not quite polished, and she could tell when step-cut facets were not the same width.

Bill and Ina Swantner displayed a large emerald cut synthetic corundum alexandrite set in a ring. The stone exhibited a color change of reddish violet to purplish blue.

Nancy Attaway displayed her newest faceting design, the “Oval Flair”, in a 10.68-carat, 16.5x14.5mm Oval Flair cut citrine from Brazil. The “Oval Flair” was published in the May/June, 2001 issue of *The New Mexico Facetor*. The stone exhibited the illusion of having concave facets. However, the “Oval Flair” design uses only flat, traditional facets. The Oval Flair cut Brazilian citrine had been originally heat-treated in the rough to an intense yellow-gold hue.

Steve Attaway displayed five large carved gemstones he recently completed. He showed a carved bright green Australian chrysoprase, a carved Bolivian ametrine from the Anahi mine that had pale hues, and three deep denim blue chalcedony carvings from Namibia. He asked the membership to rank them according to which one they all liked the best. One of the chalcedony carvings won the vote for its undulating curves and nice flowing lines.

Refreshments

Eva Tordson and **Mr. and Mrs. Jim Eker** provided home-baked refreshments to the July meeting. **Scott Wilson** also brought home-made vanilla ice cream. Yum! Gourmet coffee was also served. Thank you all very much.

Elaine Weisman and **Nancy Attaway** volunteered to bring the refreshments to the meeting in September.

Future Programs

President Scott Wilson will talk on “Opal Synthesis” for the meeting in September, as Paul Hlava will be at the Denver Gem and Mineral Show at that time. Scott will share his first-hand knowledge of synthesizing opals and will discuss the process, the problems, and his successes. **Paul Hlava** continues with “Emeralds, Part Two” for the November meeting to discuss the history associated with emeralds; cutting, treatments, synthesis, and inclusions.

Program Speaker

Emeralds: Part One by Paul Hlava

Notes by Nancy L. Attaway

Paul Hlava spoke to the Guild on “Emeralds: Part One” and covered the mineralogy, the geology, and the geography related to emeralds. Paul defined emeralds as a variety of beryl noted for having a bright, intense, saturated green color, caused by the presence of chromium (and/or vanadium) in the crystal structure. Paul began his talk with a quick demonstration of how man-made emerald crystals (Chatham) fluoresce red when hit with an ultraviolet light in a darkened room, showing the presence of the chromium absorption spectrum. Emerald is the birthstone for May.

First, Paul explained some of the physical properties of emeralds. Emeralds have a hardness of 7.5 to 8 and are brittle due to the coloring agent. (More on that later.) Emeralds show a vitreous lustre and have a density of 2.67 to 2.75. Emeralds have two cleavages: one, a basal pinacoid (poor), and the other, a hexagonal prism (rarely seen). Emeralds fracture in a conchoidal to an irregular manner and show a green/white color streak. Emeralds have a refractive index of 1.566 to 1.591 and have a dispersion of 0.005 to 0.009. Emeralds are uniaxial negative and pleochroic (yellow to green and blue to green). The emerald spectrum is very diagnostic. The spectral wavelength shows fine lines in the red, weak ones in the blue, and broad absorption in the violet. Emeralds show a red color in the Chelsea filter.

Paul then explained the chemistry of emeralds. Emeralds contain Cr³⁺ and V³⁺ (chromium and vanadium). Pure beryl is colorless; Be₃Al₂Si₆O₁₈. Beryl may also contain water and alkalis (Li, Na, K, Rb, and Cs), and the alkalis alone can exceed 8 weight percent. Beryl may contain:

Mg, Ca, Sc, Cr, V, Mn, Fe, Zr, Nb, Sn, and W. The color of emeralds is a result of impurities within the beryl crystal. Modification of the color by the presence of other impurities can cause the green color to vary from bluish green to yellowish green. Depth of color is related to the amount of coloring metals present. Paul said that to be an emerald, beryl must contain chromium levels greater than 0.002 weight percent to greater than 2.00 weight percent.

Paul said that the chromium atoms go into the aluminum site of the atomic structure of beryl. Chromium adds stress in the crystal structure, forming “jardin”, because the chromium atoms are bigger than the spaces in the atomic structure of beryl. The fact that emeralds contain both beryllium and chromium is very interesting, in that beryllium and chromium are geochemically incompatible. They do not like to occur together. Chromium came from the magma in the silica “milk” first, and beryllium emerged from the magma last. Hence, chromium and beryllium are concentrated at opposite ends of the crystallization sequence. Emeralds are found where these two ends are mixed, a rare occurrence. Therefore, emeralds are rare.

