

Gems & Jewellery

Spring 2022 / Volume 31 / No. 1

TUCSON GEM
SHOWCASE COVERAGE

PART TWO OF
YOGO SAPPHIRE PRODUCTION

BEEKEEPING AMONG
DIAMOND MINERS

COLOUR TRENDS IN 2022



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Gems & Jewellery

SPRING 2022

RETURN TO TUCSON

We report on how exhibitors fared at the Tucson Gem, Mineral & Fossil Showcase in the aftermath of the COVID-19 pandemic.



10



18

THE REBIRTH OF YOGO

The second part of our interview with Jerod Edington, interim president of Yogold USA, looks at current operations and production at the Yogo sapphire mine in Montana, U.S.A.



24

HONEY & DIAMONDS

How one artisanal community in Liberia is building a post-mining future through beekeeping.

Contributors	4	Gem-A Student Project	30
CEO Comment	5	Gem-A Education	34
Gem-A News	6	The Call to Colour	37
The Big Picture: A glowing flower on the surface of a <i>Tridacna</i> pearl	8	Diamonds	40
Gemstone Technology	22	Book Review	42
Spotlight on the NAJ Summit	28	Last Impression	44



COVER PICTURE

Jewellery set with Montana sapphires alongside rough from the history Yogo deposit. Photo by Tim Voelker/AVP; jewellery courtesy of Goldsmith Gallery Jewelers.

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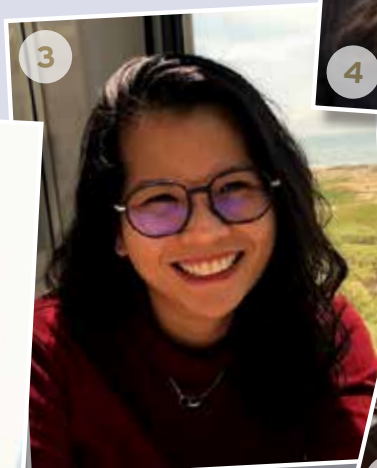
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Gems & Jewellery

Spring 2022 Edition Featured Contributors



1. NICOLE AHLINE

Nicole Ahline completed her undergraduate studies in geology at Cornell College. She then enrolled at the Gemological Institute of America for the Graduate Gemologist (GG) program, followed by the Gem-A Gemmology Diploma program. In 2016, she was hired by GIA in the gem identification department, where she is now a senior staff gemmologist. While at GIA she has been a frequent contributor to gemmology journals and has given talks on numerous topics. Miss Ahline's current research interests include origin of color in coloured diamonds and geographic origin of corundum and emeralds.

2. OLGA GONZÁLEZ

The CEO of Pietra Communications, Olga González has over fifteen years of experience working within the field of gem and jewellery communications. A certified gemmologist (FGA DGA) and appraiser, she specialises in growing companies within the trade, empowering through storytelling. Her clients are designers, manufacturers, trade associations, suppliers, stone dealers and diamond-grading laboratories. Ms González currently serves as the president of the Women's Jewellery Association New York Metro Chapter Board, is a past president of the Public Relations Society of America

New York Chapter, chaired the inaugural 15 Under 35 Awards and is a regular and award-winning contributor to trade and consumer publications on gem and jewellery-related topics.

3. ARTITAYA HOMKRAJAE

Artitaya Homkrajae began her career in gemmology with GIA in 2007, after completing a BSc in earth science. She received her GG from GIA in 2011, then earned her FGA in 2013. Ms Homkrajae is currently a senior gemmologist at GIA in Carlsbad, California, with an expertise in pearl identification and research. She regularly publishes findings from her research on various pearl-related topics.

4. ÇIĞDEM LÜLE

Çiğdem Lüle is a mineralogist and award-winning gemmologist. She is the founder of Kybele LLC, a consulting firm based near Chicago, specialising as an independent appraiser of minerals and gemstones. Her services also include developing tailoring education for gem professionals, appraisers, practicing gemmologists and gemmology students. Dr Lüle's scientific background and trade experience in the United Kingdom, the United States and Turkey form the basis for the broad range of services provided to clients. She is considered one of the pioneers in

archaeogemmological research with an emphasis on origin investigation, lecturing around the world on various aspects of gemmology, archaeogemmology and mineralogy. Dr Lüle is a contributing editor to the GemGuide and the technical advisor to the World of Color communication system, as well as a consultant to the ColorCodex colour referencing system. She is the 2016 recipient of the AGA Antonio C. Bonanno Award for Excellence in Gemology as well as a joint winner of the 2019 Catriona McInnes Medal (from the Scottish Gemmological Association). She earned both the FGA and the DGA in 1998; she earned her PhD in mineralogy from Hacettepe University in Ankara, Turkey.

5. BETH WEST

Beth West is a gemmologist, writer, and educator specialising in diamonds, with over ten years' experience in the industry in varying roles. She is an FGA and a DGA (Bruton Medal winner) and a member of the Federation of European Education in Gemmology. Ms West has worked for a number of auction houses and museums; she has taught diploma-level gemmology at Gem-A's headquarters in London. She currently works as an ODL tutor for the Association, whilst taking on additional writing and consultancy work, principally for the De Beers Group.

Straight from the heart

Opinion and comment from CEO Alan Hart FGA DGA

It is with great sadness that we watch the events unfolding in Ukraine. Our hearts go out to those affected by the current conflict. We stand for peace, and Gem-A joins organisations around the world in calling for an end to this senseless war and ongoing suffering of individuals and families. Our global Membership, Students, staff and partners stand united in these uncertain times as we continue providing world-class gemmology education and Membership services to support the gems and jewellery trade.

Naturally, we understand there can be a sense of helplessness seeing this tragedy unfold and a wish to aid all those suffering. The Association feels that charities such as the Red Cross are well placed to act and have the expertise, experience and are internationally

them to work both in-office and at home. This is not unlike the choice our Students have in pursuing their courses online or at an Accredited Teaching Centre. And in that regard, we have again shifted gears; we were thrilled to welcome our in-person students back to Ely Place in February for the first full onsite term since the start of the pandemic.

Looking further ahead, we will also return to the in-person, traditional Gem-A Conference this autumn, albeit it will be a one-day event, on 6 November. We also encourage everyone to save 7 November; we are planning trips and workshops for our Members that morning, followed by Graduation in the evening. We will provide more information on these events in the coming months.

It is a pleasure to share these new developments in *G&J*, just as we



we spoke to discussed the pieces that were their biggest draws, and indicated that they were optimistic about the year ahead, as you'll read in our coverage of the shows.

The Spring issue delivers part two of our feature on Yogo sapphire production. Current activity at this Montana deposit includes underground excavation and mining, with Yogo USA delivering production to Sri Lanka for cutting. At the same time, the company is engaged in responsible business practices that will yield benefits for years to come. This is an exciting endeavour, and we are thrilled to share this story with our readers.

Other articles include the 2022 trend towards bold, vivid gemstones; an update on Opsydia's inscription systems and collaborations; an overview of the upcoming NAJ Summit and Valuers' Conference; and an NGO's efforts at teaching beekeeping to an artisanal diamond mining village in Liberia.

As always, there is something for everyone within the pages of *G&J*. We hope you enjoy reading the issue as much as we enjoy bringing you the stories within.

Best Wishes,
Alan Hart FGA DGA

We are living in challenging times, but it is important to stay resilient and adaptable in the face of change.

respected to deliver the much-needed aid to the people of Ukraine. Accordingly, trustees and staff have already made personal donations to British Red Cross Humanitarian Appeal (BRCHA) in excess of £1,000. The UK tax system allows BRCHA to claim an additional 25% on top of this donation. This reclaim can only be made on personal donations and not on corporate or pooled donations. We encourage our Members to donate to BRCHA or similar charities and if possible, use the gift aid facility.

We are living in challenging times, but adjusting to the world in the time of COVID has taught us that it is important to stay resilient and adaptable in the face of change. To that end, Gem-A now has a hybrid working policy. We are proud to offer this flexibility to our staff, allowing

announced the new GemIntro course to our Members in the Winter 2021 issue (pp. 16-17). There has been a great deal of interest and feedback in this new Level 2 course. We are now all set to launch this course online in April. If you have not done so already, feel free to tell us of your interest in this new accredited course at <https://gem-a.com/gemintro>.

And now, onto the newest issue of *Gems&Jewellery*! While some buyers and vendors were unable to attend Tucson, and in fact some shows were cancelled this year, several thousand people still descended on the Sonoran Desert to attend the Tucson Gem, Mineral & Fossil Showcase. Attendees were delighted to be back in touch with their colleagues after two years away from the trade, and business was booming. The exhibitors

Gem-A News

A round-up of the latest industry news from Gem-A

THE IVORY ACT 2018 IS BECOMING LAW THIS SPRING

According to the Department for Environment, Food and Rural Affairs (Defra), the government organisation that oversees trade in plant and animal species, the Ivory Act 2018 will finally become law this spring. It will cover all elephant ivory regardless of age. Further, the government is at present studying the results of last year's consultation about including other ivories in the ban; this inclusion would occur at a later date.

There will be five exemptions to the almost-total ban in the UK:

- Pre-1947 items containing less than 10% ivory by volume, the so-called *de minimis* rule
- Pre-1975 musical instruments containing less than 20% ivory by volume
- Pre-1918 portrait miniatures with a surface area of no more than 320 cm²
- Pre-1918 items of outstandingly high artistic, cultural or historical value will also be exempt
- Sales to and hire agreements with qualifying museums

The bans cover commercial trade. They do not criminalise people owning ivory, and it can still be gifted. Various wildlife charities have, at times, offered to destroy ivory items, but this happens with no regard to their historic or artistic value or rarity. Whilst purchasing any new ivory item is to be vigorously condemned, chucking your inherited ivory carving in an incinerator will not, in reality, save a single elephant's life.

In an effort to prevent ivory artefacts, or items incorporating ivory, from simply being thrown away – thus destroying objects that may be of very real cultural heritage – the Antiques Rescue Centre (ARC) has been launched by an antiques dealer and silver specialist, Michael Baggott, who urges people to get in contact. ARC will accept antique worked ivory objects (excluding musical instruments and large items of furniture, which should meet the exemptions). Their aim is to produce an online catalogue, listing and illustrating all the collected items. At some future date it is hoped that the collection can be displayed in a dedicated physical centre.



A small Shibayama-style dish (diameter: 6 cm), of elephant ivory inlaid with mother-of-pearl, coral, stained ivory and tortoiseshell. It would not meet the rules for exemption. Photo: Maggie Campbell Pedersen

Any small or newer items are, of course, good to have for teaching purposes; it is more important than ever that we can identify ivory correctly. Gem-A is very grateful to Morphets of Harrowgate for their recent donation of an assortment of ivory and its simulants.

For further information, see the relevant UK government websites or contact Defra. To learn about the work of the Antiques Rescue Centre, visit antiquesrescuecentre.com.

Maggie Campbell Pedersen
February 2022

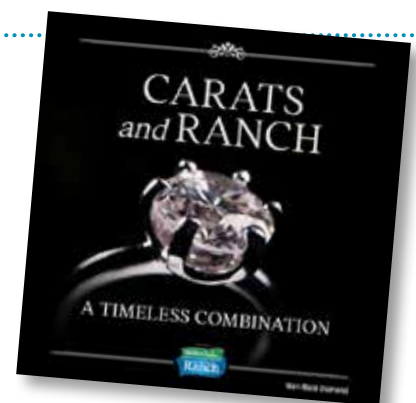
LAB-CREATED DIAMOND MADE FROM RANCH SEASONING SOLD FOR £9,500

In an unusual gem-related story, a lab-grown diamond created from Hidden Valley Ranch seasoning – normally found in salad dressings or as the base of dips – sold for \$12,500.00 (£9,515.19) on eBay. Proceeds from the sale of the 2.0 ct round-brilliant-cut specimen were donated to Feeding America, a U.S.-based nonprofit organisation with a network of two hundred food banks.

Hidden Valley Ranch, a subsidiary of the Clorox Corporation, retained a diamond manufacturer to create

the Ranch Diamond. The company's seasoning was heated to 2,500 degrees and later crushed under four hundred tons of pressure in order to make the sample, which was later set in a 14K white gold band that was engraved with 'HVR LVR'. The process of creating the specimen took five months.

The auction, which was announced on social media on 10 March, accepted bids from the time of its announcement until 17 March. The winner of the Ranch Diamond remains anonymous.



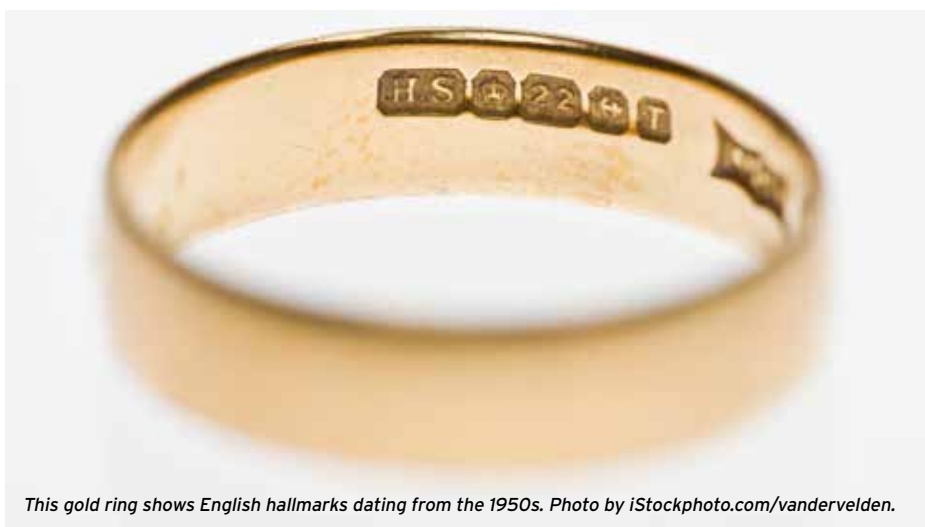
The Ranch Diamond, Hidden Valley Ranch's lab-grown diamond created from their namesake seasoning, was the subject of a social media campaign to promote its eBay auction. The above photo was used to announce the auction on Instagram. Photo courtesy of Hidden Valley Ranch.

HALLMARKING GREW BY TRIPLE DIGITS IN JANUARY

Assay Office Birmingham announced that the number of articles hallmarked throughout all four UK assay offices grew by 448,014 (119.9%) in January 2022, when compared with January 2021.

Silver increased by 152.8%, equivalent to 291,161 more articles hallmarked in January 2022 than in 2021, while gold enjoyed an 84.2% increase (or 142,171 items). Platinum objects increased by 108.1%, or 15,002 more articles hallmarked in January 2022. Palladium, however, saw a decrease in hallmarking, down by 62.9% from to January 2021.

This followed a strong year for hallmarking, as Assay Office Birmingham had also announced that the four offices hallmarked 2,809,928 more items in 2021 than in 2020, a percentage increase of 47.8%. In this case, silver and palladium also saw the greatest increase and negative growth, respectively.



This gold ring shows English hallmarks dating from the 1950s. Photo by iStockphoto.com/vandervelden.

DISTANT PLANET SHOWS SIGNS OF CORUNDUM CONDENSATION

A gas giant exoplanet in the constellation Puppis, approximately 880 light years from the Earth, shows evidence of rain comprising rubies and sapphires, according to a new study published in *Nature Astronomy*.

Using the Hubble Space Telescope, a team led by Thomas Mikal-Evans of the Max Planck Institute for Astronomy (Heidelberg, Germany) observed two full-orbit phases of 'hot Jupiter' planet WASP-121b. In discovering that the planet has one side that is always facing its star and another side that faces away, they found that temperatures on the nocturnal side do not allow for water-based clouds. Instead, the iron, magnesium, chromium and vanadium that exist as gasses on WASP-121b are cloud formations on the dark side of the planet. The lack of aluminium or titanium in these clouds, however, leads the research team to believe that these elements are condensing into metallic rain, allowing the Al to combine with oxygen to create corundum. WASP-121b will continue to be studied by this time; further research with the James Webb Space Telescope, a next-generation observatory intended for infrared astronomy, is anticipated.

OBITUARY

Mary A. Burland FGA (1945-2022)

Gems&Jewellery is saddened to announce the passing of its former editor, Mary Burland, on 2 February. Over the course of five decades Ms Burland served the Association in many capacities, not least as the managing editor of *Gems&Jewellery* from its launch in 1991.

Trained as a Pitman shorthand secretary, Ms Burland began her career in the industry as personal assistant to Gordon Andrews at the National Association of Goldsmiths (NAG). From there, she began editing *The Journal of Gemmology* alongside a number of its esteemed editors, including John Chisolm, Alan Jobbins, Roger Harding

and Brendan Laurs. In 1991, she added managing editor of *Gem & Jewellery News* (published jointly with The Society of Jewellery Historians; later to become *G&J*) to her duties. During the mid-1980s to 1992 she was also a director and sales representative of a jewellery business.

The year 1994 saw Ms Burland take on the position of events and publications manager at Gem-A; she also acted as membership secretary, all whilst still working on *The Journal*. She also became a Gem-A Council of Management trustee during this time. Though she officially retired at the end of 2010, she continued to work on both Association publications as a freelance editor until 2018. Ms Burland was awarded a Gem-A Fellowship Diploma



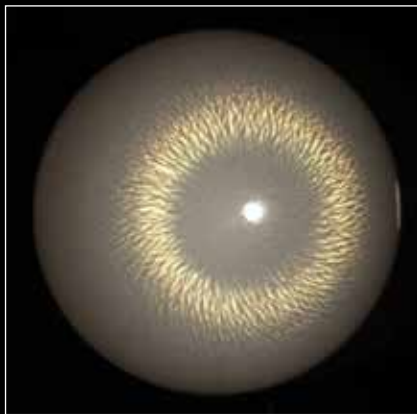
(FGA) in 2010 and an Honorary Lifetime Membership to Gem-A in 2014.

