GEM NEWS INTERNATIONAL

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TUCSON 2025

In general, 2025 was a strong year for Tucson vendors at the various shows. Like last year, foot traffic was generally low with moments of high activity, while buying remained focused. Vendors who offered unique and exceptional items performed very well with established customers. Many buyers were there for just a few days with shopping lists and plans to visit specific vendors. A number of vendors reported that some buyers previewed items online prior to visiting to make purchase decisions. At the shows, one could see buyers using video calling apps to show colleagues prospective purchases during the decision-making process, a noted change in the purchasing dynamics from the past. Some vendors expressed frustration with having great sales the first couple of days, followed by very slow activity—a possible result of the focused buying. Overall, the feedback indicated that sales were fairly unchanged or slightly better compared to last year. Several vendors reported that they had record first-day sales.

AGTA reported upticks in both the number of buyers and the number of hotel rooms rented through their block (J. Heebner, "Gemstone & jewelry sales at 2025 AGTA GemFair Tucson reflect bright spots in business," February 12, 2025, https://agta.org/gemstone-jewelry-sales-at-2025-agta-gemfair-tucson-reflect-bright-spots-in-business/). For 2025, AGTA took each badge recipient's photograph and printed it on both sides of the badge itself. The intent was to eliminate badge-borrowing and to prevent unregistered attendees from using lost or discarded badges. This extra set of security measures was favorably received. Notably, the 2026 AGTA GemFair will eliminate its weekend days and will run for five days instead of seven, aligning with the observation that buyers are attending for shorter, more focused periods. With the ability to view high-quality images and videos from vendors' websites and social media feeds before visiting the shows, today's buyers are armed with a lot more information than in the past, and purchasing seems much more targeted.

Beyond the AGTA GemFair, other wholesale venues in Tucson such as the Gem & Jewelry Exchange (GJX), the Pueblo Gem & Mineral Show, the Gem & Lapidary Wholesalers Holidome and Gem Mall shows, and the JOGS Gem & Jewelry Show also exhibited light foot traffic even though the number of buyers was similar if not slightly

Figure 1. Left: 18K yellow gold "Flames" ring with 25.19 ct Mexican fire opal. Right: This 18K yellow gold "Spice" ring features a rare 6.57 ct fire opal with remarkable play-of-color surrounded by a halo of faceted fire opals (1.96 carats total) and two side fire opals in orange (0.73 carats total). Courtesy of Paula Crevoshay.

Editors' note: Interested contributors should send information and illustrations to gandgeditorial@gia.edu.

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Figure 2. Left: "Dance of the Jungle" layout with 316 carats total of mandarin garnet, green tourmaline, and peridot. Courtesy of Constantin Wild. Right: Wild shows a different orange and green "Dance of the Jungle" layout with 37.26 carats total of tsavorite garnet, fire opal, chrome diopside, and Mali garnet. Photo by Jennifer Stone-Sundberg; courtesy of Constantin Wild.

higher than in previous years. In general, sales of higher-end, rare, and unusual goods were brisk early on. Compared to years past, these shows seemed more polished and more solidly focused on gems, minerals, and jewelry with less of an open market feel. For shows open to the public such as the 22nd Street Mineral, Fossil, Gem & Jewelry Show, foot traffic was quite high due to the variety of price points and offerings.

Clearly a lot of higher-end material was moving, as evidenced by GIA's Show Service Laboratory having an all-time record year, with more than a 10% increase in submissions over past years. The lab noted the usual mix of primarily ruby, sapphire, emerald, Paraíba tourmaline, and alexandrite, with some less prominent and more unusual stones submitted as well.

Green stones were very popular once again, particularly pure green to yellowish green. Emerald, especially Colombian, was heavily represented at the shows as well as other green stones including tourmaline, tsavorite, demantoid, chrome diopside, peridot, sphene, unheated sapphire, and even chrysoberyl. Vibrant yellowish orange to orangy red stones were another apparent trend, and mandarin garnet, Mexican fire opal (particularly deep red; figure 1), red Oregon sunstone, and deeply colored citrine were prolific. We found many instances of green and orange together in jewelry and loose gemstone sets, such as in Constantin Wild's Jungle series layouts (figure 2). Unheated sapphire in greens, teals, and steely blues were yet again some of the hottest stones, as were unheated "opalescent" or "sleepy" stones such as an exceptional example of a bright blue sapphire with pink and orange flashes offered by Dudley Blauwet that he likened to the fire from a fine Australian opal (figure 3). Bicolor stones were even more popular this year, and tricolor stones in a wide variety of materials were also prevalent (figure 4). Pantone's Color of the Year for 2025, Mocha Mousse, was represented in many brown

Figure 3. An exceptional 5.02 ct, 9.9 × 9.0 mm opalescent blue sapphire from An Phu, Vietnam, with eye-visible bands of silk in addition to pink and orange flashes reminiscent of play-of-color in opal from Australia. Photo by Anna Merritt; courtesy of Dudley Blauwet Gems.

Figure 4. Rainbow fluorite cabochons measuring 10 × 12 mm. Photo by Kevin Schumacher; courtesy of Jennifer Stone-Sundberg.

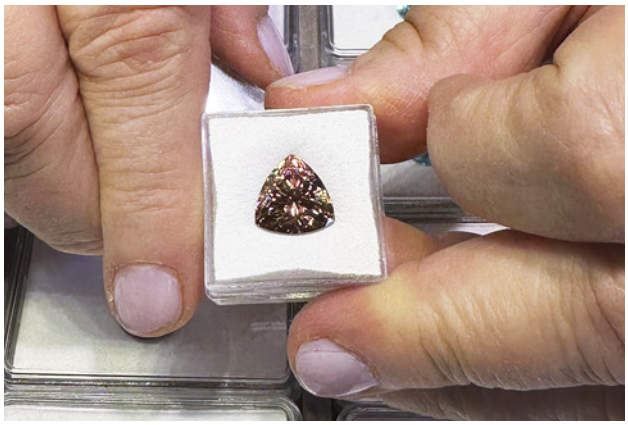

Figure 5. An 11.7 mm, 8.34 ct "mocha" zircon trillion. Photo by Jennifer Stone-Sundberg; courtesy of Mayer & Watt.

Figure 7. Imperial topaz with schiller: 1.51 ct, 7.89 ct, and 2.48 ct from left to right. Photo by Kevin Schumacher; courtesy of Jennifer Stone-Sundberg.

gemstones offered, including a bright "mocha" zircon from Mayer & Watt (figure 5). Other popular brown gems included topaz, tourmaline, diamond, and smoky or a warmer so-called "whiskey" or "brandy" citrine quartz.

Figure 6. This 22-inch "Ethereal Light" necklace contains 35 translucent Ethiopian opal beads totaling 426 carats and is finished with an 18K gold handmade clasp. Courtesy of Paula Crevoshay.

Precious opal, particularly fine Ethiopian opal, was abundant throughout the shows. The demand for Ethiopian opal has not slowed since this material first appeared in Tucson in 2009 and was prominently featured in many high-end jewelry pieces in the AGTA designer showroom (figure 6). In addition to opal, phenomenal gems of many varieties were extremely popular this year, including star sapphire and ruby, schiller sunstone from Oregon and India, and other feldspars such as labradorite, moonstone, and in particular the new "rainbow moonstone" from Madagascar we reported on last year (Spring 2024 GNI, p. 102).

Beyond phenomenal gems, included stones were also trending, such as Imperial topaz with golden and red schiller (figure 7), quartz with golden rutile from Brazil (figure 8), and moss agate. Eric Braunwart of Columbia Gem

Figure 8. Brazilian rutilated quartz bangle (6.5 inches in circumference). Photo by Mimi Travis; courtesy of Tao Hsu.

Figure 9. Moss agate cabochons measuring 12 × 10 mm (left) and 10 × 7 mm (right). Photo by Kevin Schumacher; courtesy of Columbia Gem House.

House reported that moss agate went viral after several Instagram posts promoted the stone's organic patterns and uniqueness for engagement rings (figure 9).

For faceted stones, there was a noticeable uptick in the number of heart-shaped and step-cut hexagonal stones (figure 10) in a range of materials, from Colombian emerald to rainbow moonstone to tourmaline. Marquise brilliant- and step-cut as well as shield step-cut gems were also popular.

A notable trend among jewelry buyers was the desire for something unique and personal. Interestingly, none of the winning entries for the AGTA Spectrum Awards for engagement rings and bridal wear featured a central diamond, focusing on tsavorite garnet, spinel, sapphire, and tourmaline instead. This movement was also evident in the popularity of one-of-a-kind stones, including bicolor, hazy, and phenomenal stones, as well as custom cuts and those with features such as eye-visible inclusions.

