

# Gems & Jewellery

Autumn 2022 / Volume 31 / No. 3

UPDATE ON THE  
AUSTRALIAN  
OPAL INDUSTRY

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WORLD'S LARGEST  
GEM-GRADE RUBY

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TRAVEL THAT  
BENEFITS EAST  
AFRICAN GEM  
MINERS

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MOURNING  
JEWELLERY AND  
THE ROYAL FAMILY

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**Gem-A**  
THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN



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# Gems & Jewellery

AUTUMN 2022

## PLAY-OF-COLOUR FROM DOWN UNDER

A look at the factors affecting the Australian opal industry and how some players in that market are facing those challenges.



## LARGEST GEM-GRADE RUBY UNEARTHED

The impact and relevance of the *Estrela de Fura*, the world's largest ever gem-quality ruby which was discovered in July in Mozambique.



## MOURNING JEWELLERY

With the passing of HM The Queen, we examine the protocols that the women of the Royal Family followed regarding their jewellery.

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### COVER PICTURE

Our cover photo shows a pendant featuring a boulder opal from the Queensland opal fields displaying dramatic play-of-colour. Photo courtesy of Opal Minded.

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# Gems & Jewellery

## Autumn 2022 Edition Featured Contributors



### 1. RACHEL CHURCH

Rachel Church writes and lectures widely on jewellery history and design. She is the author of *Rings* (2011 and 2017) and *Brooches and Badges* (2019), alongside many shorter articles and contributions to catalogues. She worked as a curator at the Victoria and Albert Museum for over 20 years and was part of the team which redeveloped the European Silver Galleries, the Sacred Silver and Stained Glass Galleries and the William and Judith Bollinger Jewellery Gallery. She is interested in the social history of jewellery and is currently researching male jewellery. Since 2021, Ms Church has been a freelance lecturer and jewellery researcher, available for both private commissions and institutional projects. Her website is [www.thelifeofjewels.com](http://www.thelifeofjewels.com).

### 2. ROBIN HANSEN

Robin Hansen FGA is curator of minerals and gemstones at the Natural History Museum, London, helping to manage and care for their magnificent collection of 185,000 specimens. Originally from Perth, Western Australia, she obtained an honours degree in geology from Curtin University of Technology, and later her Gemmology Diploma from Gem-A. She published *Gemstones: A Concise Reference Guide*, in 2022.

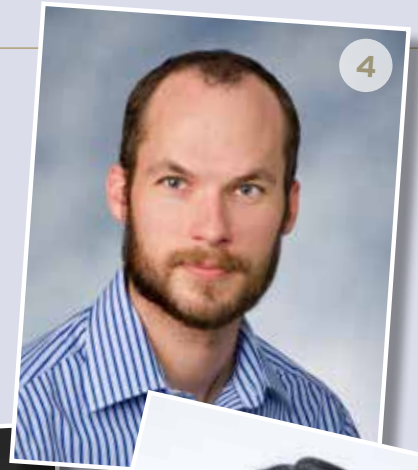


### 3. RACHEL MERISHEKI

Rachel Merisheki is the director of communication and education at Roger Dery Gem Design, where she facets gemstones for the Roger Dery Collection and shares the story of the company's holistically sourced, precision-faceted gemstones that give back to those most in need: those working at the source. Ms Merisheki and her Tanzanian-born husband, Bjorn Merisheki, both serve the East African-focused 501(c)3 non-profit organisation Gem Legacy. She earned her graduate gemologist (GG) diploma from GIA and spent her first years in the industry marketing for retail jewellers before returning to the family business, where she focuses her time on her dream: exponential progress at the source of East African coloured gems.

### 4. NATHAN RENFRO

Nathan Renfro, manager of colored stones at GIA in Carlsbad, completed his undergraduate degree in geology from Appalachian State University in North Carolina in 2006. In 2007 he received his GG from GIA and completed the Gem-A Gemmology Diploma in 2014. Mr Renfro has authored many gemmological articles and is widely published on photomicrography. He is the editor of *Gems & Gemology's* 'Microworld' column.