Mary Burland is survived by her husband, Alan, and their daughter, Julie.

A Glowing Flower on the Surface of a *Tridacna* Pearl

While examining an attractive pearl from a saltwater clam, Artitaya Homkrajae FGA reveals a flame structure reminiscent of a chrysanthemum at sunrise.

As a gemmologist, all kinds of gemstones are fascinating to me, but pearls are my favourite material. A pearl is an organic gem, created from a living creature. Pearls develop from various species of shelled molluscs in both saltwater and freshwater environments. As they do not require any fashioning to achieve their beautiful appearance, humans have used pearls for jewellery and decoration since ancient times.



When viewed with fibre-optic illumination, the eye-visible flame structure on a pearl from a *Tridacna* large saltwater clam (inset, field of view 19.27 mm) resembles a white chrysanthemum at daybreak. Photo by Artitaya Homkrajae, field of view 3.57 mm.

Whether natural or cultured (created with human intervention), most pearls available on the market are nacreous, meaning their lustrous surfaces are constructed from layers of stacked aragonite tablets. Pearls without a pearly lustre are considered non-nacreous. These latter pearls can exhibit various surface structures depending on the mollusc species that produced them. For instance, pen pearls (*Pinna* species) often display cellular-like structures, while scallop pearls (Pectinidae family) have patchy or mosaic pattern on their surfaces. Flame-like patterns, such as those seen in some Queen conch and Melo pearls, are one of the well-known surface characteristics of non-nacreous pearls.

Flame structures on the surfaces of these pearls are built by the cross-lamellar microstructure of aragonite laths, or fibres. Unlike other non-nacreous specimens, these gems frequently exhibit porcelain-like surfaces; they are commonly referred to as 'porcelaneous' pearls. Material that exhibits prominent flame structures and high sheen is greatly appreciated by

pearl collectors and, in fact, almost any person who has seen it.

Natural *Tridacna* pearls, produced by the marine clams of the Tridacninae subfamily, are another kind of non-nacreous pearl that can possess flame structures. Many *Tridacna* pearls are unappealing owing to white-to-cream colouration, baroque shapes, dull appearance, or flame structures that are not clearly visible or are totally absent. Therefore, the *Tridacna* pearl in this photo first impressed me with its uniform button shape (see inset), well-arranged flame structure radiating from the centre and high porcelain-like lustre. Its beauty was even more enhanced when a fibre-optic light was shone on the surface. Each 'flame' was luminous, creating an eye-visible pseudo-chatoyant effect that manifested as a single bright ring on the pearl's pure-white surface.

The phenomenon of chatoyancy is commonly seen in many gem materials; however, it is an extraordinary occurrence in pearls. The most beautiful aspect of this sample appeared during microscopic examination, when I used the fibre-optic light to illuminate the central area of the pearl. The light reflected a radial pattern, promptly bringing to mind an image of a white chrysanthemum flower glowing under the warm sunrise. This *Tridacna* pearl, attractive in so many ways, is full of surprises. ■





The forecast for the Tucson Gem, Mineral & Fossil Showcase was positive in the leadup to the show, but the execution exceeded many expectations. Many exhibitors at the AGTA GemFair (shown) reported that this was their best show ever. Photo courtesy of AGTA.

Heading Back to Tucson Post-Pandemic

Due to the COVID-19 pandemic, several of the 2021 Tucson gem shows were postponed from their usual February dates, while others were cancelled altogether. Along with many buyers and sellers, Jennifer-Lynn Archuleta and Olga González attended the Tucson Gem, Mineral & Fossil Showcase in 2022 to find out how the exhibitors fared.

It has been 67 years since the Tucson Gem and Mineral Society hosted the first gem show at the Helen Keeling School. Since 1955, Tucson has hosted gem and mineral enthusiasts alongside members of the trade, growing to over 40 shows to become the Tucson Gem, Mineral & Fossil Showcase the city is known for. The shows have been of great benefit to the trade and Tucson alike; in 2019, the Showcase garnered £99.38 million (\$131 million) in direct spending, including £9.68 million (\$13 million) in local taxes for the city.

The COVID-19 pandemic affected the longstanding tradition in Tucson in 2021, with various shows being postponed from February to April of that year, and others being cancelled altogether. In the wake of the virus's variants causing travel restrictions, several shows were cancelled this year as well, and buyers

from some locales were not able to attend those shows that were held. Those shows that were open were well attended; enthusiastic sellers and buyers were found all over Tucson this winter.



Blue gemstones are trending this year, and sales at the various shows indicated that they are in great demand. The platinum ring shown here features a 2.24 carat cobalt spinel oval accented by 0.71 tcw of round hayune and 0.39 tcw of round diamonds. Photo and ring courtesy of Omi Privé.

Many exhibitors voiced concerns about securing production for the shows. Still, the people we spoke with indicated that the pieces they did sell reflected the trends anticipated for the year (see pp. 37-39), with big, bold coloured gemstones making up much of those sales. Even in the face of inventory concerns, many designers found inspiration in various themes, including childhood and nostalgia, and debuted new collections that shone a spotlight on the colourful stones that are taking centre stage in 2022. The outcome of this year's shows has left most industry movers with a positive outlook for the year to come.

"The 2022 show mostly met our optimistic projection," said Lowell Carhart of Eons Expos, which runs the 22nd Street Show. "It really was a return to normalcy." Several vendors voiced



Award-winning gem cutter John Dyer found sapphires in all colours, but particularly those originating from Australia and Montana, to be major sellers this year. His trademarked StarBrite Cut also continues to draw buyers. The Montana sapphire (above) weighs 1.97 ct and has been faceted with his ZigZag Cut; the 1.19 ct Australian sapphire (top right) uses Dyer's Dreamscape Cut. Dyer fashioned the 2.83 ct pink sapphire (bottom right), mined from Madagascar, with the StarBrite Cut. Photos by Ozzie Campos, gems courtesy of John Dyer & Co.

similar thoughts, finding that traffic was similar to past years – though of course up from 2021 – and that sales were excellent and their outlook for the rest of the year optimistic, although there were concerns about inventory.

SALES AND TRENDS

Colour. The year's 'big' colours are expected to be blues, greens and other bold, flashy shades that catch the eye – and hold it. Award-winning gem cutter John Dyer, who has come to Tucson for 23 years, noticed that foot traffic was lower than in years past (though not as low as in April 2021, when he had a booth at Pueblo Gem & Mineral Show), but sales were high. "Those who did come came to purchase." He indicated that sapphires were heavily in demand this year; "people have a greater appreciation for Australian and Montana sapphires than in the past," he noted.

If corundum was a big seller for Dyer, his own efforts were much of the reason: Dyer only appears at the Tucson trade shows, and had used print advertising, social media and emails to announce his presence at both GJX and the Pueblo Gem & Mineral Show. In doing so, he was

able to promote his sapphire stock. "We brought more sapphires of all colours than ever before." While other people stated that blue gems were big sellers for them this year, he found that all the colours of corundum he offered were popular. He also noted that gems that have been faceted with his proprietary StarBrite Cut, which gives the impression of greater overall brightness and has won Dyer eleven gem-cutting awards, remain popular.

Opals, with their flash and play-of-colour, are seeing a surge in popularity.

Australian and Ethiopian opals in particular show the blue and green colouration that would fit into this year's fashion. Ella Wilson (owner and designer, Ellie Gem Arts) had a stunning array of opals at the 22nd Street Showcase that proved popular, alongside blue gemstones such as topaz and aquamarine. Ms Wilson also reported good sales of vibrant red and reddish gems, such as ruby, garnet and amethyst. "People are looking for colour and design; I think these are a bright spot in people's lives right now," she explained. →

The interludes the original virus and its subsequent variants forced upon society allowed jeweller-designers the space to become incredibly inventive – producing a lot of colourful pieces built around the gemstones that are trendy this year.



Left: Sapphire set in platinum and bordered by five faceted phenakites in Mary van der Aa's Atomic Love Ring. Right: Sapphire set in Mary van der Aa's platinum HEX pendant with apatite on the sides. All gems faceted by Tucson Todd's Gems; photos courtesy of Tucson Todd's Gems.

Mary van der Aa and Todd Wacks of Tucson Todd's Gems specialise in faceting loose gems and finished jewellery pieces. They have been in business for nine years; while Wacks grew up attending the Showcase, Ms van der Aa has attended or worked at the shows for ten years. They had high hopes for this year's show, which were exceeded thanks to great sales. While foot traffic could have been better, they reported, customers made larger purchases than they anticipated. Tucson Todd's Gems niche is faceting unusual gems and they were able to continue doing so for this year's show. The coloured gemstones that were

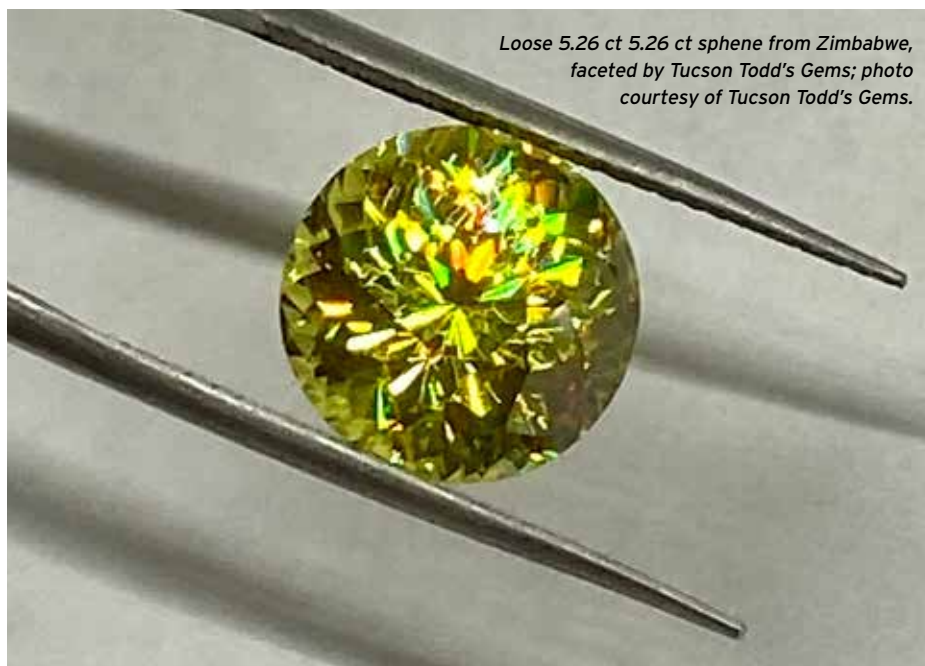
popular with their clientele this year were sapphire, phenakite and mandarin garnet.

At the JOGS Show, Jake Debs of Elite Fine Jewelers reported excellent foot traffic; in fact, Debs said that "it seemed like foot traffic was higher than at the first show we attended four years ago." This was the company's fourth year at the JOGS Show, with a small satellite booth at the 22nd Street Show. Like other businesses who shared their thoughts, Elite exceeded their sales goals, as items in the \$5,000-10,000 were in higher demand. Unlike many other exhibitors we spoke to, Elite brought loose diamonds and diamond jewellery to their booth; while others

found coloured gemstones to be their moneymakers, Elite found their diamonds to be quite popular. They also found that cocktail rings with larger coloured stones received more attention this year. The only surprise this year, Debs indicated, was a drop in interest in rose-gold items. Otherwise, the company was quite pleased with this year's show, and is optimistic about the forecast for the year ahead.

Bridal Jewellery. As Generations Y (born 1984-1996) and Z (born after 1997) move into the next phase of life, they are making a choices for jewellery. We have already learned that this next generation of consumers are more likely to seek out ethically sourced materials and are looking to have an 'experience' with their purchases, one that seeks the story behind the stone in their jewellery piece. Now it would seem that our younger generation is looking for a different aesthetic in their engagement and wedding jewellery as well.

In keeping with the 'blue gems' trend, Montana sapphires were a popular choice for bridal jewellery this year. So-called 'salt and pepper' diamonds, with their mix of white and black inclusions, are another up-and-coming choice. and the aesthetic of the salt and pepper diamond. At AGTA, we observed the traffic at Misfit Diamonds, who work with both types of gemstones in their custom jewellery. The combination of their unconventional marketing to the youth and their stock for both had retailers and jewellers coming back for more throughout the show.



Loose 5.26 ct 5.26 ct sapphire from Zimbabwe, faceted by Tucson Todd's Gems; photo courtesy of Tucson Todd's Gems.

Emeralds are also seeing an uptick in inclusion in engagement rings, despite their brittle nature. This may be in part due to the engagement ring of American actress Megan Fox from her fiancée, musician Machine Gun Kelly. Ms Fox's ring is a 'toi et moi' ring, a style where two stones are seated on one coiled band. The toi et moi (or 'you and me') ring was created for a diamond and sapphire engagement ring given by Napoleon to Josephine de Beauharnais in 1796. The ring type is currently experiencing a surge in popularity, and was seen at booths for Brenda Smith Jewelry, Jardín Jewels and Michael John Jewelry (all at AGTA GemFair).

CHALLENGES

Inventory And Production. Many of the exhibitors we spoke to voiced concerns about limited production, although some were able to figure out workarounds to make up for the material they could not obtain before the show. John Dyer recognised issues in obtaining inventory, but ultimately found sales exceeded his initial predictions. "COVID and the accompanying restrictions have not been good for our overall production, and since we cut virtually all the gems we sell ourselves, lower production means we have less merchandise to sell." Dyer, however, was able to turn this into a constructive lesson. "This is a significant challenge, but it also adds to the rarity of our gems, and clients like rarity."

Scott Sills of S and S Gold & Diamond took note of the shortages that plagued other suppliers, even down to packaging. "Even with my extensive network of



Elite Fine Jewelers exceeded their sales expectations this year, their fourth year exhibiting at the JOGS Show. They did excellent business in both diamonds and coloured gemstones. Top: 14K white gold set with 5.00 ct oval aquamarine, with roughly 0.60 ct in side diamonds. Bottom: 14K white-gold diamond engagement ring with a 1.5 ct centre natural emerald-cut diamond. Photos by Andrew McIntire, rings courtesy of Elite Fine Jewelers.

The outcome of this year's shows has left most industry movers with a positive outlook for the year to come.

wholesalers, good new product is non-existent. On top of that, it is extremely hard to get cheap supplies such as plastic bags, plastic gem boxes and even paper ring boxes. I have relied heavily on buying out old stock from closed stores, collections and retiring dealers."

Response to Lockdown. The lockdown in the wake of the pandemic was difficult for many, if not most people. Several people we spoke to, however, took that

time and the tools of the trade to make the time pass in a constructive, and ultimately beautiful, fashion.

Colour is not only trendy this year; it, along with the design process, seems to have brought joy to members of our trade during the almost-two-year period of quarantine and isolation.

The interludes the original virus and its subsequent variants forced upon society allowed jeweller-designers the space to become incredibly inventive — producing →



The necklace known as The Heart of Paloma comprises 18K two-tone gold, two round-cut chrysoprase (36.44 tcw), one 8.12 ct oval-cut yellow sapphire, fifteen round-cut blue zircons (0.52 tcw), eighteen round-cut yellow sapphires (0.47 tcw), nineteen round-cut tsavorite garnets (0.46 tcw), 149 round-brilliant-cut diamonds (2.46 tcw). The necklace was created by award-winning jeweller Lorenzo Chavez. Photo courtesy of Elite Fine Jewelers.

a lot of colourful pieces built around the gemstones that are trendy this year. Inspired by spring, Tucson Todd's Gems brought about 100 pieces of tulip-themed jewellery to their booth along with their usual faceted gems.

Several designers worked on collections that reflected on childhood, innocence and nostalgia. One such piece is the Ferris Wheel Ring, part of The Edge Collection by Campbell + Charlotte. Company founder and designer Jenny McHugh, who based her Tucson operations at Melee the Show, spoke to us about her inspiration for this ring, and for the entire collection.

"I call this collection my 'COVID baby', as every piece was designed and perfected during the early and quite dark days of the pandemic.

During those days, I spent much time with my imagination; the result is a collection that feels playful and regal with a touch of curiosity. This collection is an exploration into resiliency and empathy. A discovery of what is possible when life pushes us to the edge. During those early days of the pandemic, I felt like we were all finding our 'edge'. I was really looking for that sparkly goodness during those months. The Ferris Wheel ring is one of the centrepieces of the collection. I was inspired by the playfulness and light-heartedness of what a Ferris wheel represents, and I used this shape as a starting point for many of the pieces in the collection. I adorned it with sparkly diamonds and colourful sapphires as a nod to the twinkling lights you see on Ferris wheels."

Ms McHugh is not the only person who took inspiration from playfulness. A new collection from Rosey Skye captures the innocence of childhood, the loving relationship between mother and daughter... and the importance of remembering the good things in life. In The Birds and the Bees, Patricia Lauritzen has created four sets of diamond pendant necklaces and stud earrings, depicting a bird, bee, butterfly and bunny. Inspired by her own daughters, "My intention is to create something sweet because life is sweet, despite the challenges we may face. These pieces are a daily reminder to hold space for contentment," Ms Lauritzen explained.

This theme played out with other designers in different ways. Elite Fine Jewelers has an existing relationship with AGTA Spectrum Award winner Lorenzo Chavez. This year, Chavez created a necklace called The Heart of Paloma, which comprised diamonds, yellow sapphire, blue zircon, tsavorite garnet and chrysoprase. The word 'paloma' means 'dove' in Spanish, and a small bird is carved from the chrysoprase and seated in the pendant. Chavez's daughter's name is also Paloma, tying together the nature theme and the childhood influence seen in other pieces this year.