Another growing trend, men's bejeweled brooches, was observed throughout Tucson this year. Men's brooches have been evolving over the past couple of years in terms of size, inclusion of stones, and stone colors (G. Trebay, "The bro-brooch sweeps awards season," March 13, 2024, *New York Times*, https://www.nytimes.com/2024/03/13/style/brooches-male-celebrities-oscars.html).

We hope you find our coverage of the shows informative, as we dive deeper into some of the trends highlighted in this overview and feature some of the notable newer materials and unique stories encountered.

Jennifer Stone-Sundberg and Tao Hsu
GIA, Carlsbad

Lisa Kennedy
GIA, New York

COLORED STONES AND ORGANIC MATERIALS

"Enhydro" amethyst from Morocco. Known for its sharp hourglass color zoning and double termination, Moroccan amethyst has been well documented and characterized in the past (Spring 2017 GNI, pp. 126–127). However, it was the precise placement and aqueous nature of the inclusions

Figure 10. A pair of 5 mm hexagonal step-cut grape garnets from the State of Odisha on the Bay of Bengal in eastern India. Courtesy of Eric Braunwart, Columbia Gem House.

Figure 11. Left: "Enhydro" amethysts from Morocco. Right: This 16.60 ct triangular-shaped enhydro amethyst, measuring 17 × 19 mm, contains a large primary fluid inclusion with a free-moving gas bubble prominently oriented in the center of the table. Photos by Lisa Kennedy; courtesy of Gem & Gold Creations.

in the deeply saturated, large faceted amethysts that caught the author's attention at the Pueblo show this year.

The gemstones were exhibited by Gem & Gold Creations (Scottsdale, Arizona) as "enhydro" amethyst (figure 11, left). "Enhydro" comes from the Greek word *enhydros*, which means "water within." In gemology, *enhydro* terminology is typically reserved for a hollow nodule or geode of chalcedony containing water. However, "enhydro quartz" is often used in the trade to describe colorless, transparent crystalline quartz with fluid inclusions or liquid-filled cavities. The most interesting examples have a gas bubble within the fluid inclusion that moves freely when the stone is turned.

The Moroccan amethysts displayed were of similar nature to the more commonly seen colorless enhydro quartz, each containing a large primary fluid inclusion with a free-moving gas bubble prominently oriented in the center of the table facet (figure 11, right). Many of the playful inclusions were so large that magnification was not needed to observe them.

Inclusions such as these aren't only a treat for the eyes—they also serve as a fascinating reminder of a gemstone's natural origin. Fluid inclusions are rare samples of natural fluids that were trapped inside rocks and minerals long ago during their formation. A gas bubble within a fluid inclusion is a result of temperature changes endured during a mineral's journey to the earth's surface. As the mineral and the fluid cool down over time, the fluid shrinks at a faster rate than the mineral, causing a gas bubble to exsolve within the fluid.

These specimens with eye-visible fluid inclusions were a rare find with such a rich and even reddish purple hue—the most prized hue for amethyst. Ai Van Pham, owner of Gem & Gold Creations, noted that out of the 70 kg of rough amethyst he purchased from Morocco, only 10 amethysts were considered enhydro once faceted.

Lisa Kennedy

New Nigerian green beryl find. A unique new find of green beryl was discovered in 2024 in the Nasarawa Eggon mine in Nigeria. A few dealers at the Pueblo and Mineral City shows carried the material, referring to it as vanadium-bearing beryl (figure 12). Most of the stones had concentrated color-zoned bands near the terminations. Energy-dispersive X-ray fluorescence revealed iron and trace amounts of vanadium and chromium in the green zones, with the near-colorless areas primarily containing trace amounts of iron. The concentrated green color bands near the terminations exhibited pinkish orange fluorescence under long-wave (365 nm) UV light. The banding observed in these exciting new beryl samples is similar to that of Torrington emeralds from Australia.

Rhonda Wilson
GIA, Carlsbad

Figure 12. Green beryl crystals weighing 41.90 ct (left) and 4.08 ct (right) from a new source in Nigeria display concentrated color zones. Photo by Rhonda Wilson; courtesy of Rhonda Wilson (left) and Maxwell Hain (right).

Figure 13. This 1800.20 ct "rainbow calcite" collector stone was exhibited at the GJX show. Photo by Annie Haynes; courtesy of Kaufman Enterprises.

Large "rainbow calcite." A remarkable large calcite recently seen at the GJX show displayed a dazzling array of colors resulting from both high dispersion and birefringence (C.S. Hurlbut and C.A. Francis, "An extraordinary calcite gemstone," Winter 1984 *G&G*, pp. 222–225). Exhibited by Kaufman Enterprises (San Diego, California), the collector stone weighed 1800.20 ct (figure 13) and was precision cut by Italian gemstone cutter Luigi Mariani in 2024 over the course of six months. The calcite rough was mined in Brazil in the 1980s and weighed over 6000 ct. Calcite that shows these vibrant colors may be known as "rainbow calcite" in the trade. This extraordinary stone is one of the best calcite examples examined by GIA.

Jessa Rizzo
GIA, Carlsbad

New fluorite deposit in Nigeria. Exploring the various gem and mineral shows in Tucson always has surprises in store, and this year was no exception, with a batch of fluorite specimens from Nigeria exhibited at the Pueblo show by Jigga Collins Mineraux (Sécheras, France). This new find of fluorite ranges in color from gray-blue to gray-green to bluish green under artificial light, shifting to violetish blue in sunlight (figure 14, left). Under natural lighting, most of the crystals show a bicolor effect created by obvious color zoning, with a green core highlighted by blue edges (figure 14, right). All specimens show strong fluorescence when exposed to long-wave (365 nm) UV light, turning to violet-blue or an intense electric blue color (figure 15).

The fluorite comes in clusters of euhedral, often twinned cubes ranging in size from 1 cm to more than 15 cm each, regularly associated with quartz, pyrite, galena, and calcite. Some of the crystals observed contained eye-visible fluid inclusions.

Nigeria is known for its variety of industrial and precious mineral resources, including some important fluorspar deposits. Collection-grade fluorite specimens were previously known from the Jos Plateau area, Benue state, and a few other localities (J.I. Omada et al., "The Kigom peralkaline granite pluton of the Nigerian Younger Granite suite," *Global Journal of Geological Sciences*, Vol. 1, No. 1, 2003, pp. 1–12; S.O. Akande et al., "Minerology, fluid inclusion and genesis of the Arufu and Akwana Pb Zn F mineralization, middle Benue Trough, Nigeria," *Journal of African Earth Sciences (and the Middle East)*, Vol. 7, No. 1, 1988, pp. 167–180).

According to Collins, the exhibited mineral specimens come from a recently discovered deposit related to some areas of the Jalingo mine in the state of Taraba. The fluorite was located in 2022, and operations began in early 2023. Though the material had been introduced at the Sainte-Marie-aux-Mines Mineral & Gem Show (France) and at the Munich Show in 2023 (R. De Ascenção Guedes et al., "Une passion nommée Sainte-Marie-aux-Mines!," *Le Règne Minéral*, No. 172, 2023, pp. 6–16; R. De Ascenção Guedes

Figure 14. Fluorite specimens from the Jalingo mine in northeastern Nigeria shown in sunlight displaying violetish blue color (left) and obvious color zoning (right). Courtesy of Jigga Collins.

Figure 15. A twinned fluorite crystal from Nigeria (approximately 7 inches in diameter) shown under fluorescent light (left) and long-wave UV light (365 nm, right). Courtesy of Jigga Collins.

et al., "Munich 2023!," *Le Règne Minéral*, No. 174, 2023, pp. 7–31), the Pueblo show was its North American debut.

Collins noted that some of the largest mined specimens reached 35–40 kg in weight and about 80 cm in height. While 3 to 5 tons have been mined so far, the use of improper tools and limited mining expertise led to excessive damage of the extracted material during the earliest operations, leaving top-quality specimens scarce. Mining operations have since improved and production remains seasonally active.