### 5. RICH A GOYAL SIKIL

Richa Goyal Sikri began her gemmological journey in late 2013, travelling and curating trips to gemstone mines, manufacturing centres and artist studios to learn and become a discerning collector. Laterally, she studied jewellery design history, enrolled in a GIA course and started documenting her experiences on Instagram. In 2017, after 20+ years as director at STIC Travel Group, one of Asia's largest aviation and tourism companies, she decided to pursue a second career as a journalist, storyteller and creative strategist. Ms Sikri has written and executed projects for *Robb Report*, *Harper's Bazaar*, *Vogue*, *Rapaport Magazine*, Art Science Museum (Singapore), GemGenève, the World Emerald Symposium (Colombia), the Asian Institute of Gemological Studies (AIGS), Gem and Jewellery Export Promotion Council (GJEPC), Diamond Exchange of Singapore (DES), the International Colored Gemstone Association (ICA) and the Natural Diamond Council (NDC). Ms Sikri is currently writing her first book – a collection of short adventure stories, related to coloured gemstones from Africa, that are based on actual events. The book, commissioned by Gemfields, will be published in early 2023.

*Special thanks to Beth West.*

# Straight from the heart

Opinion and comment from CEO Alan Hart FGA DGA

**T**he past few weeks have been a time of great reflection here in the UK. For seventy years we have known Elizabeth II as our monarch, and it is with great sadness that we acknowledge her passing on 8 September. With great interest that we watched the events that led up to her funeral, as the world honoured her impact and legacy. On behalf of all at Gem-A, we pay our respects to the Royal Family and thank Elizabeth II for her tireless service.

We also are privileged to witness the transition from the Elizabethan Era to the Carolean Era, as His Majesty Charles III assumes the throne. God Save The King!

The Association itself is in a state of transition. We are in the fourth quarter of the year and are enthusiastic about our upcoming events. Our annual Conference is scheduled for Sunday, 6 November, and we are looking forward to welcoming all who can attend. We are also very excited about this year's Graduation and Presentation of Awards, as we always enjoy celebrating the successes of our Graduates.

And of course, our Annual General Meeting will be held on Wednesday, 26 October at 17:00. The meeting will take place at the Gem-A Headquarters.

Our Photographer of the Year competition is back! This year's theme is 'Metamorphosis', which can be expressed in a photomicrograph, piece or suite of jewellery, carving or cut stone — it is up to the photographer's interpretation of the theme. The competition is open to the public, with the grand prize a one-year Gem-A Membership. Two runners-up will receive £50 vouchers to Gem-A Instruments. The deadline to submit photographs is Friday, 21 October; we invite everyone to enter!

Details of the Photographer of the Year contest are found in the Autumn issue, along with a wealth of other content. Our lead article considers the Australian opal industry and the issues it faces along with the ways members of the trade there are facing such difficulties.

Topics touched on include challenges specific to Australia, climate change and lack of interest in opal mining among younger generations.

We are also privileged to announce the discovery of the world's largest gem-grade ruby, by Fura Gems, in Mozambique. Richa Goyal Sikri discusses the gem's extraction and its plans for auction in early October. She also explains how proceeds from the sale of the ruby will impact Mozambican communities.

Olga González FGA DGA visited northern Tanzania and southern Kenya with Gem Legacy Adventures, a not-for-profit organisation that benefits coloured stone gem miners in East Africa. While on the tour she visited multiple mines and spoke to miners with claims in various deposits, stopped at a local lapidary school and took in the breathtaking sights and scenery. She provided *G&J* with a day-by-day diary of her visit.

**On behalf of all at Gem-A, we pay our respects to the Royal Family and thank Elizabeth II for her tireless service.**

The proper identification of gemstones is essential to our work. As gemmologists, we so often rely on our microscopes to help us identify gems. In his latest article for *G&J*, Nathan Renfro explains how a gemmologist can learn a great deal of information about a gem or mineral simply by studying the surface of the specimen.

In today's world, many jeweller-designers find that filling a niche is the best way to build their business. It allows them to become easily identifiable to clientele and build a brand based on a



specific aesthetic. Olga González spoke to some niche jewellery designers to discuss their businesses.

Other articles include a profile of Robin Hansen FGA, curator, minerals and gemstones at the Natural History Museum, London; a review of *Platinum Jubilee: The Queen's Accession*, an exhibition held at Buckingham Palace on the Queen's seventieth year (attended and written before the passing of Elizabeth II); and a look at the tradition of mourning jewellery in the Royal Family.

On a personal note, I want to acknowledge the passing of Andrew Cody, on 12 September. He was a great friend and mentor of mine, and distance never diminished our friendship. When possible, we often shared stories and gemmological chat over dinner and a glass or two. He was one of the most knowledgeable and affable people I ever knew. I send my deepest condolences to his family.

My thanks to all friends of Gem-A — Students, Members, Partners, and our industry friends and colleagues — for all your support thus far in 2022. I hope you enjoy this issue of *Gems&Jewellery*.