Adam Neeley (Adam Neeley Fine Art Jewelry) won first place in the Evening Wear category, along with Best of Show, of the 2021 AGTA Spectrum Awards for his Galassia earrings. They are made from 14K rose and white gold and 24.84 tcw specialty-cut tanzanite and accented with 4.04 tcw diamonds and eighty akoya cultured pearls. Photo courtesy of AGTA.

REOPENING WITH CENTURION

For many members of the industry, the Tucson gem shows do not actually start in Tucson. They start about 180 km away, in Arizona's capital city of Phoenix, with the Centurion Jewelry Show. Founded in 2001 by Howard Hauben, the invitation-only event that bills itself as 'the better retail jeweler's favorite trade show', Centurion celebrates its 21st anniversary this year. More than 140 of the industry's top designers and manufacturers – over 1,000 people – come together at Centurion to see new products, gauge upcoming trends and simply network.

The show, which spent its first 10 years in Tucson before moving to Phoenix, is traditionally held over a weekend in late January or early February to usher in the Tucson Gem, Mineral & Fossil Showcase. Thanks to the COVID-19 pandemic, 2021 saw Centurion rescheduled to May – those shows that postponed, rather than cancelled, were held in April, thus upending Centurion's opening spot. But 2022 once again found the high-end event out in front of the Showcase. The show ran from Sunday, 30 January to Tuesday 1 February, albeit at a new venue, the Arizona Biltmore.



Inspired by her children, Patricia Lauritzen created *The Birds and The Bees* collection for her Rosey Skye jewellery line. One of the four sets is this 14K gold butterfly pendant-and-earrings set. The pendant includes a 0.12 ct diamond, while the earrings feature 0.02 tcw diamonds. Photos courtesy of Rosey Skye.

SPECTRUM AWARDS

The AGTA Spectrum Awards, a tradition since 1984 and one of the most respected competitions among gem professionals, were announced in October 2021, with the winning entries were back in their exclusive showing area at the AGTA GemFair at the Tucson Convention Center (TCC). While the competition was held during the pandemic, the 2021 GemFair itself was cancelled and thus the pieces were not displayed in person. Instead, the awards, which included two brand-new categories (see p. 16), were presented in a virtual gala on 1 July 2021.

This year, AGTA elected to cancel the extracurricular activities that make socialising with fellow travelers to Tucson such a pleasure; this included the Spectrum Awards Gala. Even so, the return of the GemFair to Tucson meant that the winners of each of the fifteen categories – and of course the Best of Show, an accolade given every year to one of the first-place winners – were once again housed in a dedicated showroom at the TCC. While the trophies could not be accepted publicly, GemFair attendees were able to admire the craftsmanship and beauty inherent in the gem and jewellery industry.



Left: Platinum cufflinks accented with black rhodium featuring two oval cat's-eye alexandrites (2.31 tcw) accented by 1.37 tcw of round alexandrites and 0.20 tcw of round diamonds. Right: Platinum ring featuring a 2.21 carat oval-cut grandidierite accented by 1.18 tcw of round alexandrites and 0.34 tcw of round diamonds. Photos courtesy of Omi Privé.

Exhibitors such as Omi Privé and Oscar Heyman are delighted to be back at Centurion. According to Niveet Nagpal, (president and lead designer, Omi Privé). "Centurion was very busy and successful! We had a number of appointments and the overall feedback from our retail partners is that business is going well. It's nice to be at shows again in person and reconnect with our partners to share the newest colour from our collection." Notable pieces that Omi Privé showed included cat's-eye alexandrite cufflinks and a stunning grandidierite ring. Tom Heyman, co-president of Oscar Heyman, told us "We found that our retailers were looking to continue the strong performance of coloured gemstone jewellery, where they can differentiate themselves from other retailers in their communities." Among Oscar Heyman's stunning jewels were a pink sapphire and fancy diamond bracelet set in gold and platinum and a sugarloaf emerald mounted in a gold and platinum ring.

The Centurion Jewelry Show is scheduled for 29-31 January 2023.



Left: This bracelet features the following gemstones set in gold and platinum: nine cushion-cut pink sapphires (40.53 tcw), fifteen pear-shaped diamonds (2.75 tcw), twenty-seven round diamonds (1.74 tcw), twenty-nine round fancy-colour diamonds (3.67 tcw) and eighteen marquise-cut diamonds (3.16 tcw). Right: The 13.93 ct sugarloaf emerald is mounted in gold and platinum and flanked by ten round diamonds (0.81 tcw). Photos courtesy of Oscar Heyman.

CONCLUSION

Overall, the outlook for 2022 is sunny among the members of the trade who shared their thoughts with us. The passion and demand for colour, along with new collections that developed during lockdown, led to incredible pieces and excellent sales during the first two weeks of February. If there were less people on the floor of individual shows, there were crowds in Tucson itself, and those crowds were delighted with the colourful options presented to them at the shows that were open. According to Kimberly Collins of Kimberly Collins Colored Gems, AGTA president, "Many of our exhibitors had their best Tucson show ever. Our buyers showed up with goals in mind... to restock inventories and look to colored gemstones and pearls for inspiration." It would seem that, despite some challenges, show attendees met and exceeded those goals. In addition to



The Ferris Wheel from Campbell + Charlotte is part of a new collection called The Edge. It uses tie-dye multicolour sapphires and 1.22 tcw diamonds set in 14K gold. Photo courtesy of Campbell + Charlotte.

the financial benefits of the trade shows, many people were simply happy to be back among their colleagues and with people who love gemstones and jewels. "The vibe of the whole show was upbeat

and positive," noted Ms Collins. "While AGTA felt it best to forego our social events in 2022 as an extra precaution, it didn't seem to have a negative impact on the tenor of the show."

According to Patricia Lauritzen of Rosey Skye, "This is my fourth time attending the Tucson gem shows as a buyer and my first time showing my collection. This year, the show had a warmth to it that I haven't experienced in previous years. People were genuinely happy to see each other again. The foot traffic was a bit lighter due to Covid, but that afforded a little extra time to reconnect with folks and provide more meaning to our virtual connections." These sentiments, along the strong sales that were reported by most jewellers after two years of intermittent lockdowns and limited contact, fed the undercurrent of optimism for the trade in the coming months. ■

SPECTRUM AWARDS INTRODUCES NEW CATEGORIES

The American Gem Trade Association added two new categories to their Spectrum Awards in 2020 but displayed the winners in Tucson for the first time in February 2022.

One of the highlights of the Tucson gem shows are the AGTA Spectrum Awards. Since 1984, designers and lapidaries have entered their work in this competition to be evaluated by a panel of experts for innovation, artanship, and beauty. A sub-division of the Spectrum Awards, the AGTA Cutting Edge Awards, are dedicated to the work of lapidary artists.

In 2020, two new categories were introduced to the AGTA Spectrum Awards; due to the pandemic, this was the first year the winners in these categories received their accolades via the exclusive showcase at the

Brad Payne of Somewhere in the Rainbow entered this 12.86 ct. modified pear-cut rhodochrosite from Colorado's Sweet Home mine, called Colorado Candy Crush, and won the North American Mined Gemstones award. Photo courtesy of AGTA.



AGTA GemFair in Tucson. The North American Mined Gemstones category accepts gemstones from the United States and Canada. Entrants who only submitted one piece into the competition (Spectrum Awards for jewellery, Cutting Edge Awards for a gemstone) qualified for the Best of Single Entries award.

Brad Payne, who is affiliated with Somewhere in the Rainbow, took first place in the North American Mined Gemstones category for Colorado Candy Crush, a rhodochrosite from the Sweet Home mine in Park County, Colorado.

The Hot Scarab Nights bracelet by Scott Keating, who is also with Somewhere in the Rainbow, won Best of Single Entries: Spectrum after taking third place in the Evening Wear competition. The bracelet uses 18K yellow gold, blue zircon, pink tourmaline and sapphire and diamond melee in its design.

Misael Angel Rodriguez of Gem Arts International was awarded both first place in the Phenomenal Gemstones category and Best of Single Entries: Cutting Edge with his 24-piece cat's-eye emerald cabochons.



The bracelet that took place in Evening Wear also won the Best of Single Entries: Spectrum award. Hot Scarab Nights by Scott Keating of Somewhere in the Rainbow is composed of 18K yellow gold, 10.12 tcw specialty-cut blue zircons and 5.66 tcw pink tourmalines, and is accented with 1.50 tcw sapphire melee and 0.32 tcw diamond melee. Photo courtesy of AGTA.

The AGTA Spectrum Awards are open to all companies and individuals in the United States and Canada; AGTA membership is not required. For questions regarding eligibility, please call the AGTA Marketing Department at 001.800.972.1162.

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The Rebirth of Yogo

Sapphire Production at Montana's Historic Mine

In part two of our interview with Jerod Edington, interim president of Yogold USA, Olga Gonzalez FGA DGA finds about current activity, and what is in store for the Yogo deposit.

Yogo sapphires are unique amongst the corundum family. From their pioneer-era roots, the gemstones have attracted prospectors and geologists and captured the fascination of the world. Emerging as sparkling-blue pebbles from the Yogo Gulch area of Montana, Yogo sapphires are renowned for their exceptional colour—the cornflower-blue gemstones are particularly desirable. While sapphires from other localities often display colour zoning, or a change in colour distribution, the colour of the Yogo material remains consistent throughout the stone. While heat treatment of sapphires in the market is common, with most using it to remove the colour zoning and improve clarity, Yogo sapphires are never heat treated, since the stones are mostly free of silk and have relatively few inclusions. Additionally, Yogo gemstones shine brilliantly in both daylight and artificial light. The sublime geology of this part of Montana has gifted the world with a truly transcendent gem.

After forty years, the historic deposit, including the entire five-mile-long sapphire-bearing dike, is undergoing a renaissance. The Yogo mine is back in production, with Yogold USA at the helm. This family-owned business has the support of over five hundred combined years of industry expertise in their Yogo endeavour. Underground rehabilitation was initiated on 23 February of this year. These efforts will result in greater production and thus an unprecedented opportunity to own, collect and wear one of these precious gems. In the second part of our two-part series on Yogo sapphires, Yogold USA's interim president, Jerod

Edington, discusses all these exciting new developments (for part one, please refer to Winter 2021 *G&J*, pp. 18-19).

Can you describe the excavation and concentration of corundum in the Yogo dike, undertaken since Yogold USA became the operator?

JE: The last two mining seasons were focused on mining the Yogo dike where it is exposed on the surface. Mining the surface material was fundamental; we used a large excavator and a 12-yard diesel dump truck. The excavation and transportation of the ore from the mining area to the processing plant has an average cycle time of about forty-five minutes. Therefore, we typically mined and hauled twelve payloads in a 10-hour shift.

As with most gem deposits, the concentration of corundum varies in different sections of the dike. The ultramafic dike was infused along a shear zone or fault. In some areas, the fault created brecciate zones that are quite wide. The wide zones have natural dilution due to the host rock being in fragments. In other areas, the Yogo dike is very well defined on both the hanging wall and footwall. Because these sections of dike are narrower, and typically range from six feet to eight feet in width, they generally contain a higher number of carats per ton, because of less wall-rock dilution.

What is the anticipated timeline to begin underground mining?

JE: This past fall, we constructed a new steel and concrete portal that meets specifications of the Mine Safety and Health Administration (MSHA) regulations. This included adding extensive rock-bolting and screening to the side of the mountain above the mine entrance. Because we plan to store explosives underground, we contracted the fabrication of a steel plate door for security purposes. We received a letter of authorisation from MSHA to initiate underground operations on 21 March 2021. We removed a known caved area set back about 150 feet from the entrance of the Kunisaki haulage tunnel, which was driven in the mid-1970s by Chikara Kunisaki and is 3,000 ft. (914.4 meters) in length. Pursuant to discussions with several miners that worked the Yogo Gulch deposit as young men in different capacities back in the mid-1970s, and predicated upon historical maps we



Goldsmith Gallery Jewelers custom Yogo sapphire and diamond double and white gold, 2.00 ct round Yogo sapphire and 0.60 tww round diamond melee ring. Photo by Tim Voelker/AVP, courtesy of Goldsmith Gallery Jewelers.



Chunk of multicoloured sapphire bearing ore, with calcite crystals.

obtained, we learned that there are large sections of unmined sapphire-bearing dike starting back about 900 ft. (274.3 m) from the entrance. We have commenced rehabilitating the primary haulage way. Next, we plan to establish secondary escape ways; run air, water and electricity back into the haulage tunnel; we will then initiate activity utilising the shrinkage-stopping mining technique. Having access to and being able to rehabilitate this primary haulage way will provide substantial financial savings, and reduce the time needed to bring the underground portion of the mine back into production.

Our mining engineer and outside consultants, who are familiar with mining narrow structures, have designed a plan that has an initial production target of 150 tons (136 metric tons) per day. The mining plan is being developed and finalised using Vulcan 3D Software, developed by Maptek out of Colorado. When complete, the plan will include three-dimensional geological modelling and digital mapping. It will create the overall mine design and define production

planning. Using Vulcan software will assist with evaluating and maintaining daily operational information, while taking economic, technical and operational outcomes into account. Assuming we do not run into unusual circumstances, we hope to start underground production around 1 May of this year.

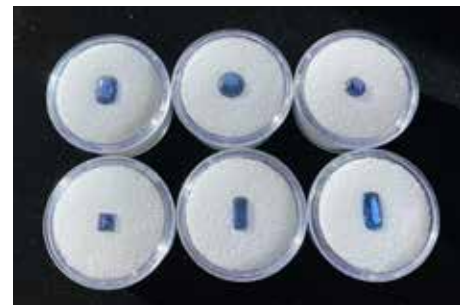
Can you discuss your company's work in maintaining Yogo Creek? Why is preservation important, and what steps has Yogold USA taken to maintain it?

JE: Yogo Creek is currently restored. Yogold's priority is to maintain the creek and surrounding area to keep it in pristine and natural condition. This is important to protect fish and wildlife that are dependent on the creek. A section of Yogo Creek bisects our property; this section is home to twelve beaver ponds.

As a matter of policy, we do not engage in any mining, or any kind of disturbance, within fifty feet of the creek bank. We have a couple of locations where the historic road was constructed over a

hundred years ago, running adjacent and parallel to the creek. In some areas, we widened the road away from the creek, and constructed earth berms to prevent access to the creek by a vehicle, equipment or floodwaters from a side canyon or coulees (due to flash floods which take place from time to time).

In the spring of 2021, we made the decision to replace an ancient log bridge across Yogo Creek that was in very bad repair. To remove and replace this bridge, we had to make concurrent applications and get approval from three government agencies: the Judith Basis Conservation District; the State of Montana, Department of Fish, Wildlife and Park; and the State of Montana,



The Yogo deposit is particularly well known for its cornflower-blue sapphires, such as the faceted material shown here.

Department of Environmental Quality. We filed applications and submitted engineering drawings to all three agencies for constructing a 16 ft. by 50 ft. steel bridge and were subsequently granted permits. The construction process and equipment used to install the steel bridge was selected to reduce the risk of any damage to the stream bottom, to minimise erosion, to avoid the creation of sedimentation or turbidity and to ensure that there was no sloughing of the banks into the water or rechanneling of the stream. Yogold accomplished these objectives, and all three agencies approved the finished bridge.

Your company is funding a cutting facility in Sri Lanka. What is the turnaround for moving goods there and back? How has this helped your business, and is this Yogold's model moving forward?

JE: We were extremely fortunate to have met Mr Amitha Gamage, who

After forty years, the historic deposit, including the entire five-mile-long sapphire-bearing dike, is undergoing a renaissance. The Yogo mine is back in production, with Yogold USA at the helm.



Left: A view of the 3,000 ft. (~914 m) Kunisaki tunnel, with old mine tracks possibly dating from the early 1970s. Right: This 50-year-old box in the Kunisaki tunnel was an interesting find; it may have once stored caps and a detonation cord.

manages the cutting facility and brings tremendous expertise and experience as a member of our board of directors. He held the position of chairman and CEO of the Sri Lanka National Gem and Jewelry Authority from 2013 to 2015 and during 2020. He established Amaran Gems Pvt. Ltd. in 1991, which specialises in providing high-quality gems and designer jewellery to clients globally. In addition, he is the owner of Amaran Gemlab Pvt. Ltd., a company that authenticates gemstones using testing such as Fourier-transform infrared (FTIR), ultraviolet/visible/near-infrared (UV-Vis-NIR) and photoluminescence (PL) spectroscopy. These methods are used to identify gemstone species and variety, natural or synthetic origins and treatments; they are also used for colour grading. Mr Gamage is also conducting a feasibility study related to the expansion of the cutting facility to include the manufacturing of fine jewellery.

It is very beneficial for Yogo USA to have developed the facility in Sri Lanka. Whereas contract cutting facilities often focus on speed and volume, quality is at the forefront of this operation. The overhead costs are more favourable in Sri Lanka, and Yogo sapphires are the only stones being cut there; therefore, Yogo sapphires are the priority. Unlike with a custom order, there is no waiting in line.

Typically, Yogo USA ships parcels of rough out every 5-7 business days. The rough material generally arrives in three days and clears Sri Lankan customs 2-3 days later. The cutting and polishing

require 5-6 days, and then it takes another five days to deliver back to one of our U.S. offices. On the average, the cycle time ranges from 15 to 17 days.

Is Yogo USA planning to give back to the local community in Sri Lanka, where the sapphires are cut? If so, how?

JE: Thank you for asking this question. We have already formed a 501(c)(3) non-profit and tax-exempt corporation called the Yogo Global Help Foundation, which will be administered by Mr Gamage. The Yogo Global Help Foundation is working with Sabaragamuwa University of Sri Lanka (SUSL), which is in the process of expanding its curriculum to include a diploma in gemmology. While serving during his 2020 term as chairman of the Gem Authority of Sri Lanka, Mr Gamage had discussions with government officials about starting such a program.

SUSL is in the city of Belihuloya, but it also falls under the administration of Ratnapura District; Ratnapura is the gem-mining and cutting capital of the country.