Paul stated that emeralds are always green. He said that the most intense color of emerald is produced when they are cut with the table parallel to the C axis. The rectangular “emerald cut” is the best faceting shape to maintain carat retention, as it follows the crystal’s original shape. The largest gem quality emerald found weighed 1,759 carats.

Paul showed a diagram of the emerald structure. Looking down the C axis, emerald consists of hexagonal rings of silicon atoms, six-fold rings, each surrounded by four oxygen atoms in tetrahedral arrangement. The rings are stacked one over the other and connected by bonds between alternating aluminum and beryllium atoms. Each aluminum

atom is surrounded and bonded to six oxygen atoms, and each beryllium atom is surrounded and bonded by four oxygen atoms. A striking feature of this atomic arrangement is that the SiO rings are aligned exactly over each other so that their openings form continuous channels parallel to the C axis. Emeralds, as beryls, belong to the most complete class of symmetry of the hexagonal system: holosymmetric, dihexagonal-bipyramidal.

In explaining the geology of emeralds, Paul stated that emeralds are found in a fairly restricted set of metamorphic rocks, such as biotite-phlogopite schists, carbonate schists, talc-chlorite schists, etc., that have been intruded by beryl-bearing pegmatites. The Colombian deposits are in carbonaceous shales and limestones that had been invaded by hydrothermal solutions. Most other beryls are usually found in pegmatites. Emeralds have been found in all of the continents, with the exception of Antarctica. However, they have been found in only a few places on each continent. Most of the finest emeralds come from alluvial deposits. Colombian emeralds are of consistently high quality and serve as the benchmark of comparison for other emeralds.

Paul said that the most notable occurrences of emeralds were in South America, primarily in Colombia and Brazil. In Colombia, near Boyaca, lies the famous Muzo district, home of the Muzo mine and the Coscuez mine, as well as others. Muzo is the world’s most famous and valuable emerald mine, setting the standard for quality and color. Also in Colombia, near Chivor, lies the famed Chivor mine and the Gachala mine, among others. In Brazil, near Bahia, lies the Salininha mine, where the emeralds contain vanadium (V³⁺). The Brazilian government flooded the Salininha mine for hydroelectric power. The Carnaiba mine, one of the world’s largest emerald deposits, is nearby. Near Ceara in Brazil are several mines, including the Goias mine and the Santa Teresinha de Goias mine, where hundreds of unsupported tun-



nels run in the hillsides more than three hundred feet deep. Brazil is the world's largest volume emerald producer. In Brazil's famous Minas Gerais is the Nova Era district and the Capoeirana mine. The Itabira district of Brazil contains the Belmont mine.

Other notable occurrences of emeralds are in Asia and in Africa. Emeralds are found in Afghanistan's Panjshir Valley district and in West Pakistan's Swat Valley district, the Gujar Kili mine; in the Mohmand district, the Mingora and Bucha mines. The Afghans miners labor under the worst conditions anywhere for mining emeralds. The emerald miners in Pakistan also work under very harsh conditions. Emerald mining in both Afghanistan and Pakistan involves mining in areas reached only by footpaths, where workers dig by hand in steep terrain accessible for just a few months a year, due to the high altitude long winters.

In the Commonwealth of Independent States, emeralds are found in the Ural Mountains and in the Sverdlovsk district. In India, the Orissa district and Ajmer yield emeralds. In Africa, emeralds are found in Zambia's Kitwe district, the Miku mine, at Mifulira, and in the Kafubu district, the Kamakanga mine. Emeralds are found in Zimbabwe's Bikita district at Sandawana (an underground mine), also Mberengwa and Victoria. The Rio Tinto mine in Zimbabwe uses modern mining technology and security methods. Zambia and Zimbabwe produce most of the emeralds in Africa. Emeralds are also found in Egypt; in Madagascar's Ankadilalana mine; in Mozambique at Morrua; in Nigeria; in South Africa's Cobra mine and in the Transvaal; in Tanzania in Arusha and at Lake Manyara; and in Ghana.

Other occurrences include Australia, Western Australia's Poona district; and Austria at Habachtal. Eidsvoll in Norway has emeralds in granite. Poor quality emeralds were found in New Mexico's Black Range in the 1890's. Emeralds were found in North Carolina near Spruce Pine.

Recently, some very fine quality emeralds have been unearthed near Hiddenite, North Carolina that rival the best quality emeralds from Colombia. An 88-carat rough emerald crystal from this new mine was cut into two very fine gems, an 18.88-carat pearshape named the Carolina Queen and a 7.85-carat oval named the Carolina Prince. Another giant emerald crystal, the 858-carat Empress Caroline, is one of the largest emeralds mined in North Carolina. Two other significant emeralds from North Carolina are a 3.40-carat heartshape named the Heart of Carolina and a 3.37-carat emerald cut gem named the Princess of Carolina.