Cristiano Brigida
GIA, New York

Green jadeite-omphacite from Guatemala. At the GJX show, Pillar & Stone (San Francisco, California) offered bright green jade from Guatemala, confirmed to range from jadeite to omphacite, that was highly translucent to nearly transparent. This was Pillar & Stone's first year showing these pyroxene-dominant jades, known in the trade as *fei cui*. Nata Heng showed us many individual pieces, matched pairs, and beads in an intense green coupled with high translucency/near transparency similar to that of fine "imperial green" Burmese jadeite-omphacite jade (figure 16). This material was being sold as Guatemalan imperial green jade. Heng also presented an equivalent set of Burmese jade pieces for side-by-side comparison, noting that the Guatemalan material is considerably less expensive than that of the same color and size from Myanmar. S.I.E. Liu et al. recently reported on the similar appearances of this newer source of "imperial green" jade from Guatemala and the material from Myanmar (see figures 1 and 2 in S.I.E. Liu et al., "Geographic origin determination of high-quality green jadeite-omphacite jade (*fei cui*) from Myanmar, Guatemala and Italy using statistical processing coupled with spectroscopic and chemical analyses," *Journal of Gemmology*, Vol. 39, No. 2, 2024, pp. 124–144).

Having visited the Chinese markets processing and selling this Guatemalan material in Jieyang and Guangzhou, Heng reported that one of the largest miners was sending approximately 8 tons of rough each week for processing, with about 20% of the gem-grade material being green. As the green color is concentrated in veins up to 5.5 mm thick, Guatemalan green jade is generally much thinner than material from Myanmar when cut and used in jewelry. As this material can be quite iron-rich, resulting

Figure 16. Nata Heng showing the various shapes and sizes of finished Guatemalan jade processed in China. Photo by Jennifer Stone-Sundberg; courtesy of Pillar & Stone.

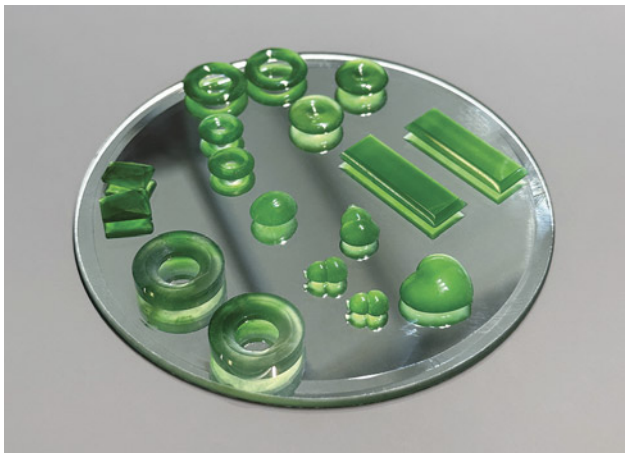

Figure 17. Several Guatemalan jade pieces placed on a mirror to demonstrate the transparency of the material. Photo by Jennifer Stone-Sundberg; courtesy of Pillar & Stone.

Figure 18. Mechanical keyboard with select jade keycaps. Photo by Lisa Kennedy; courtesy of Carter Stay, Keycap Quarry.

in a deep saturated green color, some choose to cut it relatively thin when used in jewelry to keep the color saturation from being too intense. To best demonstrate its incredible translucency/near transparency, Heng placed many of the pieces on a mirror (figure 17). At the AGTA show, Mason-Kay (Centennial, Colorado) was also selling green jade from Guatemala. To our knowledge, this is the first year that this bright green and nearly transparent jade from Guatemala has been offered in Tucson. With the lower price point, Heng predicts a growing trend toward more affordable top-quality green jadeite and omphacite (*fei cui*) jade.

Jennifer Stone-Sundberg and Aaron Palke
GIA, Carlsbad

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GIA, Bangkok

Gemstone artisan keycaps. At the 22nd Street show, Carter Stay, owner and artisan behind Keycap Quarry (Salt Lake City, Utah), shared his unique craft with the author, opening up about what led him to pursue an alternative use for one of nature's most beautiful creations—gemstone keycaps for mechanical keyboards (figure 18).

A mechanical keyboard has a physical switch beneath each keycap that transfers keystrokes to a printed circuit board, resulting in a distinct feel compared to other keyboards. Popular among computer gamers, like Stay himself, mechanical keyboards provide a tactile experience. Artisan keycaps are custom-made for these keyboards, designed to stand out from mass-produced options. They are often crafted in small batches from materials such as metal, resin, or clay.

Growing up in Utah and being surrounded by rock hounds and lapidaries fostered Stay's fascination with rocks. Like many eager to seize opportunity amid the challenges of the COVID-19 pandemic, he launched Keycap Quarry at just 16 years old, and it has since grown into a thriving enterprise with more than 34,000 followers on Instagram. Stay offers a wide variety of gemstone keycaps including opal, jade, quartz, and various agates (figure 19). Each keycap is the result of Stay's careful selection of the finest rough materials, followed by his keen attention to detail while cutting and polishing.

Stay highlighted the importance of selecting the right slab, or rough material, and how it influences the shape of

Figure 19. Various gemstone keycaps including rutilated quartz, chrysocolla malachite, amethyst, fossilized red horn coral, charoite, turquoise, opal, wavelite, and more. Courtesy of Carter Stay, Keycap Quarry.

Figure 20. Topaz in matrix keycap with an inlaid base of sterling silver. Courtesy of Carter Stay, Keycap Quarry.

his keycaps. By sourcing slabs with tighter patterns, he's able to more efficiently display the unique designs inherent to the stones within the smaller, face-up area of his keycaps. He typically creates keycaps with a square profile, which allows him to use and show off more of the gem material. However, the finish of the top of the keycap varies depending on the stone—he's created keycaps with faceted, carved, domed, flat, and raw, unaltered tops.

One of Stay's most popular keycap varieties is the amethyst cluster, with the top remaining in its crystal form. Stay enjoys capturing the tactile essence of gems (figure 20). He lightheartedly mentioned that customers request that "he does a backspace key with the 'pokey' ones [raw, unaltered tops], acting like a negative reinforcement if you make a mistake."

Customers enjoy following Stay's entire production story, from mining and digging to cutting and polishing, which he often chronicles on Instagram. He has recorded himself digging for fossils at U-Dig Fossils Quarry in Delta, Utah, followed by cracking open the shale and discovering fossilized trilobites to take home and create into keycaps (figure 21). He has also worked with other fossils that he did not collect, such as ammonite, turritella agate, and mammoth molar.

As a self-taught rock enthusiast and lapidary, Stay expressed the value of coming to the Tucson gems shows—not only for the stones, but for the connections he continues to make each year. These unique connections allow him to deepen his understanding of the gemstones he works with. It's also where he met Luke Miller, owner of Yax Tun Minerals (Denver, Colorado) specializing in Guatemalan jade, who allowed Stay the extraordinary opportunity to exhibit his gemstone keycaps at the Yax Tun booth this year.

Figure 21. Set of one-of-a-kind trilobite fossil keycaps. Courtesy of Carter Stay, Keycap Quarry.

So, what's next for Stay? He's happy with his current business that allows him to combine two niches—rocks and gaming—and that he's been able to put his own spin on these unique materials for the gem industry. "That is the direction the art and lapidary world is going. People want the different and unique stuff, rather than the mass-produced items," he noted. Stay also shared his interest in creating jewelry in the future, having recently acquired a collection of tools from a retiring goldsmith. With his keen attention to detail, passion, and background working with computers, including 3D printing, he's perfectly poised for the new era of jewelry manufacturing.

Lisa Kennedy

"Bubble obsidian" from Armenia. Obsidian is a volcanic glass formed when silica-rich lava cools so fast that crystal formation is only visible with a microscope. The glassy and amorphous nature of obsidian makes it hard and brittle. Due to its highly conchoidal fracture, obsidian has been an ideal material for manufacturing cutting tools since the Neolithic era (ca. 7000–1700 BCE). In addition, obsidian is a popular ornamental gem due to its workability and the occurrence of attractive varieties.

At the 22nd Street show, the author encountered an unusual type of obsidian characterized by an extremely vesicular, or "bubbly," structure featuring large, often oriented degassing cavities (figure 22, left). In the specimens observed, the bubbles reached more than 2 inches in length, varied in size, and were separated by extremely thin and sharp septa (figure 22, right). Some specimens contained several intact bubbles (figure 23).

The specimens were presented by Bojo Jewelry & Minerals (Yerevan, Armenia), an exhibitor offering a wide range of gems and jewelry from Armenia, including obsidian and turquoise. The dealer, Artak Bojikyan, who named the material "bubble obsidian," noted it was an unexpected find last year resulting from road construction on the Arteni Mountain in Armenia's Aragatsotn region, one of the most significant obsidian occurrences in the Caucasus Mountains. Bojikyan noted that a few large boulders have been found so far, and more may be recovered in the upcoming months.