*Alan Hart*

Best Wishes,  
**Alan Hart FGA DGA**



# Gem-A News

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

## GRADING AND VALUATION TRAINING FOR LIBERIAN ARTISANAL DIAMOND MINERS BY NGO AS FEATURED IN SPRING 2022 G&J ARTICLE

In April 2022, nongovernmental organisation Diamonds for Peace (DFP) organised a basic training in the grading and valuation of rough diamonds for seventeen artisanal diamond mining communities in Liberia, (for information on these communities and this NGO, please refer to Spring 2022 *G&J*, pp. 24-27). This challenging project, funded by the World Bank's EGPS Trust Fund, was run in collaboration with Empowerment Works Incorporated and the International

Gemological Institute with sponsorship by Gem-A. Beth West FGA DGA EG was the trainer for the workshop.

Following the completion of the two-day workshop, the DFP team in Liberia spent time with each of the communities observing 'knowledge sharing sessions' run by those workshop participants who attended as representatives for each community. During these sessions, the workshop participant was tasked with passing on the knowledge they gained to their fellow miners. In turn, this is



Participants of the workshop in Weasua, Liberia, in April 2022. Photo courtesy of Beth West.

intended to act as something as a 'lessons learned' process for DFP, with steps implemented towards improving the training and identifying who is best placed for an advanced grading and valuing course, with the goal of teaching an even greater number of Liberian miners. When DFP feels that the project is ready to move forward, they hope to be able to raise the support and funding for this next level of training.

Beth West FGA DGA EG



According to Platinum Guild International, sales of platinum jewellery, such as this antique platinum, diamond and ruby circular brooch, rose in the U.S, Japan and India in the second quarter of 2022. Photo courtesy of KIL NYC.

## PLATINUM SALES RISE IN VARIOUS MARKETS DESPITE INFLATION

Platinum Guild International (PGI) reported in early September that sales of platinum jewellery in the United States rose by 25% in the three months leading up to 30 June, even as the trade dealt with the impact of inflation and geopolitical issues. Sales in Japan increased 9.8%, while platinum purchased in India rose two-to-threefold. The rise is seen as a reflection of the market's recovery from the lockdown of 2020. At the same time, platinum consumption in China fell 24%, possibly resulting from the country's COVID-19 outbreak. PGI warned that the sales rate may slow in the second half of 2022 and in the early part of 2023, due to factors such as inflation, the U.S. midterm elections and other geopolitical issues.

## ANGOLA'S LULO DIAMOND MINE SOURCE OF TWO 150+ CARAT DIAMONDS, INCLUDING LARGEST PINK IN 300 YEARS

Australian miner Lucapa Diamond Company and its state-run partner in Angola, Endiama and Rosas & Petalas, announced the production of two rough diamond specimens weighing over 150 carats from the Lulo alluvial mine in summer 2022.

A 170-ct type IIa pink diamond was announced in July. Called the Lulo Rose, it is the largest pink diamond found in 300 years. The Lulo Rose is expected to sell at auction by Sodiam, Angola's state diamond marketing company.

Several weeks later, on 2 September, the partnership announced that a 160-ct white type IIa diamond had been mined from the same block as the Lulo Rose. The white diamond is the twenty-eighth 100+ carat diamond mined from Lulo, as well as the sixth largest produced from the mine.

Angola is one of the top ten producers of diamonds in the world. The largest stone ever recovered in the country was also from Lulo. Mined in February 2016 and called the 4th February Stone, the rough specimen weighed 404.2 ct.



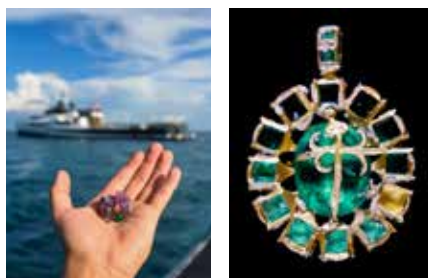
Two rough diamonds weighing over 150 ct were recently produced from Angola's Lulo mine. The 170-ct pink specimen known as the Lulo Rose, shown here, is the largest pink diamond found in 300 years. The 160-ct white found in September is the sixth-largest diamond produced from the mine. Photo courtesy of Lucapa Diamond Corp.

## BAHAMIAN MUSEUM BECOMES HOME TO TREASURES RECOVERED FROM 350-YEAR-OLD SPANISH SHIPWRECK

In August, the Bahamas Maritime Museum opened its new permanent exhibition: treasures from the *Nuestra Señora de las Maravillas*, a two-deck Spanish galleon that sank off the coast of Little Bahama Bank on 4 January 1656. While most items were thought to be salvaged over the course of three centuries, further items were found after two years of field work by Allen Explorations. These pieces had not been accounted for, as "The galleon... was stuffed with contraband," according to Carl Allen of Allen Explorations. "Defrauding the Spanish Crown continued into the salvage years." The exhibition includes a number of gem and jewellery-related items, including loose amethysts and emeralds and an 887-gram, 176-cm gold filigree chain, made up of eighty alternating circular flat and tubular links that are decorated with four-lobed rosette motifs.