There are many gem miners residing in the Ratnapura area who engage in high-risk mining and who are generally on the lower end of the economic scale. Once the two-year program is established (currently slated for June 2022), Yogo will contribute money from each stone cut in Sri Lanka towards a scholarship fund. This scholarship program will allow children from gem mining families and communities to attend the gemmology program at SUSL themselves.

Another area that our non-profit will support is scholarships for children and families pursuing an education in jewellery craftsmanship. In Sri Lanka, cutting methods and knowledge are passed down from generation to generation, but in today's world there is a need to boost hands-on experience with formal education. For this reason, we are developing scholarships to help young people obtain a diploma in jewellery manufacturing and design.

Speaking of cutting, because of the tabular shape of many of the corundum crystals derived from your mine, I understand that you are evaluating some unique and innovative cutting techniques related to concave faceting. Can you tell us about your plans?

JE: Historically speaking, the Yogo mine produced a large percentage of tabular crystals that are not the optimum for standard faceting. Through discussions with some very well-known master fantasy cutters, we know that ideally the rough should have one flat side, with a thickness that ranges from 2.8 to 3.6 mm. Based on this information, we are test-cutting a dozen sapphires that weigh over six carats.

The Yogo sapphires are already brilliant when traditionally cut. Due to the uniform colouring of our rough – particularly the

We also have a small percentage of sapphires that are referred to as 'colour changers'; they change colour depending on light to which they are subjected.

GOLDSMITH GALLERY JEWELERS

Starting with just ten pieces of jewellery, Scott and Kelly Wickam opened their doors in 1990 at a small downtown location in Billings, Montana. Today, their jewellery store is headquartered in a beautiful 7,500 sq. ft. (~697 sq. meters) eco-friendly and locally-sourced building that reflects their beautiful surroundings, including oversized windows, a two-story rock fireplace, and a bar/TV area with rich, dark wood accents throughout. They want customers to experience the magnificence of Montana while providing the ultimate shopping journey.

The Wickams began selling cut sapphires by Yogold USA in the spring of 2020. They feel that the peak Big Sky adventure is symbolised by the rarest of gems, the Yogo sapphire. From its sublime, majestic mountains to the entrancing, heavenly-blue hues that fill the rivers and lakes, this gem represents the most treasured collection the Goldsmith Gallery offers. Selling over five hundred pieces a year, many of the jewels are exquisitely crafted heirlooms that will be cherished forever. For custom Yogo pieces, they offer personalised consultations, 3D renderings and a journey to develop what the client envisions. Goldsmith Gallery provides an extraordinary experience for those who desire this extraordinary gemstone.

To explore the Wickams' Yogo collection, visit Goldsmithgalleryjewelers.com



Left: In this bespoke ring, two half-moon diamonds (0.33 tww) flank a 1.64 ct cushion-brilliant-cut Yogo sapphire. 0.40ctw round diamond melee. Goldsmith Gallery Jewelers also included 0.40 tww round diamond melee in the design. Middle: The Yogo sapphire band shown here was made with 10K white gold and 0.66 tww Yogo sapphire melee. Right: These Yogo sapphire and diamond round cluster dangle earrings by Goldsmith Gallery Jewelers comprise 14K yellow gold, 0.17 tww round Yogo sapphire centres, and 0.16 tww round diamond melee. All photos by Tim Voelker/AVP, courtesy of Goldsmith Gallery Jewelers.



Goldsmith Gallery Jewelers created this pendant using 18K rose and white gold, 0.85 ct oval Yogo sapphire, and 0.41 tww round diamond melee.

About how much of the rough you are excavating is violet, and what is the value difference between the violet, colour-change and blue sapphire rough?

JE: The percentage of violet and purple sapphire varies at different locations along the dike. In some areas, the purple sapphires are as high as 3% of the yield, and in other areas it drops down to less than 1%. We also have a small percentage of sapphires that are referred to as 'colour changers'; they change colour depending on light to which they are subjected. In daylight and fluorescent light, these samples are typically blue to blue-violet, but with incandescent light, they range from purple to reddish purple or, rarely, red. This is a unique characteristic, and due to this distinct property and their rarity these colour-change sapphires have a substantially greater value, priced 15%-20% higher than their natural cornflower-blue counterparts.

How are Yogo sapphires priced differently from heat-treated, colour-zoned material found elsewhere? Can you share any figures?

JE: By their very nature Yogo sapphires do not require any enhancement, and therefore they are marketed in a different category than fancy-coloured sapphires mined from alluvial deposits here in the state of Montana, and sapphires from other locations around the world. Yogo sapphires are comparable in price to other fine-quality, natural sapphires currently mined on a very limited scale from alluvial deposits in other locations in Asia.

How do you promote trust and transparency within your business model at Yogold USA?

JE: In thinking about trust and transparency, our stance at Yogold USA is fundamental and simple. Talk is cheap and does not create trust. Rather, our actions – being ethical, reasonable and truthful, and by fulfilment of statements and representation we have made and will make in the future – is what will lead to a growing trust and ultimately define Yogold's reputation and brand within the industry. ■

Learn more about current Yogo sapphire production at yogoldusa.com

beautiful and natural cornflower-blue colour that is associated with Yogo material – concave cutting, which involves creative use of refracted light through a gemstone and forms dynamic and unusual effects, should produce maximum brilliance. We are very excited to see how our Yogo sapphires turn out. We have ordered two complete fantasy-cutting systems, which are being delivered to our cutting facility in Colombo, Sri Lanka.

In anticipation of our expansion into fantasy cutting, and because of a long and established relationship, Mr Gamage

was able to have award-winning lapidary Mr I.M.N. Jayantha Ilangakoon come out of retirement for a six-month consulting arrangement. From 1986 until his retirement in 2009, Mr Ilangakoon was employed as a lapidary and gem-carving training officer in the National Gem and Jewelry Research and Training Institute. Amongst the many awards he won during his career, Mr Ilangakoon received Sri Lanka's Presidential Award for Gem Carving in 2018. Mr Ilangakoon will assist with the set-up of the expanded operation and will train several already-seasoned cutters.

LASER FOCUSED

British laser-technology specialist Opsydia has continued its upward trajectory in the diamond and coloured-gemstone industries by adding new systems to its roster and collaborating with new brands. *Gems&Jewellery* spoke to Opsydia CEO Andrew Rimmer for an update on these exciting new endeavours.

Earlier this year, laser-technology leader Opsydia, which formed as a spin-out company from the University of Oxford, revealed that it had been quietly working on new systems, including the newly launched D4000 Surface ID System and the D6000 Combined System, to add to its portfolio.

The business has grown considerably in recent years, thanks in large part to its relevancy to ongoing traceability initiatives and branding projects, especially among jewellers and luxury brands looking to demonstrate product transparency and proof of origin. Its debut D5000 Sub-Surface ID System allows permanent identity features, such

as alphanumeric sequences, shapes and logos to be placed beneath the surface of diamonds and some coloured stones without affecting their surface condition or clarity grade. These unique identifying numbers and/or grading report references beneath a stone's surface permanently and physically link a specific gem to its data. The technology has sought to close loopholes in the existing girdle inscription methodologies that are used to identify diamonds, which are prone to tampering and are ultimately removable. These Nano IDs have been written about extensively (see Spring 2021 *G&J* pp. 28-30) and independently validated by the Swiss Gemmological Institute (SSEF), among others.



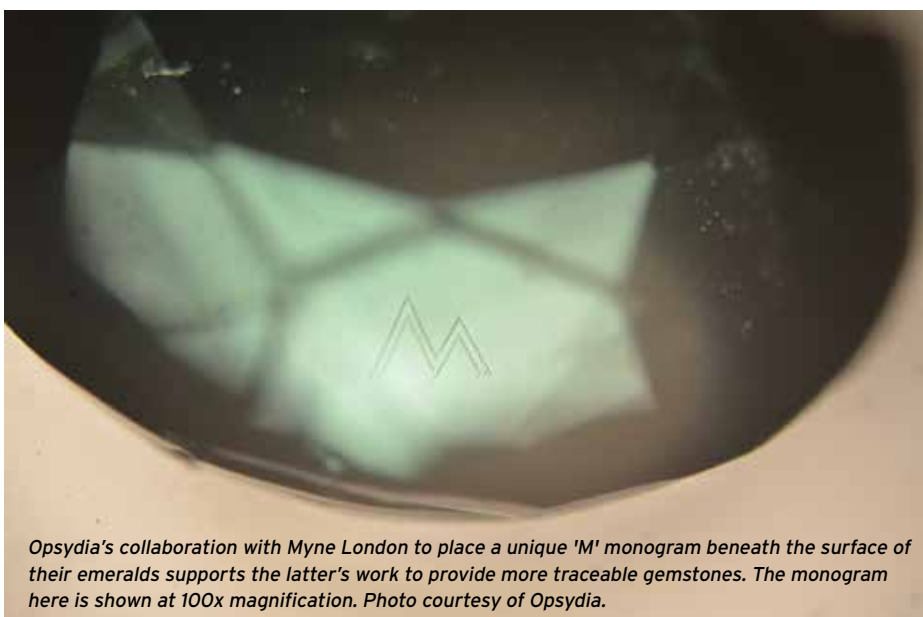
The two Opsydia Systems capable of achieving Surface IDs (shown here) are the D4000 and the D6000, officially launched in early 2022. Photo courtesy of Opsydia.

In addition to Nano IDs, the D5000 System creates what Opsydia calls Loupe IDs, which are essentially loupe-visible sub-surface identifiers. The most widely reported application of these features are found on De Beers' Lightbox Jewelry, which uses Loupe IDs to clearly distinguish its laboratory-grown diamonds and add an extra layer of branding to its product offering.

"Despite the pandemic, we have enjoyed a positive two years of business growth and development here at Opsydia," explained Andrew Rimmer, chief executive officer of Opsydia. "Our team has grown significantly, and this has afforded us the skills and expertise to expand our offering, which now includes three Opsydia Systems."

Joining the D5000 are the D4000 Surface ID System and the D6000 Combined System; these allow owners and operators to create Surface IDs and Sub-Surface IDs for gemstones. With these two releases, Opsydia has expanded its portfolio to include more 'traditional' surface inscription capabilities. This might come as a surprise to some, largely because the business positioned its debut device as an alternative to surface marking and the 'risk factors' that this process possesses for diamond graders and manufacturers.

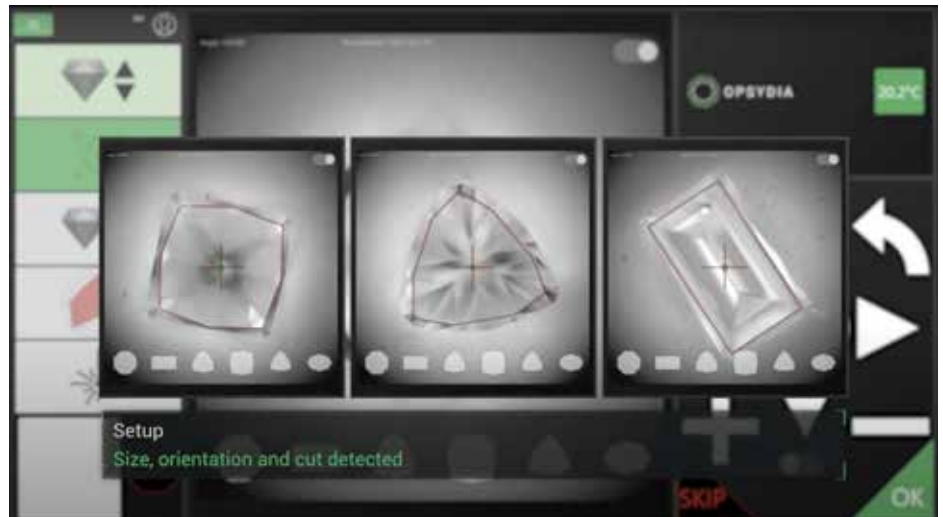
Rimmer said that "Our decision to utilise our expertise in laser technology to create a Surface ID system is



Opsydia's collaboration with Myne London to place a unique 'M' monogram beneath the surface of their emeralds supports the latter's work to provide more traceable gemstones. The monogram here is shown at 100x magnification. Photo courtesy of Opsydia.

twofold. Firstly, we received feedback from our existing clients and prospective customers that such a device would benefit them, especially when combined in a single system. Helping our clients to streamline and improve their processes is always a priority for us. Secondly, we knew we could build upon what is out there in the market and produce a system that embodies best practice in surface inscriptions. That's exactly what we have done, and it's the technology housed in our D4000 and D6000 Systems."

The D4000 creates shallow, transparent and loupe-visible features on the surface of gemstones through clean ablation at shallow depths of <50 nm. Opsydia has refined a method to do this that ensures high-resolution lines and dots at sizes up to 10× smaller than existing surface-marking technologies and at faster rates without risking graphitisation — the introduction of black marks on a diamond that must be removed by boiling in acid. As with its other two systems, the Opsydia D4000 is a high-capacity, self-contained piece of equipment capable of processing more than 100,000 stones per year. It can be operated in normal office and lab environments and can be integrated into the existing management software used by grading houses and branded jewellery



The user's screen on an Opsydia system. The company's three devices are similar in appearance and are built to be easily integrated into labs, grading houses and other jewellery-oriented businesses. Photo courtesy of Opsydia.

of businesses and their products," Rimmer noted. "Fraudulent girdle inscriptions continue to be a concern in the trade, so as we branch into surface-led systems we are also researching and developing innovative ways to add extra layers of security to these features. We will share our results in due course."

Systems are not the only way Opsydia has expanded in the last twelve months. In fact, one of its most talked-about moments was the launch of a new collaboration with emerald supplier

Myne London, which specialises in ethically sourced melee from Swat Valley, Pakistan. The Opsydia team worked with Myne London founders Fiona Wellington and Kate Murray Gordos, as well as their in-house gemmologist Charles Evans FGA DGA, to create a procedure for placing the business' unique 'M' logo beneath the surface of its emeralds. It is hoped that this emphasis on branding will add an extra layer of storytelling for jewellery brands using Myne London emeralds and will support (and provide physical evidence of) their efforts to offer more traceable gemstones.

While Rimmer could not reveal the names of other internationally recognised Opsydia collaborators, he suggested that numerous businesses are preparing to receive systems. "Our aim at Opsydia is to provide practical, accessible and commercial solutions to the common problems encountered by grading labs, gemstone suppliers and brands," he said. "Gems&Jewellery has traced our journey from a University of Oxford spin-out to an internationally-recognised business. Perhaps Oxfordshire isn't the place you would expect innovative diamond technologies to emerge from, but we are slowly and steadily changing mindsets across the world." ■

Find out more about Opsydia via: opsydia.com/diamonds.

"Our team has grown significantly, and this has afforded us the skills and expertise to expand our offering, which now includes three Opsydia Systems."

businesses. The D6000 combines both surface and sub-surface capabilities, offering Surface, Loupe and Nano IDs in a single system.

"Although Surface IDs do not have the security benefit of sub-surface features and can be polished away, we believe this addition to the Opsydia portfolio is a necessary step in diversifying our technology and ensuring it is fit for purpose for a range

Andrew Rimmer, CEO of Opsydia. Photo courtesy of Opsydia.



The diamond-mining community of Weasua, Liberia, had already made a commitment to improving their standard of living by building a town hall and opening a radio station when NGO Diamonds for Peace began working there in 2018.



HONEY *and* DIAMONDS

Beth West FGA DGA EG explores how one artisanal diamond community in Weasua, Liberia, is building a post-mining future through beekeeping.

Artisanal diamond mining is the principal source of income generation for the people of Weasua, a remote community in the heart of the West African country of Liberia. Diamond production in Weasua used to be significant; established in 1956, it is the oldest diamond mining community in the country and has, over the course of its history, attracted thousands of prospectors keen to find wealth in the soil. Today, however, production is dwindling, and the poverty of the community is acute. Therefore, to alleviate this dependence on mining, Japan-based nongovernmental organisation (NGO) Diamonds for Peace is encouraging the miners and diggers of Weasua to learn the skill of beekeeping as an alternative means of income generation. "The biggest problem is that they are afraid of getting stung," observed Chie Murakami, the founder of the organisation.

First established as a voluntary group in 2014, Diamonds for Peace envisions a world in which diamonds are mined, cut and processed with humanitarian and environmental considerations. To this end, since 2018 they have been helping this Liberian artisanal diamond mining community to improve their standard of

living. To date, the NGO has educated the people of Weasua on fair and efficient business practice; health, safety and environmental awareness; and mining cooperative formation. Their decision to encourage the community to learn the skill of beekeeping is one of their more recent initiatives.

In September 2020, in cooperation with Canadian NGO Universal Outreach Foundation (UOF), Diamonds for Peace provided a five-day beekeeping

training course in Weasua for over twenty members of the community. The participants were taught how and why bees produce honey; where sites for hives within the nearby forests should be located, based on their proximity to flowering trees and water; and how to build, install and protect the wooden hives from destructive termite and ant colonies.

But why develop the training in the first place?



Artisanal and small-scale diamond mining (ASDM) accounts for 20% of global production. While 20% may not seem sizeable, the number of lives attached to that figure reaches into the millions. It is a sector that generates significant levels of employment in developing countries, but it is employment riddled with risks and limitations and desperately lacking any level of security.

The use of 'ASDM' implies that the tools and equipment used by the miners are rudimentary and the labour is intensive. In their Due Diligence Guidelines, the Organisation for Economic Co-operation and Development defines artisanal and small-scale mining as 'mining operations with predominantly simplified forms of exploration, extraction, processing and transportation'. This form of mining is largely conducted by individuals, small groups or families. ASDM is one of the oldest forms of income generation for these communities – far older than large-scale mining – and it is often their principal form of income. For that reason, ASDM is also referred to as 'subsistence mining'.