Figure 23. Detail of intact degassing bubbles in one obsidian specimen. Photo by Cristiano Brigida; courtesy of Bojo Jewelry & Minerals.

Armenian obsidian, also known as "mahogany" obsidian in the trade, is a high-quality compact stone, typically displaying distinctive reddish brown streaks against a black bodycolor. According to Bojikyan, this is the first time this type of highly vesicular obsidian from the Arteni Mountain deposit has been offered at a trade show, and it attracted the attention of scientists and collectors.

Cristiano Brigida

Figure 22. Left: Oriented degassing bubbles in obsidian "quenched" during the cooling process. Right: The vesicles varied in size and shape and were separated by extremely thin and sharp septa. Photos by Cristiano Brigida; courtesy of Bojo Jewelry & Minerals.

Figure 24. A faceted pezzottaite, measuring approximately 6 × 4 mm, with a group of rough (largest piece ~25 mm in diameter) exhibiting purplish pink to red color from the Vakinankaratra region of Madagascar. Photo by Nathan Renfro; courtesy of Lamine Kakro and Yianni Melas.

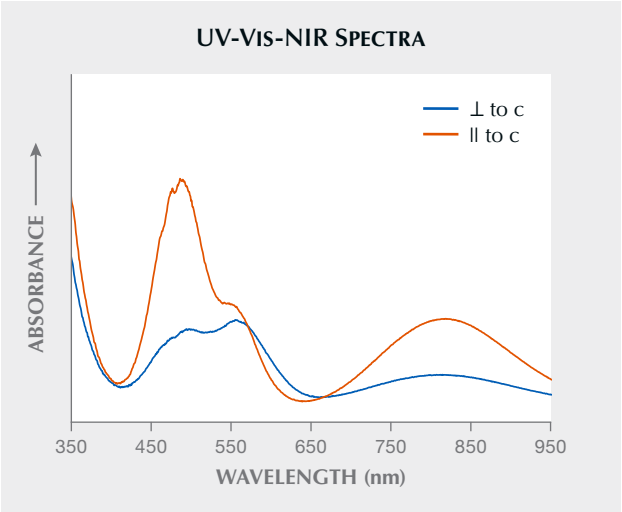

Figure 26. UV-Vis-NIR absorption spectra of pezzottaite from Vakinankaratra, Madagascar. The difference in the spectra based on orientation explains the pleochroism observed in the pezzottaite samples.

New deposit of pezzottaite from Madagascar. Pezzottaite is a rare, purplish pink gemstone and a mineral of the beryl group, characterized by high lithium and cesium contents ($Cs(Be_2Li)Al_2(Si_6O_{18})$). In Tucson, the authors encountered a parcel of highly saturated purplish pink to red pezzottaite (figure 24) from a new deposit in Madagascar with color noticeably more saturated than earlier known production from the Sakavalana granitic pegmatite near Ambatovita (B.M. Laurs et al., "Pezzottaite from Ambatovita, Madagascar: A new gem material," Winter 2003 *G&G*, pp. 284–301). The stones ranged in sizes from as small as 2 mm to tabular crystals approximately 25 mm in diameter and were reportedly from the Sahatany Valley in the Vakinankaratra region of central Madagascar. Rough samples of the material (5.02 carats total) were acquired from Lamine Kakro and Yianni Melas at the AGTA show and later analyzed at GIA (figure 25).

Standard gemological testing indicated refractive indices from n_e = 1.600–1.611 and n_o = 1.610–1.621 and specific gravity from 3.05–3.14. The stones had a pinkish purple hue with medium tone and moderate to strong saturation. All samples demonstrated strong pleochroism, showing purplish pink when viewed perpendicular to the *c*-axis and reddish orange when viewed parallel to the *c*-axis. Crystallographic orientations were determined visually for samples with preserved crystal form. Three of the samples showed uniaxial interference figures in the polariscope, and all samples were inert under short-wave and long-wave fluorescence. These gemological properties were consistent with pezzottaite, although the color was much more intense than that of previously observed stones. Microscopic examination revealed numerous fractures and

Figure 25. Rough samples of pezzottaite (5.02 carats total) acquired at the AGTA show from the parcel shown in figure 24. The difference in appearance is due to the small size of the acquired samples and resultant lower saturation. Photo by Annie Haynes.

small fluid inclusions, though the samples were generally free of foreign mineral inclusions.

Raman spectroscopy confirmed the identity of the material as pezzottaite by an intense peak at ~1100 cm^{-1}, which is not present in beryl. Fourier-transform infrared spectroscopy showed features associated with water in the crystal structure, which confirmed its distinction from red beryl despite having a similar color. Ultraviolet/visible/near-infrared (UV-Vis-NIR) spectra were collected parallel and perpendicular to the crystallographic *c*-axis (figure 26), with differences based on orientation matching observations of moderate to strong pleochroism and no evidence of dyes altering the color. Elemental concentrations were determined by laser ablation–inductively coupled plasma–mass spectrometry (LA-ICP-MS) analysis. Three spots were ablated on each sample, for a total of 18 analyses: Cs_2O ranged from 10.88–16.79 wt.% in the samples, while Li_2O ranged from 1.94–2.51 wt.% (table 1).

Standard gemological testing and advanced testing both confirmed the identity of the samples as pezzottaite. These samples are remarkable due to their vivid saturation which makes them unique compared to the previously available pezzottaite.

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TABLE 1. Chemical analyses of pezzottaite (determined by LA-ICP-MS) from Vakinankaratra, Madagascar.

Oxide	wt.% range (avg)
Li_2O	1.94–2.51 (2.24)
BeO	7.74–9.59 (8.53)
Na_2O	0.34–1.31 (0.72)
Al_2O_3	14.99–17.51 (16.45)
SiO_2	54.87–59.84 (56.90)
K_2O	0.004–0.074 (0.041)
CaO	0.032–0.78 (0.40)
TiO_2	0.001–0.008 (0.003)
MnO	0.001–0.021 (0.011)
Fe_2O_3	0.004–0.046 (0.016)
Rb_2O	0.025–0.19 (0.13)
Cs_2O	10.88–16.79 (14.58)

Figure 27. Cat's-eye labradorite earrings set in 14K gold. The stones measure 7 × 5 mm. Photo by Kevin Schumacher; courtesy of Ben Kho Gems.

Phenomenal gems. This year, phenomenal gems were very popular and selling well throughout the Tucson shows, illustrating the growing desire for one-of-a-kind stones. Phenomena such as asterism, schiller, play-of-color, and iridescence were on full display at all of the major shows. Vendors reported strong sales of fine asteriated gems such as star ruby and sapphire from Sri Lanka, Vietnam, and Myanmar; moonstone of all varieties, but particularly "rainbow moonstone" with orange flash and blue adularescence from Madagascar; sunstone with reddish gold schiller from Oregon and India; precious opal from all over the world; and a wide variety of labradorite.

These fascinating optical phenomena arise from many different sources, with the common theme being how light interacts with inclusions and/or the host material itself. Parallel needle inclusions aligned with crystallographic directions in crystals can yield attractive cat's-eyes (figure 27) or stars when these stones are properly cut. Precious opal can show a rainbow of colors (play-of-color) when incoming light interacts with the host by being diffracted as it passes through the oriented silica spheres comprising the material. Many gems belonging to the feldspar group of minerals—including moonstone, sunstone, and labradorite—can exhibit iridescence related to light interacting with thin film structures or with platy particulate inclusions (R.J. Strutt, "Studies of iridescent colour, and the structure producing it. III.—The colours of labrador felspar," *Proceedings of the Royal Society London A*, Vol. 103, No. 720, 1923, pp. 34–45).

At the AGTA show, Eric Braunwart of Columbia Gem House (Vancouver, Washington) showed us a remarkable 13.2 ct star ruby from Vietnam in a brilliant purplish red (figure 28). His regard for the stone due to its exceptionally sharp star, rarity, and beauty was apparent. Reports from other vendors such as Dudley Blauwet with booths at multiple shows, indicated that star sapphire and star ruby were selling very well this year.

Figure 28. Exceptional 13.2 ct star ruby from Vietnam measuring 12.3 × 11.0 mm. Photo by Jennifer Stone-Sundberg; courtesy of Columbia Gem House.