Paul discussed the primitive mining methods used at most mine sites for extracting emeralds. Emeralds are mostly unearthed from open pits, but several underground mines exist. A few emerald mine sites have been described as resembling coal mines. Barefoot miners use picks and shovels and wear no safety equipment for head, eyes, ears, hands, feet, and lungs. Hundreds of small (three meter square) claims exist on steep, muddy hillside slopes with stick scaffolding, tarp covers, and little or no shoring. Consequently, many cave-ins occur. Some of the more modern mines, such as the Muzo mine and the Rio Tinto mine, use tractors and bulldozers, drilling equipment, and some explosives. No paperwork is required for the majority of the small claims. Miners simply rope off their area downstream from company claims, dig, and sift. Paul said that disputes often erupt over claims, and many end in violence.

Nowhere is the search for emeralds more violent than in Colombia, and Muzo is considered the most dangerous. Bandits lie in ambush for buyers, who come into Muzo with cash and leave Muzo with emeralds. Armed patrols guarding emerald buyers have even been attacked by well-armed bandits. The independent miners, who work downhill from guarded company claims, also risk life and limb to work their claims that lie in dangerous terrain. The danger lies from bandits, from other miners who may contest their claim, and from the working environment itself. Hence, murders are not uncommon. In Colombia and in many other parts of the world, emerald miners endure some of the most dangerous and difficult conditions imaginable to extract emeralds because the gems are so highly prized.

Paul included many slides of marvelous emerald crystals and magnificent emerald jewelry, along with slides of emerald mine locales in his very animated talk. Paul also showed several pictures that illustrated the atomic structure of emerald. Paul will continue in November with "Emeralds, Part 2", which will cover the history and lore, cutting, gem treatments, synthesis, and noted inclusions. Don't miss this talk.



In the News

AGTA's Color Seal of Confidence

Source: Professional Jeweler August 2001

AGTA plans to introduce its Color Seal of Confidence to reassure customers that the colored gemstones and pearls they are buying are authentic and valuable. The seal will be represented by a logo (yet to be made) and will be promoted through trade and consumer advertising and public relations. AGTA hopes that other segments of the industry will finance the program, because they think that miners, jewelry manufacturers, wholesalers, dealers, and retailers would all benefit through projected increased sales. Partners will be licensed to use the seal and will be required to train staff, maintain high ethical standards, make 25% of their purchases from other partners, and pay an annual fee.

DeBeers Calls It Quits in Angola

Source: Professional Jeweler August 2001

DeBeers has suspended all operations and investments in Angola, due to an impasse in negotiations. DeBeers was looking for a new contract with Endiama to mine and market diamonds from kimberlite pipes in northeast Angola. However, millions of dollars in investments made by DeBeers to Endiama have come into question. Angola suspended all contracts with Endiama in the year 2000 and awarded its production for marketing to Ascorp, a private company that has close ties with the Angolan government.

Rubies from Madagascar

Source: Professional Jeweler August 2001

A new deposit near Andilamena in Madagascar has yielded great quantities of rubies. This abundant supply has cutters and manufacturing centers in the Far East occupied. The remote mine site is a 15-hour trip by four-wheel drive, followed by 30 miles on foot. The deposit, found last year, was initially located from ruby rough found in streams and riverbeds by gold miners. Andilamena's best is mostly cabochon-grade material. A very small percentage of the ruby is gem quality. Much of it runs toward orange-red colors with eye-visible inclusions. Out of every kilo of rough, only 2%-3% is gem quality. Far East gem centers use low-temperature heat-treatment with no borax on the rubies.

Madagascar Ruby Floods the Market

Source: Colored Stone July/August 2001

A flood of new ruby from Madagascar has hit Thailand's two big cutting centers, Bangkok and Chanthaburi. The ruby comes from two new mines. One lies about six miles inland from the coastal town of Vatmandry. The other lies 43 miles from the town of Andilamena. The Vatmandry mine produces better quality material than the mine near Andilamena. The ruby from Andilamena is available in huge quantities, but very little of it is high-quality. The rubies from Vatmandry are a bit purple, and the rubies from Andilamena are orange-red to slightly brown. The ruby from Madagascar is considered to be clean and dark.

Opal: Synthetic or Simulant

Source: Colored Stone July/August 2001

Manning International of New York is suing in Southern New York District Court several opal dealers, manufacturers, and retailers for false advertising, claiming that the polymer-impregnated manufactured opal they are selling as a lab-created synthetic should actually be called a simulant. The lawsuits, involving several million dollars in damages, are based upon the Lanham Act, which gives the company the right to sue for damages if a competitor's false advertising has hurt its business. Manning International is the exclusive world-wide distributor of Gilson created opals.