In recent years, much focus has turned to this sector, particularly in light of the push for traceability across the diamond supply chain which, due to the casual and hand-to-mouth nature of ASDM, threatens to leave these miners behind. Developing strategies to integrate the sector into the formal supply chain, in which a gem can be more readily 'traced', however, is far from simple. ASDM is frequently nomadic in nature, with miners going where the gems can be found, and steeped in customary practice. The consequence of such activity is that miners often find themselves unwittingly crossing over from what is defined as 'informal' to 'illegal' mining.

In short, tradition and ancestral property rights are now trumped by the possession of a government-issued mining licence. This leads to the other, more pressing, problem: a licence costs money, and these workers are poor. As a rule, they will sell what they can, as quickly as they can, to whoever they can. Driven by necessity, artisanal diamond miners cannot spare the money to buy the necessary licence, nor are they well placed to challenge their buyers on the legality of their



Top: As in the rest of Liberia, diamond mining in Weasua is alluvial, taking place in placers along the Lofa River. Bottom: A group of miners examine diamond production.

operations or question the amount they are being offered. The ASDM sector is prone to exploitation, abuse and illicit trading. Even so, it is not a sector that should be dismissed, considering the number of lives it supports.

Liberia is a particularly rich source for diamonds. According to the International Trade Administration (an agency of the U.S. Department of Commerce), the West African country currently produces around 50,000 carats per annum. In the early twentieth century, diamond mining was even more lucrative for Liberia, peaking at an annual 600,000 carats in the 1970s. The advent of two civil wars in the country, starting in 1989 and lasting for 14 years, resulted in export sanctions being imposed on the country by the United Nations (UN). In 2007, the same year the diamond sanctions were lifted, Liberia joined the

Kimberley Process Certification Scheme. Production has risen steadily since then, particularly following the discovery in 2013 of diamond-bearing kimberlites, with one cluster particularly close to Weasua. These deposits have not been commercially exploited. Instead, diamond mining across Liberia remains artisanal, with material primarily found in alluvial (river-sourced) placers along the Lofa River.

When considering the ASDM sector's limited inclusion in a tax-efficient formal supply chain, the Liberian government recognised a need to act so as not to miss the additional, much-needed revenue. In 2016, the Ministry of Mines and Energy in Liberia devised a plan to assist communities reliant on artisanal diamond mining into forming cooperatives through various training programmes. In these cooperatives, miners can band together →



These women were among the twenty-plus participants in a five-day beekeeping training course in 2020. The course was a joint venture between the NGOs Diamonds for Peace and Universal Outreach Foundation.

to both improve their standards of operation and work towards their entry into the formal supply chain through attracting foreign investment. The list of criteria that these communities must satisfy in order to achieve full cooperative status is not long: they must create a business plan, hire a management team, open a bank account, build an office and make three signboards.

"These sorts of things may seem easy to you, but it is not so easy on the ground," says Ms Murakami, "given that they are not accustomed to working together, they have never done these kinds of things before and it also requires money. And they are very poor."

Time and again, poverty is the obstacle to progress in this sector. For the Liberian artisanal diamond miner, earning money is not a straightforward endeavour. Coupled with a rather erratic supply in diamond production from the alluvial placers, the miners are also stuck in a hierarchical structure from which it is hard to extract themselves. The diggers, who physically extract the diamonds, are reliant on the (assumed) licence-holding miners for an income. The miners, in turn, are reliant on the 'supporters', who supply the capital needed to work the deposits in exchange for the diamonds that are found.

Across this model, none of the actors have sufficient understanding of the market value of the rough, so the money placed in the hands of the people who dig these diamonds out of the ground is, according to the United States Agency for International Development (USAID), often less than nine percent of the retail value of the polished gem. The money they receive is quickly spent on what is immediately necessary. There is no spare change.

For this reason, NGOs like Diamonds for Peace have isolated the need for additional and more reliable sources of income generation — not only to help them towards cooperative status, but to assist them in obtaining financial autonomy and to improve the overall welfare of the community. Hence, they have introduced initiatives like the beekeeping venture in Weasua.

Honey is rather lucrative, and Liberian honey is a particularly big business due to consistent domestic demand. Historically, the tradition of 'honey hunting' — the precarious practice of raiding wild beehives — did not satisfy demand, so honey was imported. In 2016, in recognition of this underexploited national resource and the benefits it could bring to Liberian farmers, UOF began a training programme on

beekeeping. Since then, the programme has gone from strength to strength, allowing participants to supplement their income by up to \$610 a year. These funds cover household expenses such as rent, groceries and school fees for children. And there is a reliable buyer: UOF also developed a brand, Liberia Pure Honey, employing a dedicated local team working out of Paynesville, located east of the nation's capital of Monrovia. On its own, Liberia Pure Honey boasts many successes. On top of the support that they offer to the farmers through the purchase of their honey, the brand is now winning prizes, gaining first place in the National Honey Show in England in 2018.

As an additional means of income generation for artisanal diamond mining communities, beekeeping makes a lot of sense, even beyond the economic benefits. Once the bee colonies are established, the hives need only be attended to once a week, so it is not time consuming. Likewise, it is not labour

There is the possibility for the two vocations, diamond mining and beekeeping, to work in symbiosis.

intensive, and it is a vocation without gender bias, opening more employment opportunities for women. It is also an activity that encourages environmental awareness; a productive colony requires a thriving forest, one with enough blossoming flora to produce nectar for the bees to collect, so it is in the interest of the beekeeper to protect the area.

There is also the possibility for the two vocations, diamond mining and beekeeping, to work in symbiosis. Wyatt Yeager, founder of the American company Savana Mining, has been working in the ASM sector since his late teens, developing mining equipment that can be used at all levels, from rudimentary to large scale. Whilst working for USAID on a project within in an

artisanal diamond mining community in Ivory Coast, he landed upon an idea to assist the miners in the recovery of their diamonds from other rock fragments, one that would also benefit from beekeeping activity.

Diamonds are, for the most part, oleophilic; that is, they will stick to grease but repel water due to their surface chemistry. Because of this property, the 'grease table' has been one of the most traditional means of recovering diamond. This is a grease-covered, gently vibrating belt onto which all the recovered material is fed, along with water. The diamonds will stick to the grease while the surplus alluvial material is washed away.

The Ivorian community Mr Yeager worked with also kept bees, so he combined beeswax – the waste material from honey making – with cheap mineral oil and locally sourced paraffin. "It only cost \$10." Mr Yeager recalled. The only thing it was missing was a crank to create the vibration of the table, which he said would be easy to put together using old bicycle parts and four old springs. "It is something they can do on their front porch at home at the end of the day."

Mr Yeager has never developed the idea any further, so, it remains just that – an idea. But it is this creative thinking that has the potential to improve the lives of ASDM communities. Mr Yeager and Diamonds for Peace are now in conversation.

There are solutions, and the support is in place. Should everything go according to plan, a cooperative working within

a self-sufficient framework, one that demonstrates financial autonomy through income generation beyond diamonds alone, does seem to present the diamond industry with one of the most ethical sources of the stone – one that supports the welfare of the community before anything else.

However, the greatest hindrance to progress for these communities is a lack of patience. To retain the financial autonomy they gain, they need to invest more effort into additional income generation activities, such as beekeeping. But that takes time. For instance, in these forest communities, it can take up to three years for beekeepers to reach full production capacity and realise any level of income from honey production.

According to Ms Murakami, "I tell them to be patient, but people are always complaining that agriculture doesn't give them fast money." Diamonds are fast money. These miners – who know very little about the gem beyond the fact that there are people who will pay an awful lot for them – are willing to keep trying their luck in the hope that one day, that one big rock may solve all their problems. It is has become the role of the organisations such as Diamonds for Peace to help these miners navigate away from such a mindset.

Diamonds for Peace has been working with the Weasua community for four years now, selecting them because of their already-visible commitment to creating a cooperative and improving their situation. At the point in which



This grease table can use beeswax to help sort diamonds, creating a relationship between Weasua's honey production and diamond-mining activities. Photo courtesy of Wyatt Yeager.

the NGO began interaction with the community, they had already built a town hall and had a local radio station. They were working together. Ms Murakami also noted that, in an unusual move for the predominantly Muslim region of Liberia – where the omission of women from the mines is generally explained as an attempt to placate a female demon that guards the diamonds – women are allowed into the Weasua deposits.

While the beekeeping project will take several years to become profitable, over the course of the NGO's involvement, the welfare of the community has further improved, finding an ever-increasing amount of autonomy, and in August 2021, they finally met all the conditions required to obtain full-fledged cooperative status. "I feel like we are just at the starting point," reflects Ms Murakami. She is right; there remains an enormous amount to be done to improve the livelihoods of these mining communities across the globe. But the fact that organisations such as Diamonds for Peace have recognised the potential for such communities to thrive and supported them towards anything that vaguely resembles a starting point should be lauded. ■

The views and opinions expressed are those of the author, and do not necessarily reflect the official policy or position of Gems&Jewellery.



Unusually for Liberia's Muslim population, women are allowed to work as diamond miners in Weasua. Similarly, there is no gender bias related to beekeeping in Weasua, and men and women both took part in the training course.

SPOTLIGHT ON THE NAJ SUMMIT

The National Association of Jewellers is preparing to host its second annual NAJ Summit, incorporating a three-day Valuers' Conference and networking dinner hosted by the Institute of Registered Valuers. *G&J* finds out more about what to expect from the event.

As the world emerged from a series of lockdowns and restrictions in September 2021, the National Association of Jewellers (NAJ) went full steam ahead into its debut NAJ Summit – a multi-faceted long weekend incorporating some of the Association's most popular calendar events. Most recognisable to Gem-A Members is likely to be the three-day Valuers' Conference, hosted by the Institute of Registered Valuers (IRV), which has always been a must-attend event for jewellers, gemmologists, valuers and business owners from across the country. At the NAJ Summit, the Valuers' Conference takes place alongside the Retail Jewellers' Congress, hosted by the JET Business Network, the Supplier Showcase, the NAJ Members' Gala Dinner and the series of Better Business workshops and seminars organised by the NAJ team.

At last year's Valuers' Conference there were approximately 50 speakers delivering presentations, workshops, and seminars on topics as broad as jewellery history, laboratory-grown diamond detection and identifying religious silverware. The schedule was dotted with eight 'Main Presentations' led by **David Callaghan**, **Richard Winterton**, **Dr Jack Ogden** FGA, **Craig O'Donnell**, **Joanna Hardy** FGA DGA, **Sandra Cronan**, **Dr Maria Maclennan** FRSA and **John Benjamin** FGA DGA. These popular talks covered topics such as the Black Prince's Ruby, the history of Cartier, forensic jewellery techniques and natural pearls.

Now, the event is preparing to return for its second annual outing, this time from 10-13 June 2022, at the Staverton Park Hotel in Northamptonshire, UK. The Summit's content, layout and timetable structure have been subtly revised in response to feedback, while

"This is an event designed by jewellery industry professionals for jewellery industry professionals, so you can be assured of its relevance and opportunities."

**Experience
The NAJ Summit
2022**

10-13 June 2022 Staverton park Estate, East Midlands naj.co.uk/Summit

new elements have been added to make this 'flagship' concept an "unmissable experience in the jewellery tradeshow calendar," according to the NAJ.

This year, the Valuers' Conference will start on the afternoon of Friday, 10 June, allowing time for a welcome BBQ before the first full day of presentations and practical workshops on Saturday, 11 June. The Saturday schedule will also feature the Valuers' Conference Dinner, which typically has a theme and includes a three-course dinner and informal networking opportunities for people from across the trade. Visiting valuers and gemmologists will have guaranteed time to visit the Supplier Showcase on Sunday, 12 June, including brands, suppliers and gemstone dealers presenting their wares to the

SPEAKER PREVIEW

Although the line-up of the Valuers' Conference is still under development, the team at the NAJ and the Institute of Registered Valuers have announced a handful of speakers who are preparing to offer Main Presentations, Workshops and Masterclasses. Here's a taste of what to expect this June.

Hayden Peters – Mourning Jewellery

Hayden Peters is a jewellery historian, lecturer and experienced designer. An authority on the topic of mourning and sentimental jewellery, Peters founded the Art of Mourning (artofmourning.com) in 2005 as his teaching platform to share knowledge and educate about this important part of history between the years 1517-1920.



Steven Jordan FGA – Valuing Silver



Steven Jordan has been associated with the jewellery trade since 1974. He became a Registered Valuer in 1989 and an independent valuer in 1993. Jordan received the David Wilkins Award in 2009. Although primarily a jewellery valuer, in the past few years he has concentrated on the insurance appraisal of silver collections for museums, London Livery Companies, the Church and Borough Councils.

Rosamond Clayton FGA DGA – Valuation Methodology



Rosamond Clayton is a member of the London Diamond Bourse and part of the Livery of the Company of Arts Scholars. She has 40 years' experience, initially in Hong Kong and since 1987 in the UK, providing litigation reports in the matter of gemstones, pearls and jewellery.

She has received training in report writing from the Academy of Experts and on several occasions has been called to give evidence in the High Court as an expert witness. Clayton's foremost professional interests are in diamonds, jadeite jade and litigation in gemstone and jewellery matters.

Kerry Gregory FGA DGA – Gem Testing

With over two decades of professional experience in gemmology and diamonds, as well as three separate international gemmology qualifications, Kerry Gregory offers practical education that gets to the heart of what you need, every day, in your business and makes it enjoyable and easy to develop and learn.



Pat Daly FGA DGA – Gem Testing

A gemmology instructor for Gem-A since 1993, Pat Daly was an independent valuer from 1984 until he retired from the field at the end of 2019. He was one of the first valuers to become what was then an N.A.G. Registered Valuer back in 1987. Daly started his career with James Walker Ltd (a



multiple retail jeweller) and took the Gem-A Gemmology Diploma during that time. He then worked for David Harris Ltd, a manufacturer/second-hand jewellery dealer, in Hatton Garden. This is his seventh time participating in the Valuers' Conference.

assembled guests. Another addition to this year's NAJ Summit is the return of the NAJ Awards, which have been postponed since 2019 due to the pandemic. In recent weeks, nominations have been open for seven categories, including Team of the Year, Designer of the Year and Workshop Professional of the Year. All the winners will be announced at the Members' Gala Dinner on Sunday, 12 June.

NAJ President, David Doyle, says: "We were thrilled with the response we received to the NAJ Summit in 2021 and we are looking forward to bringing the event back in June. This is an event designed by jewellery industry

professionals for jewellery industry professionals, so you can be assured of its relevance and opportunities. This year's Valuers' Conference is really coming together, with 20 speakers already confirmed covering broad topics like silversmithing, gem testing, valuations, auctions and jewellery history. We expect double this number of speakers when we create the final schedule in the coming weeks."

Admission to one day of sessions (either the NAJ Summit on Saturday or Sunday, or the Retail Jeweller's Congress on Monday, 13 June) is priced at £235 + VAT; Friday-to-Sunday tickets for NAJ

Members is £375 + VAT. Further savings are available for Institute of Registered Valuers Members/ Fellows (IRV) and JET Business Network Group Members. Attendance at the Gala Dinner is offered on a first-come-first-served basis, with tickets at £65 + VAT per person and tables (for 10) at £585 + VAT. Gala Dinner tickets can be combined with attendance to the Valuers' Conference and/or Retail Jewellers Congress. Attendees are also encouraged to secure accommodation on site as soon as possible. ■

Further information can be found here: naj.co.uk/summit-2022



At the time of its retrieval, the Lesedi La Rona, at 1109 ct (left) was the second-largest gem-quality diamond ever mined. It was purchased by Graff and cut and polished into a 302.37 square-emerald cut (right). Photos courtesy of Lucara Diamond Corp.

Large Diamonds: Why Now?

Have changes in mining, or more specifically the recovery and processing of mined ore, led to the recent increase in the discovery of large diamonds? Peter Sandberg DGA examines the evidence.

On 16 November 2015, a 1109 ct diamond was unearthed from Botswana's Karowe mine. The white diamond, later named Lesedi La Rona (meaning 'Our Light' in Botswana's Tswana language), was at the time the second-largest gem-quality diamond ever found. The company responsible for the find, Lucara Diamond Corp., later revealed two other large diamonds from the Karowe mine, an 813 ct gemstone named The Constellation and a 373 ct specimen that is yet to be named.

One may think that the finding of the Lesedi La Rona was a fluke,

...out of eighty-eight diamonds weighing 200 carats or more, 36 were unearthed in or after the year 2015.

a once-in-a-hundred-year event. After all, the largest gem-quality diamond found until then was the Cullinan, found in South Africa in 1905. But looking at a list of the largest rough diamonds ever found, one cannot avoid noticing that out of eighty-eight diamonds weighing 200 carats or more (a list of the top ten of those diamonds can be found in the table on facing page), 36 were unearthed in or after the year 2015. That is an astounding 40.9% of the world's largest rough diamonds unearthed in the last five years. That does not seem like a coincidence.

ARE THERE LARGE DIAMONDS EVERYWHERE?

Large diamonds can be found in diamondiferous areas all over the world. There are the early findings from India, stones from Brazil, modern-day Russia, Canada and of course several different countries in Africa. Yet even though there is not just one specific area that produces all the large stones there are two locations that rise above the rest: Lesotho's Letseng mine and the previously mentioned Karowe mine in Botswana. Of the eighty-eight diamonds in question, the Letseng mine has produced twelve; of these,

seven were found between the years 2015–2020. Karowe has produced nineteen, with seventeen mined between the years 2015–2020.

Once that one mine that is different from all the others is located, do mining operations just begin, suddenly blasting through the rock, crushing the ore and releasing large diamonds? Recent developments clearly indicate that if it is large diamonds that you are after, traditional mining techniques might do more harm than good.