Opal has traditionally been one of the most popular phenomenal gems, and this year its presence was exceptionally strong. Remarkable examples with striking play-of-color from Australia, North America, and particularly Ethiopia were in high demand. This material ranges from opaque to transparent; its matrix color is generally white, gray, or black; and its play-of-color can assume many forms including pinprick-sized spots all the way up to large brush strokes (see Lab Notes, p. 64 of this issue). Braunwart shared an exceptional faceted Mexican fire opal with high transparency and brilliant flashes of color spanning the entire rainbow (figure 29).

Labradorite, a relatively inexpensive plagioclase feldspar that has been used extensively as a high-end countertop material, was first recognized in Labrador, Canada, in 1770. It has since been identified in locations all over the world. Its iridescent effect, known as labradorescence, can display a wide range of iridescent colors including blue, green, yellow, orange, and violet (figure 30). Labradorite was offered in a wide range of qualities and price points at the shows this year. Several Idar-Oberstein cutters at GJX exhibited high-end labradorite carvings along with their tourmaline, beryl, peridot, amethyst, and agate carvings.

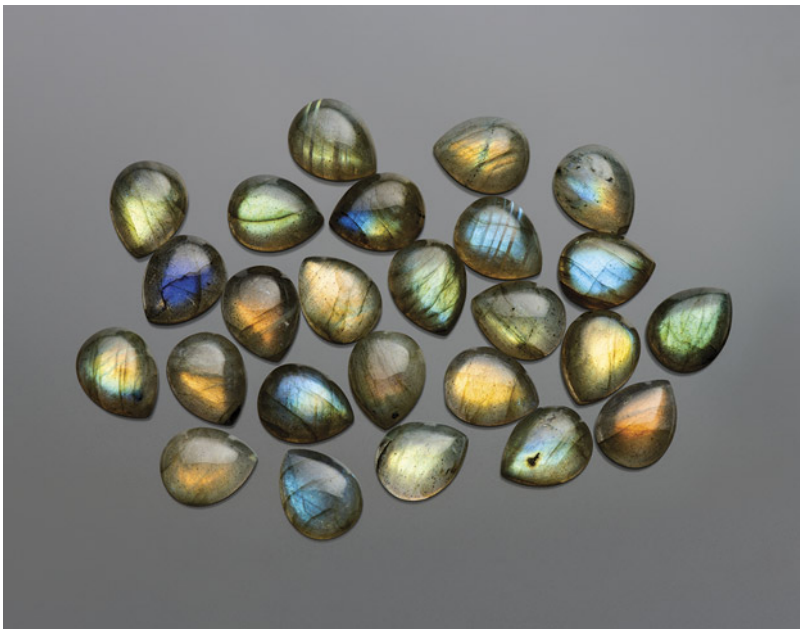

Figure 30. Colorful 8 × 10 mm teardrop labradorite cabochons. Photo by Kevin Schumacher; courtesy of Shanghai Jade Gems Factory.

Figure 29. Highly transparent pear-shaped crystal opal from Mexico showing play-of-color. The opal measures 22.2 × 16.7 mm and weighs 17.82 ct. Photo by Jennifer Stone-Sundberg; courtesy of Columbia Gem House.

Figure 31. A 9.5 mm, 3.25 ct rainbow moonstone with orange flash and blue adularescence from Madagascar. Photo by Jennifer Stone-Sundberg; courtesy of Mayer & Watt.

Figure 32. A 63.0 ct hand-carved Indian sunstone squirrel with a tourmaline leaf measuring 33.5 mm high (left) and a 43.10 ct Oregon sunstone depicting a moon face inspired by Beethoven measuring 11.8 mm high (right). Both carved by Hans-Ulrich "Uli" Pauly of Idar-Oberstein, Germany. Photos by Gaby Pauly; courtesy of Pauly Carvings.

Highly transparent "rainbow moonstone" from Madagascar—a plagioclase feldspar confirmed to be of the labradorite variety, so therefore not a true moonstone—was one of this year's hottest materials after making its debut last year (Spring 2024 GNI, p. 102). Several vendors at AGTA and GJX carried this material both faceted and en cabochon, with the faceted stones being slightly more popular. Many layouts and matched sets were on display in shapes ranging from rounds to hearts to hexagons. At AGTA, Mayer & Watt (Maysville, Kentucky) offered a wide selection of various cuts and sizes with strong yellow to orange flash and blue adularescence (figure 31).

Sunstone, a gem known for its reddish golden metallic schiller, was available through more vendors and shows than in years past. Oregon sunstone, once a curiosity, is now a highly sought gem by many around the world. Oregon sunstone is a plagioclase feldspar colored by copper (S. Jin et al., "Special colors and optical effects of Oregon sunstone: Absorption, scattering, pleochroism, and color zoning," Fall 2023 *G&G*, pp. 298–322). This unique gem has fine copper schiller that can take on many different appearances depending upon copper particle size. Other sunstones exhibit thin plates of reddish hematite schiller, such as those from India. Idar-Oberstein carver Hans-Ulrich "Uli" Pauly carves both Oregon sunstone and Indian sunstone into exquisite *objets d'art*, which were on display at the GJX show in the Idar-Oberstein Pavillion (figure 32). At the Holidome show, Sami Gems & Jewellers (Jaipur, India) offered sunstone from India. This material varied from densely included with high metallic luster and a rich reddish gold color to transparent (figure 33). The faceted transparent stone in figure 33 (top right) showed a faint bluish cast on two ends and a reddish golden cast on the other two, with a light scattering of metallic inclusions throughout. Suwalin Shamsi ("Sami") indicated that the material comes from Madras (Chennai) in Tamil Nadu, a region in southern India known for farming.

Figure 33. Sunstone with schiller from Madras, India, demonstrating the variety available in terms of depth of color and transparency. Note the bicolor nature of the larger faceted gem (13 × 17 mm), which exhibits a blue tinge at the top and bottom. Photo by Jennifer Stone-Sundberg; courtesy of Sami Gems & Jewellers.

Phenomenal gems always carry appeal, as they delight the observer and can inspire a desire to learn more about the science behind them. The availability of so many varieties provides the opportunity to appreciate the complex and diverse optical phenomena responsible for their captivating special effects.

Jennifer Stone-Sundberg

Update on Montana's Rock Creek sapphire. Sapphire, rough and faceted, from the Rock Creek deposit in Montana has become one of the pillar gems of American origin in the global colored gemstone market. Over the past 10 years, Potentate Mining, the company operating the mine and marketing Rock Creek sapphire, has successfully developed a solid clientele base in North America. The rough sapphire

Figure 34. Top: The open pit mining operation in the "meadow" area of the Rock Creek deposit. Bottom: The recently built 10-jig processing plant at the new mining area. Courtesy of Potentate Mining.

Figure 35. An assortment of rough sapphires (5–10 mm in diameter) extracted from the new mining area displaying characteristics typical of stones from the Rock Creek deposit, including many with a yellow "yolk" at the center. Courtesy of Potentate Mining.

business has been robust, including successful sales at this year's AGTA show.

The company has had a mission to bring Montana sapphire to a wider retail market in the United States. To accomplish this goal, steady sizable production of rough sapphire and a more diverse clientele around the globe are some of the prerequisites.

Potentate Mining has secured both the Eureka Gulch and the Rock Creek mining properties over the past 10 years in the Gem Mountain District near the historic town of Philipsburg in Montana. This includes the old alluvial workings and the surrounding hilltops, the largest privately held sapphire mining claim since the late 1800s. The

Figure 36. The inaugural Montana sapphire tender was held in Bangkok at the end of 2024. Left: The auction space featured ample natural light and private cubicles for clients to view the lots. Right: Some of the larger Montana sapphire rough offered at the inaugural tender in Bangkok. Courtesy of Potentate Mining.

newest development at the mine occurs in the "meadow" area that has not been worked on for decades (figure 34, top). To increase the processing capacity, a new washing plant was recently added to the site (figure 34, bottom). The new plant features 10 jigs and a water recycling system. Six out of the 10 jigs work on sapphires of a normal size range. Two other jigs process oversized sapphires, and the last two manage the tiny sapphires and the limited amount of fine gold. The new mining area produces sapphire rough ranging from 2.5 to 12 mm, and the production looks similar to that of older mining areas on the hilltops (figure 35). With this new area in operation, the production of rough sapphire has increased.