The FTC Guidelines state that for a stone to be called "laboratory-created" or "synthetic", it must have "essentially the same optical, physical, and chemical properties as the stone named." What does "essentially the same" mean, and how different can a manufactured stone be from the natural gem and still be called "synthetic?" GIA says that natural opals contain between 5% and 15% water. Synthetic opal has none. Synthetic opals sometimes contain zirconium. Natural opals barely have any. Synthetic opals are sometimes bound with epoxy, but sometimes natural opals are stabilized with epoxy. Are Gilson created opals truly synthetic opals, or are they really opal simulants?

Tanzanian High Court Rules in AFGEM's Favor

Source: JCK e-Monday 9/3/01

The Tanzanian High Court struck down three mining association charges against African Gem Resources, Ltd. (AFGEM) and the Tanzanian government, claiming illegal practices in obtaining a mining license and paying bribes.



Facet Designer's Workshop

By Ernie Hawes



Scott Wilson

This Month's Designs: Aztec Triangle and 12x9mm Semi-Barion Emerald

As already mentioned, we have Merrill Murphy's *Aztec Triangle* as one of our designs for this issue. I think that this is one of the first designs not to have a table as we would commonly know it. Instead, there are three very low apex type facets. I do not think Merrill used that term when he published the design back in 1966, but that is certainly what they would be called today. The design can be cut from relatively thin material. Considering the fact that Merrill did not have a computer to help him back then, this design has remarkable brightness. Also, light dispersion is fairly even around the stone, making it suitable for any shade of material. However, it is not the easiest design to cut, because of the number of facets that must come together to form the corner points. Over or undercutting is a strong possibility unless the cutter is extremely careful. The result, though, is well worth it. The *Aztec Triangle* is a worthy addition to anybody's gem collection, and it works very nicely in many different jewelry designs.

Our next design is one I started about ten years ago and finally decided to finish. It is an emerald cut with the standard step cuts on the crown. The 1.333 or 12x9 ratio is less common in jewelry than the 7x5, 10x8, 12x10 ratios, but is a nicely proportioned shape that I wanted to do a design for. There is an interesting interplay between the brilliant type facets in the pavilion and the step facets in the crown that helps to give the finished stone some nice scintillation. The design does not meet all of the criteria to be a true barion design, but it has enough that I felt I could refer to it as a ***Semi-Barion Emerald Cut***. I trust the purists will not take offense at that.

It is not a difficult stone to cut. Care should be given in cutting the first two girdle facets so that the 1.333 ratio is achieved. On my proof stone, I even pre-polished these facets before continuing with the rest of the pavilion. The stone can still be finished if the ratio is not exact, but pavilion facets at step 8 will not come to a point junction with pavilion facets at step 1 if the stone is narrower than the 1.333 ratio. Rather, they will form two wedges when they meet with step 1. If the stone is wider than the 1.333 ratio, then the step 8 facets will come to a point between the facets in step 7 and will not reach all the way to step 1 facets. Either way will still result in a nice stone, just not quite what is specified in the design. A well-experienced cutter might be able cut the pavilion of this design in reverse order, starting with step 8, thus assuring achievement of the 1.333 ratio. However, he/she would need to make sure there was enough length, width, and depth in the rough material before starting.

When cutting the crown, I recommend cutting the mains, (steps d, e, and f) to be roughly twice the size of the crown girdle facets, and the facets next to the table should be about a third the size of the mains. The table should not be overly large. This will allow more of the interplay of reflections between the pavilion and crown facets that I have already mentioned.

You will also find reprinted here an article by Jerry W. Carroll on preforming. The article was first published in the August, 2001 issue of *ANGLES*, the newsletter of The Southern California Faceters Guild. It was inspired by Jerry's interest in the design, *The Queen's Fancy*, that I published in the May/June, 2001 issue of the *New Mexico Faceter*. Jerry likes cushion cuts, but he wanted a preform that did not require as much material as the preform I had created. As he states in his article, the low preform will be more difficult to do but will save material. The preform is also reproduced for those who would like to give it a try.

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GEM ROUGH FOR SALE

The faceting rough from the estates of both Louie Natonek and Rhonda Mills 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. For those interested, please call Ernie at 821-3201. Harriet Natonek donated to the Guild whatever synthetic rough is not sold to be used by beginning faceters in workshops and at home as they learn to facet.



**Don't forget:
next meeting
is September
13, 2001 at 7:00 pm.**

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



New Mexico Faceters Guild Website

The New Mexico Faceters Guild has a website that may be accessed at: www.attawaygems.com/NMFG. The site contains many interesting articles written by Guild members, informative reports on some of our noted guest speakers, and gemological articles composed by Guild Gemologist, Edna Anthony. We still need photos of gem and jewelry work from our members to post in the gallery.