PHYSICAL PROPERTIES OF DIAMOND

A quick look at the physical properties of diamond tells us that although its hardness (ability to resist scratching and abrasion) is far greater than that of any other stone, its toughness makes it a bit more vulnerable. The Moh's scale of relative hardness, from 1–10, puts diamond at 10, as it can only be scratched by another diamond. Toughness, however, is the gemstone's ability to resist cleavage and fracture. Cleavage is the type of breakage that can take place along



X-ray transmission technology was used to retrieve this 227 ct, type IIa, D-colour diamond from Angola's Lulo alluvial mine. It is the second-biggest diamond to be retrieved from Angola. Photo courtesy of Lucapa Diamond Company.

specific directions in a crystalline material. Fracture is the non-directional breakage that can occur in any gem material. If applying sufficient force, sustained pressure or even rapid cooling or heating, even a gemstone as hard and tough as a diamond will break — and applying force and pressure is what mining is all about. While diamond is tougher than many other gems, it has cleavage and therefore it is not as tough as jadeite or ruby.

COMMINATION OF DIAMOND ORE Traditional Methods

Traditionally the mining process involves crushing; this can damage and break larger diamonds early in the retrieval

process. Once mined, the ore is routed to an underground primary jaw-crusher. It then gets a secondary crushing by a cone-crusher, to further reduce the size of the ore. Afterwards, Dense Media Separators (DMS) remove waste from the concentrate before X-rays are used for further separation of the diamonds thanks to its fluorescence.

William Lamb, CEO of Lucara Diamond Corp from 2011–2018 was interviewed for a 2020 article by Ed Caesar. Mr Lamb discussed the period when the Lucara team started looking at the undeveloped site AK6 in Botswana, then owned by De Beers. Lucara analysed samples from when it was discovered in the 1970s and noticed evidence that many diamonds

Ten largest rough diamonds discovered as of December 2019. (Source: Wikipedia)

Carats	Name	Country	Mine	Date
3167	Sergio (carbonado)*	Brazil, possibly from outer space	Found above ground	1895
3106.75	Cullinan Diamond	South Africa	Premier Mine	1905
1758	Sewelô	Botswana	Karowe Mine	2019
1109	Lesedi La Rona	Botswana	Karowe Mine	2015
995.20	Excelsior Diamond	South Africa	Jagersfontein Mine	1893
969	Star of Sierra Leone	Sierra Leone	Diminco Mine	1973
910	Lesotho Legend	Lesotho	Letseng Mine	2018
890	Incomparable Diamond	Democratic Republic of the Congo	Société Minière de Bakwanga	1984
813	The Constellation	Botswana	Karowe Mine	2015
793	Koh-i-Noor	India	Kollur Mine	13th Century

Original student list comprised 88 diamonds. The original list should not be considered complete; as per Wikipedia, De Beers does not publish findings of large diamonds. It also does not include three large diamonds that were discovered after the project was submitted in 2020. For the list originally submitted in the Student Project, please contact the Editor.

* Of the ten large diamonds listed here, six were found in the year 2015 or after.
** Carbonado is an impure form of polycrystalline diamond consisting of diamond, graphite and amorphous carbon (see pp. 40–41 for a recent story on carbonado).



The Karowe open-pit mine in Botswana, source of many of the large diamonds produced since 2015. Photo courtesy of Lucara Diamond Corp.

had been damaged in the aforementioned process. Mr Lamb and his team believed that the less-sophisticated processing methods of the 1970s had crushed larger stones that were at the deposit. The site was later bought by Lucara Diamond Corp and renamed Karowe.

A lot has changed since the 1970s, including the methods for crushing diamond ore. The cone-crusher, for instance, has been modified and given a specialised chamber design (Westhuyzen, Bouwer and Jenkins, 2014); this lowers the risk of diamond breakage. High-pressure grinding role (HPGR) is another, more sophisticated way of crushing ore. The technology lets you reduce the particles in the ore by crushing them between two rollers with a small gap between them.

But the modified cone-crusher is not news, and the HPGR has been in use in the diamond mining industry for more than thirty years (Daniel and Morley, 2010). Thus, neither of these factors would be able to explain the significant findings of the last five years. Instead, a change must be made: either the ore is crushed softly – which is a contradiction – or you discover the diamonds before you crush the ore.

X-ray Transmission (XRT)

Enter the X-ray transmission (XRT) technique. This method has its origins in the recycling business, where it has been in use for several decades (Tassel, 2017). The company responsible for XRT, TOMRA, started developing the machines

for the diamond industry in 2005 and put in a pilot XRT unit in the Letseng mine in 2011. The technique had its breakthrough in 2015, when Lucara had the technique installed in Karowe.

The XRT technique works much like baggage scanner technology. It identifies the carbon signature of diamonds in the ore on the principle of a material's ability to absorb X-ray radiation (Sasman, Deetlefs and Westhuyzen, 2018). Diamond is made from carbon, with an atomic number of 6; it absorbs radiation differently than other elements. This gives the XRT technique the ability to discover diamonds even if they are in aggregates/conglomerates (Westhuyzen, Bouwer and Jenkins, 2014). It also discovers coated and low-luminescent stones, such as type II diamonds that are low in nitrogen. This is a significant strategy, since many of the large diamonds tend to be type II. The technique is installed as a post-primary crushing phase prior to milling in order to discover and liberate large diamonds without damaging or breaking them.

Lucara began using the XRT technique at Karowe in April 2015; in November 2015, the Lesedi La Rona was discovered.

The technique is installed as a post-primary crushing phase prior to milling in order to discover and liberate large diamonds without damaging or breaking them.

CONCLUSION

Lucara Diamond Corp realised that De Beers was sitting on a virtual gold mine (or shall we say diamond mine...) when they looked at the deposit in Botswana that would become Karowe. Lucara saw that the samples from the 1970s contained broken pieces of large diamonds, and those large diamonds could turn an undeveloped site to a highly profitable mine. The problem was that the technique for an early discovery of large diamonds, as opposed to crushing them and later producing them as smaller specimens due to their cleavage and tendency to fracture, was not yet developed for the retrieval of diamonds.

The investment in X-ray transmission technique, a bold development that put the whole future of Lucara's business at stake, paid off with the discovery of the Lesedi La Rona, and even the large rough diamonds found those first few days after Lesedi a Rona fetched more than a hundred million dollars in sales. The technique has proven so successful in chasing large diamonds that it has become well sought after in the diamond mining industry. Lucara, the pioneers of this method, has commissioned the Mega Diamond Recovery (MDR) XRT circuit; this is one of several projects within the company to implement the XRT technique.

The XRT technique seems to work not only for scanning kimberlite materials

MEET PETER SANDBERG

I started my career as a pawnbroker's assistant back in 1999 trying to learn how to hold a loupe, and the profession has taken me to where I am today. In 2015, a colleague pointed me in the direction of Gem-A to get practical, hands-on experience in grading and classifying diamonds. I took the course in 2016 and completed the Diamond Diploma in 2020. The topic I chose for the project – *Large Diamonds, Why Now?* – appealed to the treasure hunter in me. As it turned out, the reason for the discovery of so many large diamonds in recent years had less to do with pirate ships and cities of gold than it had with good old-fashioned technology and the ingenuity of man.

Today I'm the COO of Pantbanken Sverige, a Swedish pawnbroker established in 1866 and headquartered in Stockholm, with shops in Sweden, Finland and Norway. The pawnbroking industry has changed a lot in those twenty-plus years, just as the diamond industry has. The Gem-A Diamond Diploma has made it possible for me to keep up with those changes and adapt accordingly for the sake of our business and our customers. And by doing so I also learnt something along the way – the fact that there's always more to learn about that one, tiny, glittering little stone we call a diamond.



from a primary mine, but it is also effective in alluvial operations. In Angola, the country's second-biggest diamond on record was discovered in 2017 at the Lulo alluvial mine, thanks to an XRT machine (Tassel, 2017).

The decision by the mining industry in general, and Lucara Diamond Corp in particular, to place a bet on finding those lucrative big diamonds has led to the recent upsurge in discoveries of large stones. The changes they made within the

recovery process by implementing the XRT technique has proven vital and the amount unearthed since 2015 speaks for itself.

Even though diamonds are hard and relatively tough, they do still break and mining for them is in many ways a violent operation. Even today, it is still difficult to crush the ore looking for diamonds without crushing the diamonds. But it looks like we only need to use the tools at hand to keep these large and beautiful diamonds intact. ■



Another large diamond produced from the Karowe mine, named the Constellation, was 813 ct when it was extracted. Dubai-based Nemesis International purchased the rough, and fashioned into a 313-ct emerald cut gemstone. Photos courtesy of Lucara Diamond Corp.

A DIVERSE GEMMOLOGICAL JOURNEY

Dr Çiğdem Lüle recalls her journey from a childhood fascination with salt crystals to a successful career as an archaeogemmologist, colour consultant, author and educator.

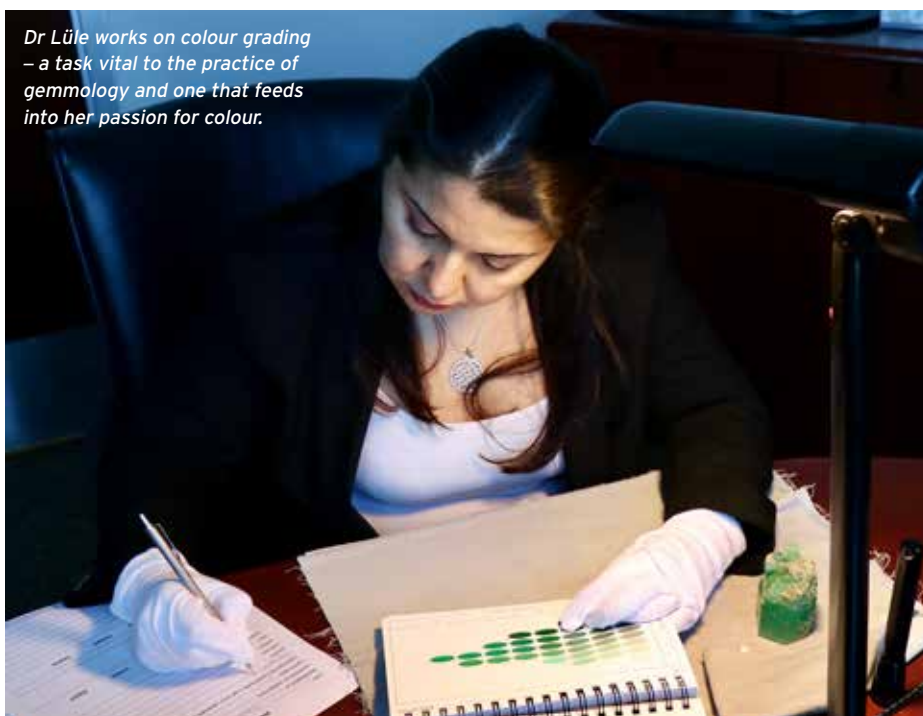
I was barely seven years old when I observed beautiful salt crystals with a small microscope at a friend's birthday party. I was fascinated by the geometry and the clarity of otherwise-ordinary salt crystals under magnification. Since then, the idea of science and looking at 'things' differently have taken over me.

Fast forward nine years. At the age of 16, I was sitting in one of the large lecture rooms in the geology engineering department of Ankara University and wondering why I ended

up there. It wasn't my first choice, but I was destined to study earth sciences due to the somewhat-inflexible education system in Turkey at the time. In the coming years, I would take note of what I liked the most for my future career and explore that aspect. I discovered that understanding mineralogy was natural to me and geochemistry was a joy, but gemmology was completely unheard of in academic circles. During this time, Dr Sönmez Sayılı of Ankara University became my undergraduate advisor, postgraduate supervisor and

lifelong mentor when I decided to pursue gemmology in a way that had not been studied before in Turkey.

During my master's studies in 1996, I applied for a British Council scholarship to study at Gem-A in London. The process of obtaining such funding proved to be very difficult at the time. Nobody at the British Council had heard of gemmology before, nor it could be classified as an academic subject. Perseverance has become my regular practice; still, I don't like giving up! Soon enough, I was taking my first flight to London to meet Dr Roger Harding, enrolling in both Diamond Diploma and Preliminary Gemmology (now called Foundation) courses. I also met the late Michael O'Donoghue and joined his 'member's meeting evenings' on Wednesdays, practicing gem testing with likeminded people (most of whom were also mineral collectors and crystallography enthusiasts). Although it feels so far always now, 1998 was a busy year. I successfully completed my MSc thesis on 'Diaspore from Turkey' and passed my diamond and gemmology diploma exams, therefore earning both the FGA and DGA. The very same year, I was granted a position and, with the help of Dr Sayılı, I set up a gem testing laboratory in the Geoengineering Department in Ankara University. The lab opened in 1999 and we started teaching basic gemmology to interested undergraduates.



Dr Lüle works on colour grading – a task vital to the practice of gemmology and one that feeds into her passion for colour.



Dr Çiğdem Lüle with the many diplomas she earned in pursuit of a career in gemmology.

I had already set my heart on looking into ancient gems after listening to a lecture by Lisbet Thoresen at a conference in London in 1997. One thing I was sure of was that my PhD research had to explore a potentially archaeogemmological subject, which turned out to be a lifelong obsession of garnets, one of the most complicated minerals and enigmatic gemstones. I began my doctorate studies in 1999; while they took longer than anticipated, they allowed me the privilege to work in the Ashmolean Museum of Oxford with Dr Michael Vickers, along with months of gem testing opportunities at the Natural History Museum of London.

My involvement with archaeogemmology has not only created a new perspective in my research; it has also become my mission

The magical feeling of handling those gems, each thousands of years old, where they are found cannot be put into words.

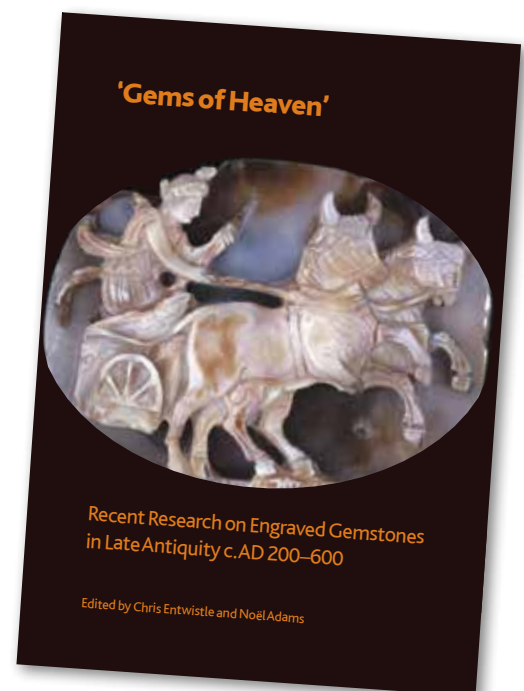
to endorse gemmology as an important discipline to aid archaeology. My approach is to combine non-destructive testing abilities of gemmology and modern mineralogical research analyses to establish a form of 'ancient country of origin' on archaeological gem findings. In an ideal world, this would have been a wonderful academic subject to study; yet it remains inconsequential, perhaps due to lack of both funding and financial reward. Nonetheless, I take every opportunity for archaeogemmological research – all self-funded – and I spread the word and invite other researchers to study it as well. In this capacity, I was delighted to be one of the authors to contribute to *Gems of Heaven: Recent Research on Engraved Gemstones in Late Antiquity* published in 2012, in which the first chapter that I wrote stands as the first scholarly description of archaeogemmology as a multidisciplinary subject. I also co-authored another chapter on garnets in the same book.

My latest project was with an international team led by Harvard University that has been excavating the ancient city of Sardis, in western Turkey, for many decades. I mentored an archaeology PhD student who is writing his thesis on ancient gems of Sardis from the Bronze Age through the Byzantine era. The magical feeling of handling those gems, each thousands of years old, where they are found cannot be put into words.

In the middle of my PhD studies in 2001, I moved to London with the hope of

joining a museum as an academic. But life treats one differently when salary is a consideration. Soon after, I knew that a career as a mineralogist or a museum curator was a distant dream. My gemmology diplomas and love for gems meant one thing: I was destined for a job as a gemmologist in Hatton Garden, the heart of British diamond and jewellery trade for centuries. The next two years at R. Holt and Co. proved to be one of the best experiences of my professional life. That was my first true exposure to the industry, and it allowed me to witness the very soul of gemmology. I was fascinated at how so ancient a trade remained the same for thousands of years, yet created a profession based on ever-evolving science. After all, gemmology relies on the gem trade to survive. In return, it provides knowledge so everybody in the industry can benefit. Those two years were a reality check that, in my opinion, every gemmologist should experience.

While I enjoyed interacting within all levels of the gem industry and gem testing on a regular basis, selling was not my forte. I missed being in the classroom and studying. When the opportunity of teaching came along, I was ready to take another step. I joined GIA's London campus in 2004 as the distance



*Dr Lüle's contribution to the book *Gems of Heaven* is the first scholarly description of archaeogemmology as a multidisciplinary subject. Photo courtesy of the British Museum Press.*

education coordinator. After earning my Graduate Gemologist diploma in 2005, I taught gemmology classes for GIA until 2010. My six years with GIA provided wonderful networking and travel opportunities. I am confident that the networking is the second-most important factor in a gemmologist's career, after non-stop learning.

Living and working in London came to an end in the summer of 2010, when I moved to the United States to explore other gemmological interests. I joined the Gemworld International team in 2011 to develop and teach gem-pricing workshops. My dream of creating my own teaching environment where I delivered hands-on experience to the participants was finally realized thanks to Richard and Susan Drucker, the owners of Gemworld International, which publishes the GemGuide. I not only have implemented the pricing classes there but also worked in market research and writing. I have travelled many countries, given lectures and worked on the World of Color communication system, which allows professionals to grade and describe coloured gemstones with greater accuracy, as an advisor. My research on during this project continued after its publication in 2016 and expanded to consulting on another system called ColorCodex, a reference system developed by Christopher Smith in 2018. Needless to say, colour in gemmology has become another passion of mine.