In an effort to expand the Montana sapphire market globally, Potentate Mining in collaboration with the Bonas Group, a reputable diamond and gemstone tender company, hosted an inaugural Montana sapphire tender in December of 2024 in Bangkok, Thailand (figure 36). As the global hub of colored gemstone trading, Bangkok attracts buyers from all around the world and is a crucial location for Montana sapphire trading. The tender offered nearly 80 kg of Montana sapphire rough. Most buyers had sapphire cutting and jewelry manufacturing expertise and were mainly from India, Thailand, and other Asian countries. According to Potentate Mining, the heated rough was their best seller, with its risk of heat treatment eliminated. This inaugural tender provided a good learning opportunity for both the buyers and the hosts. Most buyers were not very familiar with Montana sapphire; it will take them time to learn about the potential of these stones and their reaction to heat treatment. The seller will also need time to learn the preferences of these new buyers in order to provide proper goods.

The success of the inaugural tender moved Potentate Mining one step closer to bringing Montana sapphire to more consumers and being a key supplier of sapphire in the global marketplace. More tenders have been planned for the next few years. The increased sapphire production from this deposit will be able to supply both the North American market and the newly developed global clientele base.

Tao Hsu

Figure 37. A Caribbean queen helmet shell carved by Vincenzo Imposimato depicting the COVID-19 pandemic. Courtesy of Massa Gioconda.

World events carved in a shell. A remarkable shell lamp (figure 37), hand carved by Italian artist Vincenzo Imposimato, was exhibited at GJX by the Massa Gioconda company (Naples, Italy). For nearly 40 years, Massa Gioconda has been dedicated to high-quality, handcrafted coral, turquoise, and shell pieces, such as this exquisitely detailed shell lamp.

Carved from a Caribbean queen helmet shell (*Cassis madagascariensis*), Imposimato's lamp was inspired by the global challenges brought on by the COVID-19 pandemic. Through intricate engravings, the artist captured the events and emotions from multiple perspectives. The result is a thoughtful visual representation of the pandemic's widespread impact. Through his craftsmanship, Imposimato not only preserves traditional techniques but also redefines shell carving as a profound form of storytelling.

At the center of the design, the virus takes on the form of a looming demon reaching out to the lone figure who resists its grasp. A clock serves as a reminder of the race against time to develop treatments and solutions. To the left, a doctor cradles a newborn—a symbol of hope

Figure 38. Details of the hand-carved shell lamp. Left: A doctor cradles a newborn as a symbol of hope. Right: World leaders with their eyes closed contemplating the global impact of the virus. Courtesy of Massa Gioconda.

(figure 38, left). To the right, world leaders with closed eyes are portrayed above a world map, capturing the uncertainty during the early days of the pandemic (figure 38, right). The scene at the bottom pays tribute to the many lives lost.

This intricate engraving is a testament to the perseverance of individuals and communities, the determination to overcome adversity, and the unwavering belief that no matter the challenges faced, a brighter and more united future is always within reach.

Edyta Banasiak
GIA, New York

Gem-quality spinel from southern Malawi. At the AGTA show, the author spoke with Brent Smith, owner of Phoenix Gems (Holly, Michigan), who shared a few parcels of rough spinel of different colors recently mined in Malawi. According to Smith, despite identifying spinel occurrences in 2014 (G.W.P. Malunga, *An Analysis of Mineral Resources of Malawi*, 2014), actual mining operations did not begin until 2024 and are actively producing reasonable quantities, though an exact figure is not yet available. The stones ranged in weight from 4 ct to more than 10 ct.

A few parcels contained pink stones, in a range of tones from light to medium-dark and saturations up to moderately strong (figure 39, left). The stones were translucent to transparent and relatively clean, containing minimal inclusions and fractures visible with magnification. Smith noted that the pink stones fluoresce a bright red color under UV light.

Another two lots of spinel ranged in hue from bluish gray to grayish blue to violet-blue, with no reported fluo-

Figure 39. Parcels of rough pink spinel (left) and gray-blue spinel (right) from Malawi, ranging from approximately 4 to 7 ct. Courtesy of Phoenix Gems.

rescence under UV light (figure 39, right). Their tones ranged from medium-light to dark. The gray and blue material observed was highly transparent and lacked eye-visible inclusions. Smith reported that he had encountered some dark purple spinel from Malawi as well.

The spinel exhibited was reportedly mined in Makoko, a village in the southern part of the country. According to Smith, the early findings from this location were small and very poor in quality, until valuable gem-quality crystals were found during recent operations. Based on conversations with some other gem dealers familiar with the area, one of whom lives on site, all agree that no gem-quality spinel has been produced nor is known in the trade from Malawi to date. Phoenix Gems reports to be the only dealer exhibiting this new Malawian material this year.

Malawi is still under development and requires the establishment of ethical practices to allow real beneficiation for the communities. Smith explained that Phoenix Gems cooperates with the Export Development Fund (EDF), a subsidiary of the Reserve Bank of Malawi. These institutions are working with miners and mine owners to establish a safe and official selling channel that guarantees paying local miners a fair market value for the rough. On the international scale, EDF is committed to making the material available and recognized in worldwide marketplaces. The cooperation between local institutions and international dealers to build transparency and value throughout the supply chain is an encouraging sign for a sustainable and fair gem trade for Malawi.

Cristiano Brigida

Figure 40. Unheated Paraíba tourmaline melee from the Mulungu mine in Rio Grande do Norte, Brazil. Photos by Kevin Ferreira.

Paraíba tourmaline melee: An entry-level market perspective. At the GJX show, we discussed the evolving market landscape of Paraíba tourmaline with Kevin Ferreira, coauthor of *Paraiba: The Legacy of a Color*. Known for its unparalleled neon glow and rarity, Paraíba tourmaline has long been associated with the high-end market. However, an entry-level market exists, primarily through melee stones, which offer a more accessible price point for jewelers and collectors.

"In the last two years, the price of Paraíba has risen tremendously and at a steady pace," Ferreira noted. However, he emphasized that melee stones provide an excellent low-cost introduction into the Paraíba space, allowing jewelers to experiment with a non-traditional gemstone that boasts a head-turning color. First appearing in the market in the late 1990s, melee Paraíba tourmaline made this otherwise unattainable gemstone more accessible. Today, melee stones are produced two to three times yearly, with approximately 80% originating from the Mulungu mine in Rio Grande do Norte, Brazil (figure 40). The total annual yield is approximately 5000 carats of gems, including both faceted material and cabochon stones. Yet only 10 to 15% meet the clean neon blue standard in sizes ranging from 1.0 to 1.8 mm. The remaining 85% tends to be greenish or included. Some cuprian tourmaline may initially exhibit colors other than the classic neon blue but can undergo heat treatment to achieve the highly desirable vibrant hue, further expanding the range of available material.

Looking ahead, the market for Paraíba tourmaline is poised for structural shifts. As end consumers increasingly seek direct access to mining sources and bypass traditional wholesale channels, there will be a greater emphasis on price stabilization and transparency. This supply chain evolution presents challenges and opportunities, requiring a stronger focus on ethical trade practices and business integrity to ensure fair distribution and sustained market stability.

Ultimately, color remains the most critical determinant of a Paraíba tourmaline's value. Whether in melee sizes or larger specimens, the vibrancy and saturation of the neon hue drive demand, securing Paraíba tourmaline's place as one of the most coveted gemstones in today's market.

As the market continues to evolve, the demand for Paraíba tourmaline melee will likely grow, offering new and seasoned jewelers and collectors opportunities to engage with this extraordinary gemstone. With increasing transparency and ethical sourcing initiatives, the industry is poised to navigate the challenges ahead while preserving the allure and prestige of Paraíba tourmaline for generations to come.

Edyta Banasiak

Figure 41. One of the largest of the five väyrynenites displayed was this elongated emerald cut weighing 1.21 ct. Photo by Lisa Kennedy; courtesy of FYI Pearl & Gem.

Rare faceted väyrynenite. At the GJX show, a set of uniquely saturated gemstones exhibited by FYI Pearl & Gem (Dallas, Texas) caught the author's eye. Five faceted väyrynenites with weights ranging from 0.74–1.24 ct displayed a vivid, slightly orangy pink color, reminiscent of fine "padparadscha" sapphire (figure 41). Owner Marc Freeman explained that the stones were from Afghanistan. Their appearance aligned with previous observations describing Afghan väyrynenite as being more pink and less orange than the Pakistani material (Summer 2006 GNI, pp. 184–185).

Named after Heikki Allan Väyrynen, a professor of mineralogy from Finland, väyrynenite was recognized as a new mineral in the mid-1950s. The manganese-beryllium-phosphate ($BeMn^{2+}(PO_4)(OH)$) typically displays a light pink to orangy pink color, and is very rarely faceted—especially in weights larger than a carat.