Outstanding among the finds by Allen Explorations, after two years of field

work, are the Order of Santiago jewels, representing what was then Spain and Portugal's most powerful religious body. One golden pendant with the Cross of Santiago at its centre was designed in the form of a scallop shell. The 3.5-cm pendant is reinforced on its back edge by what seems to be an Indian bezoar stone, then considered to have powerful healing



Gems and jewellery, including loose emeralds and amethysts (left, © Brendan Chavez) and an Order of Santiago pendant (right, © Nathaniel Harrington) were among the treasures found by Allen Explorations aboard the *Nuestra Señora de las Maravillas*, now part of the Bahamas Maritime Museum. Photos courtesy of the Bahamas Maritime Museum.

properties. A second golden pendant, a 4.7-cm oval, was found on the *Maravillas'* debris trail. At its centre, a gold Cross of St. James overlies a large green oval Colombian emerald. The outer edge is framed by twelve square emeralds, perhaps symbolising the Twelve Apostles of Jesus Christ. The team also found a 5.3-cm majestic oval gold locket with an elaborate cross of St. James framed by swirling foliage incised on the back, and a tiny golden cross that probably fell out of another pendant.

Allen Exploration uses high-resolution magnetometers, side-scan sonar and bathymetry analysis in its remote-sensing surveys. It is committed to keeping the entire collection from the *Nuestra Señora de las Maravillas* together for public display in the Bahamas Maritime Museum.

For more information on the exhibition, the *Nuestra Señora de las Maravillas* and the Bahamas Maritime Museum, visit [www.bahamasmaritimemuseum.com](http://www.bahamasmaritimemuseum.com).

### CIBJO AND INTERTEK ANNOUNCE LAUNCH OF CERTIFICATION PROGRAMME FOR SUSTAINABILITY OFFICERS

On 10 September, during the VICENZAORO Show in Italy, The World Jewellery Confederation (CIBJO) and Intertek Italia SpA announced the launch of the first-ever certification programme for sustainability officers in the jewellery industry. Potential candidates for the online training and certification, which will be issued by Intertek (accredited under the Italian governmental body Accredia) will include employees of existing gem and jewellery seeking to become compliance officers in the sector. Topics covered will include, among other information, auditing techniques; information about laws and regulations relevant to the industry, such as U.S. and European conflict mineral legislation and the Kimberley Process Certification Scheme; and strategies for implementing corporate social responsibility (CSR) and sustainability practices into their own businesses.

### BRITISH PEOPLE FEELING TREPIDATION ABOUT CHRISTMAS SEASON DUE TO INFLATION

A survey, conducted by eBay Ads, of over 2000 UK-based shoppers who celebrate Christmas found that about 20% of respondents are apprehensive about the season this year, most likely due to concerns about inflation. More than half of the people surveyed are looking forward to the holidays, but one in five reported that they think Christmas will be 'stressful'; one in ten people indicated that they anticipate the holiday will be 'unsettling'. The survey takers expect that inflation will affect their spending this year.

eBay Ads reported that 16% of respondents stated that they planned to buy luxury gifts, such as jewellery, this year. Twenty-nine percent of people expected to spend less this year than last year, with half of all survey takers planning to buy gifts on Black Friday. However, 27% of people said they would pay more for items that have better sustainability credentials.

### INTERNALLY FLAWLESS WILLIAMSON PINK STAR DIAMOND TO BE AUCTIONED BY SOTHEBY'S IN OCTOBER

The Williamson Pink Star, only the second internally flawless fancy vivid pink diamond weighing over 10 ct to be put up for auction, will be offered by Sotheby's in Hong Kong in October. The diamond, of Tanzanian origin, is from the same mine as the Williamson Diamond, given to HM Queen Elizabeth II by Canadian geologist John Thorburn Williamson.

The Williamson Pink Star was mined as a 32.32 ct rough and later faceted to a 11.15 ct cushion cut. It is expected to sell for more than US\$21 million (£18.2 million).



The 11.15-ct Williamson Pink Star diamond. Photo courtesy of Sotheby's







# Helping Small-Scale Miners in East Africa Chisel Their Way to Success

A small group of miners in the southern region of Kenya are able to pursue gemstone mining thanks to the toolkits delivered by Gem Legacy.