I have made significant efforts to connect with other gemmologists and researchers outside of professional obligations. All these efforts have flourished into priceless friendships and unforgettable events as all the people in this world shared the same passion. Given the fact that the science of gemmology is relatively young, the rock stars of this subject are very approachable and welcoming.

Given the fact that the science of gemmology is relatively young, the rock stars of this subject are very approachable and welcoming.



Dr Çiğdem Lüle is working on gem identification with PhD student Gencay Öztürk at the excavation house in Sardis, Turkey. Photo by Jivan Güner. Courtesy of @Archaeological Exploration of Sardis/ President and Fellows of Harvard College.

They also agree with the notion of sharing knowledge at any given opportunity and being supportive of anyone who would like to do so. I remember giving a lecture in Edinburgh in 2007 for the Scottish Gemmological Association. The late Catriona McInnes, whom I adored and miss very much, treated me like a family member while I was there and made me realise that such support was vital in our industry. Not only Catriona and her husband John, but also the other members of the SGA, later became close friends. Today, I am humbled and proud to count Alan and Charlotte Hodgkinson among my friends amongst all long-time SGA members, so much so that serving on the SGA Committee is a privilege. However, the highest honour was to be given the Catriona McInnes Medal of 2019, which I share with Stuart Robertson, the vice-president of Gemworld International and the Research Director of the GemGuide.

Sharing my passion and knowledge on gemmology is the reason that I am an active member and one of the board of

governors of the Accredited Gemologists Association. My very first lecture to this group – on archaeogemmology, at the AGA 2010 Tucson Conference – was so well received that I instantly felt of the association. Since then, I have never missed an AGA Conference, nor have I missed an opportunity to meet or build relationships at AGA events with gemmology giants such as James Shigley, Al Gilbertson, John Koivula, Richard Hughes or countless others. Today, as the co-chair of the AGA Conference Committee and the chair of the Webinar Committee, I take my turn to humbly pay it back to the membership for bestowing me the Bonanno Excellence in Gemology Award of 2016.

My sense of exploring further in gemmology has never stopped. Gemmology is the reason for what I do with passion on a daily basis. Today, I have my own independent appraisal practice in Northwest Chicago providing mineral, gem and jewellery valuation; gem and mineral consultation; and tailored gemmological education. I learn something from each person with whom I interact, whether they are a colleague, student or client and am grateful for it. I indulge myself with archaeogemmological research whenever I can afford to do so. It is my mission and will never be a business. Although well more than four decades have passed, I still feel that little girl in me fascinated by the salt crystals under magnification whenever I look at a gemstone. ■

2022

Bold, Bright Colours Everywhere

Preparations for the new year found traditional influencers on the gem and jewellery industry embracing vibrant, striking colours. Nicole Ahline FGA discusses these sources and the gemstones that respond to this call.

Boldness is defined as 'a willingness to take risks and the quality of having a strong, vivid or clear appearance'. It is a word many of us should know, as 2022 will find the world hitting restart and approaching life with an unapologetic boldness. Each year the Pantone Color Institute and the major fashion houses choose colours that then allow the gem trade to know what will draw the attention of wholesale buyers and retail clients. The bright and vibrant hues established as *de rigueur* at the start of this year – including but not limited to the periwinkle with red-violet undertones that was introduced by Pantone to represent 2022 – have made any number of boldly coloured gem materials an excellent choice for the savvy buyer.

In response to the lockdowns of the past two years, the fashion world is



The cut of this rose quartz cabochon allows a six-ray star to occur in the dome of the stone. Photo by Robert Weldon/GIA, courtesy of Gordon Bleck.



Colour swatch for Very Peri (Pantone 17-3938-TCX), Pantone's 2022 'Color of the Year'. Reproduced from RGB values given at https://connect.pantone.com/-/info/17-3938_TCX?tab=info

encouraging us in the direction of vivid, vibrant connection and conviviality. In the Spring/Summer 2022 shows, designers dressed their models in multiple shades of yellow and a variety of greens and blues. Bright pinks and purples and pinks were also prominent. In turn, they accessorised with a goal: To be seen by everyone attending. Bright colours were a necessity and they did not go unnoticed, whether it was Dior's upbeat orange handbag or Yves Saint Laurent's adornments of bright blue and magenta jewels.

The accessories used by YSL, as it turns out, were on target for the overarching colour theme for 2022. Since 2000, the Pantone Color Institute has announced a 'Color of the Year', which subsequently impacts the marketing and development of products in numerous industries, including the gem trade. →



This image shows twenty-one different trilliant-cut gemstones in a variety of colours. From left to right: 19.50 ct apophyllite, 19.97 ct morganite, 33.19 ct rubellite tourmaline, 43.86 ct rubellite tourmaline, 9.67 ct garnet, 29.58 ct spessartine garnet, 17.01 ct fire opal, 30.82 ct sphalerite, 27.36 ct citrine, 27.30 ct fluorite, 24.52 ct orthoclase feldspar, 15.26 ct green tourmaline, 25.27 ct fluorite, 17.91 ct tourmaline, 50.97 ct fluorite, 22.41 ct tanzanite, 14.43 ct apatite, 15.41 ct blue topaz, 44.84 ct fluorite, 38.80 ct amethyst and 26.08 ct amethyst. From the Roz & Gene Meieran Collection. Photo by Robert Weldon/GIA.



Rough spodumene crystal weighing 217.84 g from Brazil and a faceted spodumene (kunzite) weighing 44.86 ct from Madagascar. Photo by Robert Weldon/GIA.

lavender jadeite in the trade, the purple hue can be light or saturated in colour and can have modifiers of pink or grey.

Gemstone species can be separated into varieties, which are defined by the stone's colour, phenomenon, or transparency. Kunzite and amethyst are two gemstones that are two varieties that are separated on colour alone. Kunzite is the light-pink-to-bluish purple variety of spodumene; amethyst, a type of quartz, comes in light-to-dark purple. Both gemstones come in a range of saturation, but they both have colours that can match Very Peri.

Tourmaline is another species that, like jadeite, comes in numerous colours, including a shade similar to Very Peri. Tourmaline is known for its bright and eclectic hues, making it a perfect choice to adorn oneself this year. Their pinks and greens are lively and can equally

The colour chosen for 2022, Very Peri (Pantone 17-3938-TCX), is intended to invoke the idea of new perspectives and potentialities in our current landscape. Laurie Pressman, vice president of the Pantone Color Institute, stated that "As society continues to recognise color as a critical form of communication, and a way to express and affect ideas and emotions and engage and connect, the complexity of this new red-violet-infused blue hue highlights the expansive possibilities that lay before us." The world has been hopeful, with people preparing themselves to celebrate progress and good news. At the same time, they recognise that what was previously accepted as 'normal' has changed. Instead, we should look towards cultivating happiness and making the most of opportunities presented to us. Pantone wants Very Peri to forecast how bright the future looks for all of us.

How do these two worlds impact the gem trade? For thousands of years, jewellery has been used to convey one's voice or feelings. It has transformed from a way one could define their social standing to a way for anyone to express their own individuality. To adorn one's self in bright colours, or Pantone's Very Peri, is simply to reinforce the idea that we are all ready to shake things up, to express the yearning to go outside the limits of the past two years.

With well over 140 gemstone species coming in all the colours of the rainbow, there are many possibilities for articulating these feelings. Jadeite jade is a gem that in and of itself comes in a number of colours. The material is known for its exceptional toughness and in 2022, we have proved that toughness is a quality we needed in vast amounts. Jadeite comes in many shades, from green to yellow to purple. Known as



Shown here are eighty-one rough crystals (weighing 69.38 carats) of untreated cuprian tourmaline from the Batalha mine, Sao Jose da Batalha, Paraiba, Brazil. Robert Weldon/GIA, courtesy of Brian Cook.



Left: Apatite necklace created by Karyn Poblocki. Photo by Jessa Rizzo, courtesy of Jennifer-Lynn Archuleta.



Right: Three faceted peridot from the Dr. Eduard J. Gübelin Collection. Oval mixed cut weighing 10.09 ct, round-brilliant cut weighing 8.13 ct, and emerald cut weighing 19.45 ct. Photo by Robert Weldon/GIA.



Burmese translucent lavender jadeite beaded strand necklace and ring. Photo by Emily Lane/GIA, courtesy of Jade by Nikolai.

match the saturation seen in the much-loved Paraíba variety of the gemstone. Paraíba is a trade name for tourmalines that are vivid blue-to-green and coloured by the element copper. The gemstone is named after the location from where they were first discovered: Paraíba, Brazil. Since then, tourmalines with similar colouration have been mined from Mozambique and Nigeria.

Electrifying blue and green hues are not limited to tourmaline. Apatite and peridot are two stones that are as eye catching as they are vibrant. These two colours perfectly capture distinct aspects of the outdoors that many people longed for over the course of the pandemic: Apatite encompasses the bright blues

of the open sky, while peridot green stands in for the sturdy ground we walk on.

Purple was seen in the work of many designers. While amethyst is perhaps the best-known purple gemstone, purple sapphires are also popular. Sapphire is, of course, one of the two varieties of the gem species corundum, many people associate 'sapphire' with a blue hue. It is important to note that sapphire comes in all colors but red — such red gemstones are rubies, the other variety of corundum. For those who prefer not to wear jewellery, many gemstones can be carved or made into *objets d'arte*, and jadeite and amethyst may both be used in this fashion. An alternative stone for fans of purple is charoite, which forms in a dynamic shade with swirls of black.

A colour also present on the catwalks for the season, and commonly associated with kindness and love, is pink. Rose quartz


is known to be both inexpensive and easily found in a wide range of sizes. Furthermore, rose quartz is one of the gemstones that can portray phenomena, an optical effect caused by inclusions or chemical structure. When rose quartz contains fine, orientated inclusions and is cut appropriately, asterism can occur, a pleasing effect in jewellery or collectors' specimens.

The plan for the year ahead, based on the efforts of the Pantone Color Institute and the designers of the fashion world, is for us to wear our most vibrant emotions on our sleeves — and our fingers, ears, necks and wrists. Starting with the Spring/Summer 2022 Fashion Week (in early autumn), followed by Pantone's creation of Very Peri as the 2022 Color of the Year, we have received a call to boldness. We are lucky to belong to an industry where so many gemstones make it incredibly easy to answer that call. ■



Top: Two charoite carved cups. Photo courtesy of GIA. Bottom left: An amethyst ring surrounded by demantoid garnets and diamonds. Photo by Emily Lane/GIA. Bottom right: A 9.16 ct purple sapphire from Sri Lanka in the Dr. Eduard J. Gubelin Collection. Photo by Robert Weldon/GIA.

To adorn one's self in bright colours is simply to reinforce the idea that we are all ready to shake things up.



A carbonado originally called the Enigma is the largest cut diamond in the world to date. The fancy black diamond, weighing 555.55 ct, was sold at auction by Sotheby's for £3,161,000 on 9 February 2022 and renamed the Hex.com Diamond.

THE CUT OR THE STONE?

In February 2022, Sotheby's auctioned the largest cut diamond in the world. The fancy black specimen is a carbonado diamond, long known for its industrial applications rather than as a gem material. Beth West FGA DGA EG considers the characteristics of this particular diamond and what makes it such a remarkable piece.

On 9 February 2022, a 555.55 ct faceted fancy black diamond called the Enigma sold at Sotheby's as part of the RE(LUX) Luxury Sale Series for £3,161,000. Paid for in cryptocurrency, which Sotheby's has been accepting for payment since the summer of 2021 (see Summer 2021 *G&J*, pp. 18-19), ownership was later claimed by American entrepreneur Richard Heart, who renamed it the Hex.com Diamond in honour of his blockchain certificate of deposit project. Regardless of its name, it is, as of February 2022, unsurpassed as the largest cut diamond in the world.

It is not, however, cut and polished like any other diamond. For one thing, the stone's abstract design is known to be inspired by the *hamsa*, a Middle Eastern amulet representing the hand of God and intended to protect the wearer. *Hamsa* comes from an Arabic word meaning 'five', referencing not only the number of digits on the hand, but the five books of the Torah (Genesis, Exodus, Leviticus,

Numbers and Deuteronomy) as well as 'Hē', the fifth letter of the Hebrew alphabet and a representation for the name of God. It also calls to mind the Five Pillars of Islam for Sunni Muslims, and the five *Ahl al-Bayt* ('People of the Household', as the members of Muhammad's family are called) for their Shi'ite counterparts. It is a symbol that extends across faiths. Yet while the inspiration for the Hex.com Diamond's design is known, the identity of the person or persons who cut those fifty-five facets into the rock has not been publicised.

Intended or otherwise, such modesty is laudable; it has an overtone of 'let the artist die so we can possess the work'. But with a diamond like this one, the very feat of faceting, rather than the specimen itself, is the real story here.

The diamond formerly known as the Enigma is a carbonado. The name of this variety derives from the Brazilian word for charcoal. Carbonado is an extraordinary material. Polycrystalline in nature, meaning it is composed of minute crystallites of

diamond as well as other phases of carbon and guest minerals, it is one of the toughest known materials on earth.

This extreme toughness has been carbonado's selling point since its discovery in Brazil in 1841. Abundant, with some 70,000 carats produced in the late nineteenth century, the carbonado was an industrial workhorse, used for polishing and drilling. By the turn of the century, it was more valuable than gem diamond because its porous construction allowed for the many exposed micro-diamond points to be re-employed for precision-cutting applications.

Carlton Dodge is a physicist and engineering manager at Element Six, a member of the De Beers Group that specialises in the production of synthetic diamond advanced materials. According to Dr Dodge, "Carbonado was much sought after for industrial applications since it is a natural form of sintered (fused and intergrown) fine grain polycrystalline diamond, which is, as a result, much tougher than single crystal...

It was one of the few sources of 'tough' diamond until readily commercial synthetic alternatives became available."

At its most fundamental, the carbonado is an industrial material, not a gemstone. We celebrate the Cullinan, at 3,106 ct, as the biggest diamond crystal ever mined, but there was one bigger: a carbonado, found in 1905, the same year as the Cullinan. Named 'Sergio', this Brazilian black specimen was 3,167 ct, but it was sold and broken up to be used as industrial diamond drill bits. What, then, is remarkable about the Hex.com Diamond?

The angle used by the press to promote its sale is the carbonado's potential extraterrestrial origin, which would certainly be newsworthy. It is not proven, however, that this is how the material formed. What we do know is that carbonado diamond does not seem to have any features consistent with terrestrial formation. Isotopically, it is unmatched to any carbon-based material we know to have formed on or in the Earth. Its structure cannot be explained by the high-temperature and high-pressure environments that create conventional diamonds, and it is the host to other minerals that do not tally with these environments either.

According to Dr Stephen E. Haggerty (Florida International University), the scenario for cosmic formation is as follows: During the 'Late Heavy Bombardment', itself a hypothetical event thought to have occurred around four billion years ago, the Earth was showered by diamond-bearing meteorites. The majority fell into the extensive oceans flooding the young planet, but some hit a deeply rooted area of continental crust called the Congo-São Francisco craton, located in the southwest of the supercontinent Rodinia. As millions of years passed, this land mass split and became separated by the



Left: The Congo-São Francisco island in southwest Rodinia, at approximately 1.1 billion years ago (Ga), is the only known site of carbonado that was originally deposited ca. 3.8 Ga on a possibly even smaller cratonic island. Right: Rodinia eventually separated, and the carbonado deposit split into two sites that were separated by the modern-day Atlantic Ocean. Today, carbonado diamonds can only be found in Brazil and the Central African Republic (indicated in red). Illustration from Haggerty (2017).

Atlantic Ocean, with one section forming what is now known as Brazil and the other piece of the jigsaw puzzle tucked into the African continent, underpinning the current Central African Republic. These two countries are the only two known origins for carbonado.

The angle used by the press to promote its sale is the carbonado's potential extraterrestrial origin...

It is a romantic notion — and a great story to spin to sell a diamond. But in fairness, we could romanticise most of nature's creations. Very few naturally formed materials are anything less than remarkable. Consider marble and

its creation story. This decorative rock was born out of the metamorphosis of the ancient limestone seabed when it was pushed into the Earth as the supercontinents shifted. But when we speak of one of Michelangelo's majestic sculptures, it is not the marble we are in awe of, it is the angel he released from the stone. Upon reflection, we must concede that the marble itself, as geologically fascinating as it may be, it is not particularly aesthetically appealing until it has been modified.

The same can be said of the carbonado diamond formerly known as the Enigma. We cannot forget that this specimen has been elevated to such revered status because it has been cut and polished. The fifty-five free-form facets that were fashioned into the stone's 555.55 carats to create a chiaroscuro of light and dark across its surface reflect the cutter's talent, and this should be celebrated. The Hex.com Diamond is a sculpture imbued with meaning, as well as a tangible energy. It is a work of art independent of the material it was made from. It is a work of art because of the hand that fashioned it... whoever that may be. ■



Rough carbonados from the Central African Republic (left and centre) and Brazil. Photos by Orasa Weldon, GIA Collection Numbers 40108-40119; gift of Stephen E. Haggerty.



**SIXIÈME SENS PAR CARTIER:
HIGH JEWELRY AND PRECIOUS OBJECTS**

By François Chaille, hardcover, 256 pp.,
illustrated, publ. by Flammarion,
Paris, France, £85.00.

Sixième Sens par Cartier:

High Jewelry and Precious Objects

Reviewed by Nicole Ahline FGA

To cultivate an understanding of the world, human beings typically rely on their five senses: taste, smell, touch, sight and hearing.

These senses are all external systems. But what if there is an internal system that guides humans to what they desire? The new collection by Cartier, *Sixième Sens* ('sixth sense' in English), is designed to convey just that notion. *Sixième Sens par Cartier: High Jewelry and Precious Objects*, with text by art historian François Chaille, is a stimulating journey through pieces that were designed to emit a response from one's heart.