With a hardness of only 5 on the Mohs scale, väyrynenite is not the best choice for jewelry and is better suited for display as a prized collector gem. Still, the vibrant saturation and size of these five stones are a testament to the magical wonders of Mother Nature. Freeman has a few more pieces of rough in reserve to be cut, which will bring even more of these larger, saturated väyrynenite gemstones to the market.

Lisa Kennedy

JEWELRY DESIGN

Innovative bangles. In the jewelry world, innovation continuously drives the industry forward, with jewelry designers often at the forefront of the creative attempt. The author found two bangles exemplifying this astonishing innovation at the AGTA show, exhibited at the Somewhere in the Rainbow collection booth.

The first of the two bangles was designed and constructed by Jeremy May of London, who creates jewelry using pages from books (figure 42, top). May's "literary jewel" design concept was born out of a gift idea for his wife to celebrate their first wedding anniversary, in which he crafted a ring literally made of paper. Debuted to the public in 2009, these reimagined paper jewels attract bookworms and those who value sustainability through repurposing from all over the world.

Figure 42. Top: Bangle by Jeremy May constructed of pages cut out of a book. Bottom: The bangle is placed into the book where it was cut out, serving as a "jewelry box" for the piece. Photos by Tao Hsu; courtesy of the Somewhere in the Rainbow collection.

To make a literary jewelry piece, May begins by selecting a book that serves both as the material and in many cases, its inspiration as well, and then cuts the jewel's shape out of the pages. Depending on the design, sometimes additional colored papers are used to add pops of color. Applying a proprietary laminating process, May turns the thick stack of cut-out paper into a compact solid piece that can be further processed and polished. Layers of

Figure 43. Left: This bangle by Pawel Kaczynski is made of ruffled stainless steel with a magnetic clasp. Right: This top view of the bangle shows its double-tier structure. Photos by Tao Hsu; courtesy of the Somewhere in the Rainbow collection.

varnish are applied to give the item a high gloss. From start to finish, the process often takes at least eight weeks for one piece. In addition to hololith-style jewelry cut directly from the book pages, May also constructs jewelry pieces by assembling various laminated paper components. Each creation comes with the original book to use as a "jewelry box," adding to the significance of owning such a one-of-a-kind and distinctive jewelry piece (figure 42, bottom). To May, each book carries its own unique story, not only related to the content but also through its ownership history. Creating these pieces gives a second life to the words as they're revealed on jewelry.

The second bangle was designed by Polish jewelry artist Pawel Kaczynski, who has been using jewelry as a means of artistic expression since the mid-1990s and is best known for his creative application of steel, silver, and gold. This bangle is a representative piece from his "Structure" collection, constructed with pleated and folded stainless steel mesh in a double-tiered configuration (figure 43). Using patinated stainless steel mesh, Kaczynski's design mimics the appearance of tree bark. While the rigidity and hardness of stainless steel make it challenging to manipulate in jewelry making, the mesh used in this bangle leaves it soft to touch and flexible to wear. The bangle closes with a magnetic stainless steel clasp. The characteristic cream color patina coating adds to the realism of the piece. In addition to this piece, Kaczynski applies other colored patina to his stainless steel jewelry, shaping and folding the mesh to form endless interesting structures and surfaces.

Tao Hsu

Nature-inspired jewelry. We met Boom Chappell (figure 44), jewelry designer and founder of Metal Studio Jewelry, at the Pueblo show, where she shared her unconventional approach to jewelry making. Based in the picturesque town of Chiang Mai in northern Thailand, Chappell transforms her passion for nature and gemstones into exquisite one-of-a-kind creations (figure 45, left).

Her process is entirely organic. Unlike traditional designers who begin with sketches, Chappell prefers to work directly with the materials: "Sketching feels restrictive to me. Instead, I start shaping the piece as I go, allowing creativity to flow naturally." By letting each gemstone guide her, she crafts pieces that are not only visually stunning but deeply meaningful.

Chappell thrives on collaboration, working closely with clients to bring their visions to life. "Sometimes, a customer will request something deeply personal—like incorporating their children's birthstones into a necklace. I take their story and translate it into a piece of art they can cherish forever." Her talent for directly transforming raw stones into wearable works of art sets her apart, ensuring that each piece resonates with its owner.

Selecting a favorite design is nearly impossible for her—she sees each gemstone as an unread book, its story unfolding as she works. "Even though I've set countless stones, no two are ever the same," Chappell reflects. "Each gemstone has its own texture, energy, meaning, and presence, making every creation a unique journey."

One of her most challenging creations features a drusy quartz gemstone. Originally envisioned as a solo centerpiece, Chappell expanded the design, weaving in complementary stones such as labradorite, freshwater pearls, and striking orange and blue kyanite (figure 45, right). "This drusy quartz gem's natural formation is incredibly intricate," she explains. "A single mistake could break a fragile tip, so patience and precision are key."

Figure 44. Boom Chappell at the Pueblo Gem & Mineral Show. Photo by Edyta Banasiak.

Figure 45. Left: "The Ant on the Sugar" ring, symbolizing persistence and determination, consists of drusy quartz measuring 4 × 3 cm. Right: This necklace, one of Boom Chappell's most challenging pieces, features drusy quartz, labradorite, freshwater pearls, and blue and orange kyanite. Photos by Edyta Banasiak; courtesy of Metal Studio Jewelry.

Over time, Chappell has noticed a shift in how people value handcrafted jewelry. At trade shows, visitors often pause to admire her work, sensing the intention woven into each design. These moments of recognition fuel her passion and reaffirm her dedication to her craft. In a world of mass production, her work serves as a powerful reminder of the artistry that only human hands and an inspired mind can achieve.

Edyta Banasiak

RESPONSIBLE PRACTICES

Gems Keep Giving. On February 5 at the Pima County Historic Courthouse in Tucson, Hayley Henning, chairperson of Gems Keep Giving, introduced us to the nonprofit focused on improving the lives of small scale–mining and gem-cutting communities around the world. This 501c3 organization, started by the International Colored Gemstone Association, is now autonomous. Gems Keep Giving works to develop better living conditions, provide safety protections, ensure sustainability of resources, and protect the environment with projects funded via ethical and transparent partnerships.

Henning presented on the progress made in Kamtonga, Kenya, with Gems Keep Giving's first project. This tsavorite mining community has benefited from the contributions of solar energy and clean drinking water. The organization aims to apply this model in other mining regions to provide community members with needed resources, while ensuring that mining profits are shared fairly. A second presentation by Brian Cook summarized his project in Brazil to provide safety equipment and sustainable farming in a community that produces rutilated quartz.

A collaboration between Gems Keep Giving and Italian brands Margherita Burgener and Petramundi has produced a limited-edition set of 10 pins. These titanium and gemstone pins, designed by Emanuela Burgener and handcrafted in Valenza, Italy, symbolize the foundation's mission. Each pin contains a unique gemstone, and all 10 include a central pink titanium heart representing the Gems Keep Giving logo, with five extending branches for the five major gem-sourcing continents. The gemstones were carefully chosen to represent the location of each

Figure 46. Left: Gabriela Farfan (right), Coralyn W. Whitney curator of gems and minerals for the Smithsonian National Museum of Natural History, accepts the original Gems Keep Giving pin from Hayley Henning, chairperson of the organization. Right: The original prototype pin featuring a Montana sapphire. Photos by Jennifer Stone-Sundberg.

project, whether a specific community or country. The original prototype pin, which contains a Montana sapphire and represents North America, was donated to the Smithsonian National Museum of Natural History's gem and mineral collection and presented to curator Gabriela Farfan during the event (figure 46). Over the next three months, Gems Keep Giving will raise money for future projects similar to their first in Kenya, awarding the remaining pins to the top donors.

Jennifer Stone-Sundberg and Tao Hsu

Wearable art jewelry supporting families in Guatemala. At the Colors of the Stone show, the author met exhibitor Pat Pannell, founder of Chick Boss, a handmade wearable art jewelry business launched in 2010 in San Andrés, Guatemala (figure 47). From the beginning, Pannell intended to help local families thrive financially, educationally, and emotionally through her business. Over the past 15 years, Chick Boss has become an inspiring example of how a small jewelry company can make a large impact.

For Pannell, the journey began long before the establishment of Chick Boss. She fell in love with Guatemala in 2001 during her stay with a host family while participating in a Spanish immersion program. Pannell noticed that some of the family's 10 children did not attend school because they could not afford uniforms and tuition. Through her own efforts, Pannell funded all schooling for the children, encouraging them to reach the education levels they aspired to. All 10 finished high school, and a few of them went on to earn their college degrees.