Chaille eloquently describes why the heart's response is equally as important as the five senses and argues that '...we favour it over the impressions that our 'outer' senses give us of the rationally of the external world'. The sixth sense has often been linked with intuition, but Chaille explained that the heart is really the driving force behind that feeling. He pointed out that the heart can be stimulated through artistic creation; when allowed to act freely, without reservation, we come to have a better understanding and love for the world around us. Cartier's objective with this collection is to provide the wearer with an opportunity to awaken this sense within themselves. The high jewellery and precious objects designed to reflect this sensation are on full display throughout this book.

While the collection is split through the book's three sections – Dizzying Senses,



1: The name of the Alaxoa necklace derives from a Nahuatl word for 'caress'. Platinum, thirty oval-shaped emeralds from Zambia totalling 23.05 carats, emerald beads, square-shaped and baguette-cut emeralds, brilliant-cut diamonds. Photo by Iris Velghe.

Beyond Compare, and Animal Instinct – the entire collection itself is shown in all stages of production, from coloured sketches and fabrication to final pieces.

In *Dizzying Senses*, Cartier's lavish history with colour is discussed. In the 1910s, Jacques Cartier, founder of Cartier London, went on an excursion to India to increase his knowledge of their precious stone market. He was captivated by the cutting of stones

according to the tradition of the Mughal emperors. They inscribed the stones with poetry or carved them to represent an object; for instance, emeralds as leaves or rubies as berries. Jacques Cartier brought this tradition back with him to his jewellery house, where they created enchanting pieces of jewellery with carved emeralds, sapphires and rubies paired with diamonds that is known today as 'Tutti Frutti'.



2: The Meride necklace: White gold, three square-shaped brilliant-cut diamonds totalling 7.69 carats, princess-cut diamonds, onyx, rock crystal and brilliant-cut diamonds. Photo by Iris Velghe.

Through the 1920 and 1930s Cartier was a leading high-end jeweller. Art deco dominated by 1925 and the maison represented it well. High-profile women from around the world were in awe of Cartier and hastened to be a customer. From the Vanderbilts to the then-queen of fashion, French socialite Daisy Fellowes, Cartier was worn wherever one looked.

In 1933, Jeanne Toussaint was appointed the creative director at Cartier and brought with her a luxuriant style. She believed jewellery had to mesmerise the senses by telling a story. Cartier continued to reach new heights with their pieces with the use of colour and design that was groundbreaking for women.

The maison is no stranger to using coloured gemstones but the ability to transform them into jewellery that begs

The striking contrasts of material and colour stepped away from harmony and into a world that was meant to surprise.

to be touched is the real artistic creation. The Sixième Sens collection now includes the Tutti Frutti arrangement, along with other dazzling combinations of stones in both traditional and unique cuts set in jewellery created to amaze us.

The Udyana and Pankha jewellery are in the traditional Tutti Frutti style with the use of emerald, sapphire, ruby and diamonds. *Udanya* is the Sanskrit word for 'garden' so it shouldn't be a surprise that the pieces were created to transcend the patron to that piece of paradise. The Udanya design comes in a platinum ring, combination necklace, earrings and a watch. The pieces are all adorned with emeralds carved as melons, rubies as berries and flower petals with carved sapphires and faceted diamonds are placed throughout. All are designed to transfix the senses to believe they are hearing the movement of branches from the wind or smelling the ripe fruit that is ready to be tasted. All this is imaginable due to the power of the heart.

While jewels like the Udanya group were generally created to captivate all five of the internal senses, there were pieces that were stimulating to one sense. When it comes to fashion, it is best to be mindful of the sensation of touch.

The texture of an item or its heft are just a few characteristics that designers account for in the manufacturing process. This, of course, applies to jewellery as well.

Aloxo means "caress" in Nahuatl, an Amerind language, which is a fitting

3: Cartier's Phaen ring is wonder of design. Platinum, one 8.20-carat cushion-shaped ruby from what was then known as 'Siam', one 4.01-carat cushion-shaped rose-cut diamond, ruby beads and triangular-shaped diamonds brilliant-cut diamonds. Photo by Maxime Govet.





4: The influence of the big cats, such as panthers, on Cartier can be seen in the colours chosen for the Pixelage necklace: yellow gold, three rectangular-shaped topazes totalling 27.34 carats, onyx, brilliant-cut yellow, orange and white diamonds. Photo by Iris Velghe.

name for this emerald necklace that was designed to be touched **(1)**. The shape is influenced by neckties; it is fashioned with thirty oval Zambian emeralds with a total weight of 23.05 carats as well as emerald beads, squares and baguettes with diamonds. The vibrant-green colour mixed with the arrangement of diverse textures set in platinum bewitches the hand to indulge in its senses.

The Sanskrit word for 'sugar' is Sharkara, the ideal name for Cartier's art deco-styled necklace that is set with seven rectangular tourmalines in various shades of pink with a total weight of 37.29 carats surrounded by diamonds,

garnets, and sapphires by recalling the tastes of sweet treats.

The next section of the book, Beyond Compare, discusses the impact abstract art has on the sixth sense via perception. Louis Cartier, head of Paris Cartier in the early 1900s, is known for his innovation in abstract jewellery design. His graceful 'garland style' lacework in platinum and diamonds was defined as groundbreaking, with its use of geometrics and interplays of line and forms. Platinum, which Cartier started using in 1899, allowed the maison to bring more light and delicacy to their pieces, which only aided in their success.

From the success of the garland style, Louis Cartier dove deeper into the idea of abstraction, leading to the art deco style that Cartier became known for in the 1920s. The striking contrasts of material and colour stepped away from harmony and into a world that was meant to surprise. A world that was guided not by our five external senses but by our hearts and our intuition. Cartier continued to create masterpieces that entrance the gaze. In the Sixième Sens par Cartier collection, light and sight continue to be electrified.

This is apparent in the Meride necklace **(2)**. The alluring piece is named is derived from Lake Moeris in Egypt, which is where the first labyrinth was located according to the ancient Greek historian Herodotus. A labyrinth in this instance is a complex construction of tunnels, alleyways, or passages, and the Meride is just that. The centremost point of the necklace is three square-brilliant-cut diamonds with a total weight of 7.69 carats. As one gazes along the necklace, the irregularity of the surface is only enhanced with the use of black onyx, diamond and rock crystal. The optical effect of the piece isn't simply on the surface; flip it over and the reverse is a perfect mirror image of the front.

The Phaen ring **(3)**, another monument to Cartier's appeal to the senses, required dedication and expertise to create the final concept. The maison desired to showcase an 8.20 ct cushion-shaped ruby from Thailand but with more intensity. After a long study, a design was created that was complex, but the objective was achieved. Set below the ruby is a 4.01 ct cushion-shaped rose-cut diamond that becomes the heart of the ring. As light enters the

Numerous women – heirs to wealthy families, fashion models and women of status – were on the hunt to be adorned with Cartier's creatures.



5: *The White Nelumbo brooch is one example of Cartier's dedication to diversity in gem materials. White gold, sculpted nephrite jade, one 1.05 ct briolette-cut Fancy Brown diamond and one 0.30 ct pear-shaped pink diamond. Photography by Maxime Govet.*

diamond and refracts, it reflects up through the ruby, increasing its colour and brightness. The uniqueness of the design gives an impression of life to the ruby, created by the ring's 'heart'.

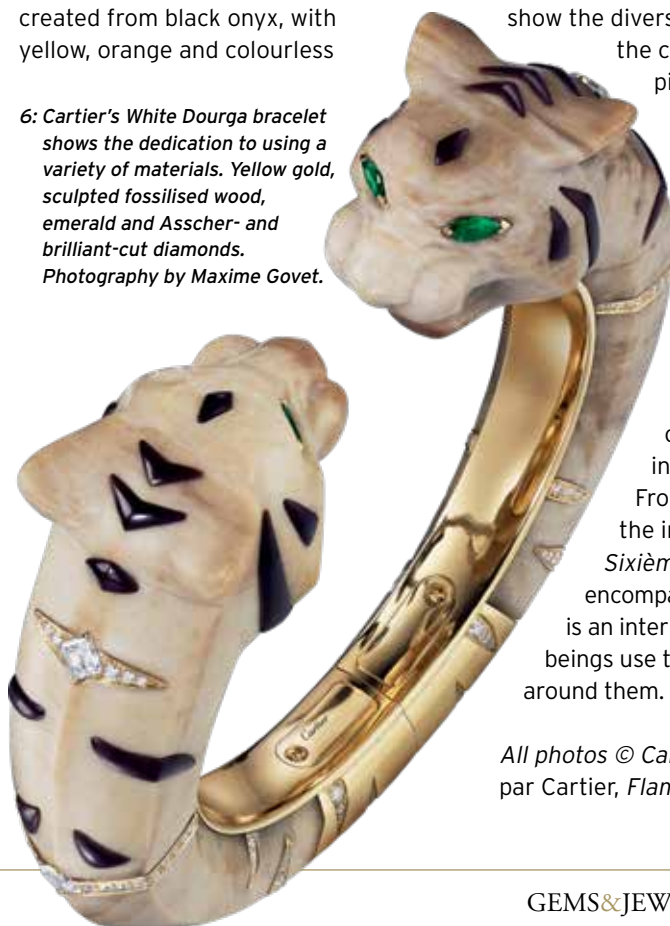
The last section of the book is Animal Instinct. Chaille discusses how an animal uses its inclinations to make decisions; this functions much like intuition in humans. Louis Cartier and Jeanne Toussaint favoured the designs of reptiles and big cats in their pieces. In 1914, the first panther pattern, created out of black onyx was designed for a wristwatch.

Toussaint did not want the animal designs to be simplistic; it was her intention for them to represent independent and bold women. She wanted them to be full of life and movement. Wallis, Duchess of Windsor, ordered one of the first panther brooches from Cartier in 1948. The panther was created in black and gold enamel, perched upon a 116.74 ct cabochon-cut emerald. The following year she requested another of the same design. This time the panther was created out of platinum and sapphires, perched upon a 152.35 ct cabochon-cut Kashmir sapphire. In her wake, numerous women – heirs to wealthy families, fashion models and women of status – were on the hunt to be adorned with Cartier's creatures. In response, the maison's continued creation of the reptiles and big cats have brought new

and intricate pieces. The Sixième Sens collection has both organic and graphic arrangements of these animals; traditionally, black onyx has been placed throughout these pieces.

The Pixelage necklace is a fine example of the interpretation this collection had of the big cats (4). Three yellow rectangular topazes with a total weight of 27.34 carats are set running down the centre of the necklace. The panther's spots are created from black onyx, with yellow, orange and colourless

6: *Cartier's White Dourga bracelet shows the dedication to using a variety of materials. Yellow gold, sculpted fossilised wood, emerald and Asscher- and brilliant-cut diamonds. Photography by Maxime Govet.*



diamonds all set in yellow metal that is barely noticeable. The artisanship achieves the fierceness of the panther along with its beauty. The Pixelage necklace has matching earrings (not shown).

The one thing that is truly notable in the serpents and cats seen in this collection is the variation in the portrayal of each in the parure and individual pieces. The artisans used coral cabochons for the body of the serpent in the Khepri set. The Nagendra pieces depict a serpent created out of diamonds accented with emeralds curled around an Australian opal. The scope of it all is astonishing.

The diversity does not stop with just the concepts but also the stones used. The maison incorporated various types of gemstones in its pieces, such as aquamarine, peridot and chalcedony, all to have an impact on the wearer's senses. The Sixième Sens collection itself has range from traditional sets to evening bags, tiepins, and hair jewels. Two perfect example of this diversity of material are found in the White Nelumbo brooch and the Dourga bracelet. The former (5) is sculpted out of nephrite jade. Hanging from it is a 1.05 carat Fancy Brown diamond and a 0.30 carat pear-shaped pink diamond set in white gold. In the latter piece (6), a tiger is sculpted from fossilised wood and set with emeralds and diamonds with yellow gold. The range of just these two pieces show the diversity of this collection and the choices one must find a piece that speaks to them.

The description of the pieces are not lost on the reader even while immersed in the sumptuousness displayed on the pages of this book. Chaille details pieces in ways that captivate the sensations that this collection intended to invoke in their clientele.

From start to finish, the images and words of *Sixième Sens par Cartier* truly encompass the idea that there is an internal sense that human beings use to interpret the world around them. ■

All photos © Cartier from Sixième Sens par Cartier, Flammarion 2022.

Looking Back at Gems&Jewellery

A overview of some of the stories that *G&J* has delivered to our readers over the years.

Gems & Jewellery was first published in 1991 as a joint effort between the Association and the Society of Jewellery Historians. Originally called *Gem & Jewellery News*, it evolved over time from a newsletter to Members to the more traditional magazine format we know today, with dedicated sections, cover photos and full-colour images throughout the magazine.

Over the past 30 years, *G&J* has been dedicated to keeping Gem-A's Members abreast of industry matters by running articles of historical interest, retail topics, book and museum reviews, and other information that would be of interest to people across the gem trade. Here is a summary of *G&J*'s past articles.

Five Years Ago...

Spring 2017 (Vol. 26, No. 1):

In addition to covering the Tucson Showcase, this issue includes a discussion of the steps necessary to increase Malawi's presence in the coloured gemstone trade, a review of natural vs. enhanced lapidary material in the market and look at George Balanchine's gemstone-inspired ballet, *Jewels*, on its fiftieth anniversary. The cover image shows strongly pleochroic dumortierite crystals and fragments arranged in a plane representing a former crystal surface of the host rock crystal, ('phantom'), an irregular-shaped polished sample weighing 25.55 ct. Magnified 110x, darkfield illumination, parallel polarisers. Photo by Michael Hügi FGA.



can contain lead concentrations of more than 0.05 per cent by weight' (with exceptions, which are listed), impacting the legality of glass-filled rubies in the continent. Other content includes a description and background of the Holy Kingdom Ring – a men's ring designed to use the twelve gemstones mentioned in the Book of Revelation – as well as a look at the diamond world a hundred years prior to the magazine's publication. The cover photo, of a group of glass-filled rubies, was taken by Jack Ogden.

Fifteen Years Ago...

April 2007 (Vol. 16, No. 1): The cover photo of this issue shows a Castellani mosaic necklace and brooch set with steatite faience scarabs. It references the record-breaking auction of Castellani and Giuliano jewellery that took place on 6 December 2006. A combined collection of 150 pieces by the Italian goldsmiths raised \$7,400,800 (\$10,440,760 or £7,875,204 in today's currency). The issue also featured a history of alexandrite, a review

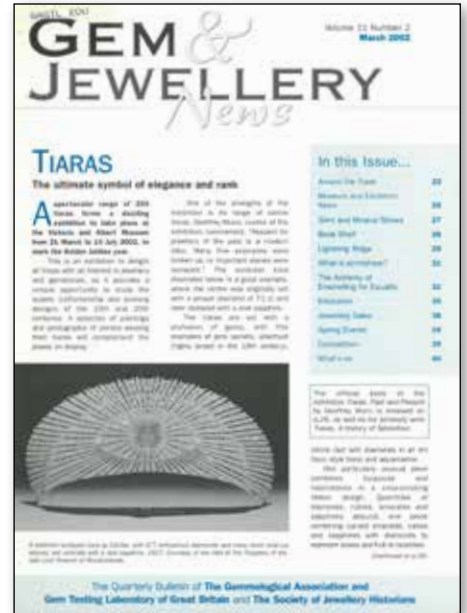
Ten Years Ago...

March 2012 (Vol. 22, No. 1): The issue's lead article, by Jack Ogden, reflects on how European lead regulations enacted to protect children led to a ruling that 'no jewellery component



of 'guillotine jewellery' (a trend stemming from the French Revolution) and an update on beryllium treatment of corundum. Cover photo courtesy of Sotheby's.

Twenty Years Ago...



March 2002 (Vol. 11, No. 2): The cover of our first issue of 2002 discussed *Tiaras, Past and Present*, an exhibition held at the V&A Museum to mark the Golden Jubilee Year. Written by Mary Burland (whose obituary is featured on p. 7 of this issue), the article highlights two of the 200 tiaras found in the exhibition while also calling out some of the materials used in these stunning ornaments. The issue also includes a review of the book that accompanied the show, also called *Tiaras, Past and Present* written by exhibition curator Geoffrey Munn. Our readers also learned about the Danish Amber Museum, located in Oksbol, Denmark; mining activity at Australia's Lightning Ridge opal deposit; and an exhibition called 'Enamelling for Equality' which details the connections between women's suffrage and this fine art. The photo on the first page is of a platinum sunburst tiara by Cartier ca. 1927, with

577 brilliant-cut diamonds and many more rose-cut stones and set centrally with a star sapphire. Photo courtesy of the V&A © The Trustees of the late Lord Howard of Henderskelse. ■

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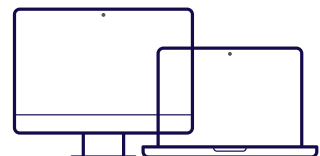
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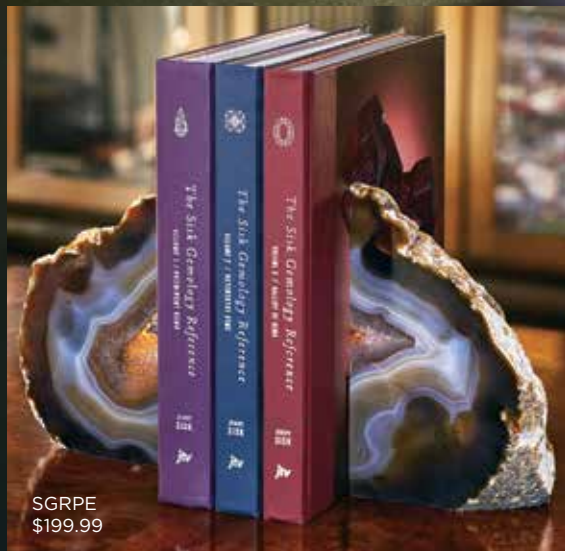
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