The experience with her host family left Pannell wanting to make a positive impact on others in Guatemala. With no experience in the gem and jewelry trade, Pannell turned to her sister Jeanne Sheridan to establish Chick Boss in 2010. At the time, Sheridan designed and produced one-of-a-kind jewelry using copper, brass, and gemstones in the United States. To support Pannell's vision for a business in Guatemala, Sheridan had to shift her focus to the practicality and reproducibility of the pieces. She began training locals on beading work, primarily stringing, and the traditional cold-connection technique to make jewelry completely by hand (figure 48). Since cold-connection techniques do not require the use of heat, trainees were

Figure 48. Jeanne Sheridan training local Guatemalan women and men to become bead stringers and metalsmiths. Photos by Pat Pannell.

Figure 47. Pat Pannell, founder of Chick Boss, at the Colors of the Stone show. Photo by Loren Kayfetz.

Figure 49. The award-winning Sound Collection featuring repurposed vinyl records, imitation pearls, and aluminum. Photo by Che Velasquez; courtesy of Chick Boss.

able to learn and execute the method more easily. Sheridan also worked with a translator to produce detailed illustrated training materials.

The first group of four women trainees learned beading work and metalsmithing. After four 4-hour training sessions, they were ready to carry out the work from home, benefiting from flexible schedules. Within six months, eight beaders were fully developed. A few teenagers were trained in metalsmithing, some of whom have become experienced craftspeople and are now training new hires on their own.

In 2012, at a Central American artisan craft trade show, Pannell and Sheridan met Marilyn Polanco, a talented jewelry designer from Guatemala with a degree in industrial design. Polanco soon became the primary designer for Chick Boss, bringing a contemporary and bold look to the designs with components and patterns that could be easily reproduced utilizing the employees' existing skills and materials.

The various collections produced at Chick Boss's San Andrés workshop showcase the versatility of designs from these Guatemalan artisans. Among them, the Sound Collection featuring repurposed vinyl records won the 2021 Buyer's Choice Award for Best Jewelry from the Museum Store Association (figure 49). A collaboration with Casa Del Jade in Antigua added Guatemalan jadeite jade stones to jewelry pieces, honoring the most important gem resource in the country (figure 50).

Since its establishment, Chick Boss has consistently donated 1–5% of its gross sales to multiple charity organizations and supported approximately 25 families in the local community. The artisans are compensated well beyond what is required by Fair Trade standards, allowing them to support their families, keep their children in school, and continue to pursue their own dreams. In the near future, Chick Boss plans to hire a local jeweler who can provide additional training for the team. Equipment for silver and gold plating will be purchased to allow for further expansion. Pannell and her partners hope that their story can inspire more business owners to engage in sustainable practices through community support.

Tao Hsu

Figure 50. The "River" necklace (left) and "Flower" cuff (right) from the Sculptural Collection featuring Guatemalan jadeite jade stones. Photos by Marty Kelly; courtesy of Chick Boss.

Figure 51. Left: Two pieces of surfite, a surfboard manufacturing byproduct, shaped like miniature surfboards. Right: The tag on the back of this piece of surfite is visible due to the translucency of the material. Photos by Tao Hsu.

Surfite: A surfboard manufacturing byproduct. The Tucson gem and jewelry shows provide a venue for creative minds continuously pushing the boundaries of materials that can be used in jewelry. Industrial byproducts of unexpected origin sometimes become well-received and even desired products in the gem and jewelry marketplace, including fordite, a byproduct of an automobile painting process (Spring 2016 GNI, pp. 87–88). Over the past decade, fordite has become a popular item at trade shows.

A colorful translucent material called surfite recently caught the author's attention in Tucson. Surfite is produced from the solidified accumulation of surfboard paint. More than two dozen steps are followed to produce a surfboard, including the hot-coat and gloss-coat paint procedures. Much like fordite forms, as paint is poured on a surfboard, it often drips on the floor below, leaving gradually hardened layers that accumulate in random patterns over time. This accumulation process can take several weeks before a workable thickness is reached.

Once treated as waste and thrown into landfills, this material is now exploited by some creative artists for use in jewelry making. Multiple exhibitors at the Colors of the Stone and Pueblo shows carried surfite cabochons of various shapes (figure 51). These cabochons can be mounted in precious metal or drilled to make a pendant. The material can also be shaped into a hololith-style ring or bangle. Unlike the opaque fordite, surfite is often translucent, which might be caused by a difference in paints used or the method of paint application.

As the gem and jewelry trade continues to explore sustainable practices, recycling and repurposing can open new doors to the industry. Many industrial byproducts can take up to 1,000 years to decompose in landfills. Recognizing the beauty of these materials and applying them in jewelry can allow designers to embark on a new creative journey.

Tao Hsu

ANNOUNCEMENTS

Eighth annual Gianmaria Buccellati Foundation Award winner. Eleanor H. Yeh, a graduate of GIA's Jewelry Design program in London, received the eighth annual Gianmaria Buccellati Foundation Award for Excellence in Jewelry Design. The 14 finalists from eight of GIA's worldwide campuses were announced, followed by the winner, at the GIA Alumni Collective's "Night at the Museum" event held during the AGTA GemFair in Tucson. Yeh's winning design, a Renaissance-inspired necklace featuring intricate goldwork, South Sea pearls, and vibrant gems, stood out to the panel of judges for its precision and realism of the floral element (figure 52).

Created in partnership with the Gianmaria Buccellati Foundation in 2018, the award recognizes outstanding talent in design among GIA students worldwide. Larry French, chief officer for North American strategies at the foundation, said, "On behalf of the Gianmaria Buccellati

Figure 52. Eleanor H. Yeh's winning necklace design sketch for the 2024 Gianmaria Buccellati Foundation Award for Excellence in Jewelry Design, featuring intricate goldwork, South Sea pearls, and vibrant gems.

Foundation, I want to congratulate Ms. Eleanor H. Yeh, this year's winner, plus all the other finalists whose work so enriched this competition. I also want to recognize the talented GIA design instructors who helped guide the students on their way to the final judging in Tucson. Our founder, Gianmaria Buccellati, believed that designing jewelry was an art and, like all art, needed to be studied and practiced in order to grow into a master designer."

As part of the award, Yeh will travel to Italy and meet with a representative from the foundation.

The 2025 Gianmaria Buccellati Foundation Award for Excellence in Jewelry Design competition is underway and open to students in GIA's Jewelry Design courses who meet the eligibility requirements. Visit www.gia.edu/buccellati-foundation-award-jewelry-design for more information.

REGULAR FEATURES

IN MEMORIAM

Henry A. Hänni. Renowned Swiss gemologist and educator Henry A. Hänni (figure 1) passed away on January 9, 2025, at the age of 80.

Hänni began his career as a technical assistant at the Mineralogical Institute of the University of Basel in Switzerland. Inspired to pursue more advanced studies in gemology and mineralogy, Hänni ultimately earned a PhD in 1980 from the university with a thesis on beryl from the Swiss Alps.

That year, he joined the Swiss Gemmological Institute (SSEF), later assuming the director position in 1990. In 1996, he became a professor of gemology at the University of Basel. Throughout his career, Hänni authored countless papers in multiple languages, including several for *Gems & Gemology* on colored stones and pearls, and also served on *G&G*'s review board. In 2004, he received the Accredited Gemologists Association's Antonio C. Bonanno Award for Excellence in Gemology.

After his retirement in 2009, Hänni remained active in the gemological community, both in gemstone research and education. In addition to his pioneering work in cultured pearl and gemstone analysis, treatment detection, and origin determination, he will be remembered for inspiring young gemologists with his passion and mentorship. We extend our heartfelt condolences to Hänni's family, friends, and colleagues.

Figure 1. Henry A. Hänni (1945–2025), a groundbreaking researcher and educator in the field of gemology.

ERRATA

1. In the Winter 2024 article "Chemical analysis in the gemological laboratory: XRF and LA-ICP-MS" on p. 546, second column, the sentence "Saltwater pearls typically exhibit higher manganese and lower strontium concentrations, while freshwater pearls show lower manganese and higher strontium" should read "Freshwater pearls typically exhibit higher manganese and lower strontium concentrations, while saltwater pearls show lower manganese and higher strontium."

2. In the Winter 2024 article "Analysis of gemstones at GIA laboratories," several references were omitted from the Reference section on p. 614. A complete reference list is available at https://www.gia.edu/gems-gemology/winter-2024-gemstone-analysis. We thank Robert Kane for pointing out this error.