**M**aina and his fellow five miners work with a chisel and hammer anywhere from 10 to 12 hours every day, chipping away at hard rock in the southern region of Kenya. The area is famous for tsavorite garnet, but it also produces a variety of other minerals including tourmaline, garnet, spinel, ruby and quartz. The mineral indicators and the opaque gem materials they are finding embedded in the wall of the rock suggests that they are on the way to finding green tourmaline, but only time, sweat and innumerable swings of a chisel against the rock will tell.

They are a newly banded group of miners, only having progressed 10 - 15 yards since they started, following the indicator minerals on the wall and the changes in the rock to guide their path. Like so many of the 70-80% of small-scale coloured gemstone miners that the World Bank and the International Institute for Sustainable Development estimate are working in East Africa, they are self-funded, so they are not using explosives or power tools. Their hands and the headlamps, chisels, hammers, shovels and sieves are their means of progress.

Gem Legacy began delivering 'Miner Toolkits' in 2021 and has now given over 400 toolkits to vetted, small-scale miners in need who do not otherwise have access to improved tools for safety and success. The organisation's first visit to Maina's mine, in summer 2022, analysed their style of working and need for tools. The second visit included a delivery of the tools based on the analysis and on the miners' requests; the third visit was to check on progress. Gem Legacy also provided non-perishable foodstuffs and water, an essential need and serious challenge for so many artisanal and small-scale miners in East Africa.

Maina has worked in several mines and dreams of seeing his own operation in cooperation with his colleagues come to fruition. Gem Legacy continues to support artisanal, small-scale miners after a toolkit delivery with water and food, as well as gemmological and gem-grading education to help Maina and his colleagues hold on to their dream. ■

*To learn more about the efforts of Gem Legacy, please turn to p. 18.*



# Play-of-Colour from Down Under: Looking at the Australian Opal Industry

Australia is the world's leading source of precious opals. The following article looks at some of the factors that impact the Australian opal trade, and how some players are facing those challenges.

Australia has been renowned for their precious opals for a period spanning two centuries, and they are justly proud of the association – so proud, in fact, that opal officially became the national gemstone in 1993. Opal was first discovered in Australia around 1840, with commercial production beginning in 1875 at Listowel Downs in Queensland. The continent currently produces anywhere from 90% to 97% of the world's precious opal supply, with prominent mining sites in the states of Queensland (QLD), New South Wales (NSW) and South Australia (SA). Famous Australian opals include the Flame Queen Opal, found in Lightning Ridge in 1914; the 203-ct Andamooka-mined specimen in the Queen's Opal necklace, gifted to Queen Elizabeth II by the people of South Australia during her state visit in 1954; and the Aurora Australis, discovered in 1938 in Lightning Ridge and, at 180 ct, believed to be the world's most valuable black opal.

While much of the opal found in the rest of the world is formed from volcanic rock, Australian material is found in old, weathered sedimentary rocks. This is hardly the only unusual aspect of about Australia's opal culture. After all, the opal mining towns of Coober Pedy and White Cliffs are well known for their underground homes and businesses, so located to beat the heat of the Outback. These sorts of dwellings, called dugouts, are no longer widely used in the rest of

the world. In a similar vein, the opal trade in Australia has experienced complexities that are specific to its own position as both an island nation and continent. We discussed current issues with members of the Australian opal industry to hear how they are meeting these challenges.

## OPAL SUPPLY AND DEMAND

As of late August 2022, our respondents indicated that customers, both wholesale and retail, are looking for Australian opal, with requests far outweighing supply. This is particularly true of black opal; however, Damien Cody, director of opal cutter, wholesaler and exporter Cody Opal (founded by his brother, the late Andrew Cody, in 1971), indicated that "we find that there are good markets for all types of Australian opal and in all qualities. The changing fashions and trends can vary the designs; however, the demand for the full range of opals remains strong from all the segments." While Australia is known for its precious opal, even common opal, which lacks play-of-colour, is selling. Terry Brennan-Kuss, miner and cutter, as well as co-owner and operator of Josephine's Gallery in Coober Pedy, said "At the moment record prices are being paid for rough opal with even a big demand for non-precious white opal. This is also flowing on to the price of cut stones with strong demand and rising value." He stated that his gallery's clients are

mostly requesting high-quality black, white base or crystal opal solids in larger sizes (3 ct or larger); he is mostly cutting the latter two types of material, obtained locally. "Trends in jewellery have changed," he said. "Where there was a big demand for inlay opal jewellery a few years ago, the trend seems to be shifting back to more traditional settings."

That demand is outpacing supply – which is borne out by auction house results in recent months – is excellent news in the aftermath of the COVID-19 pandemic, when Australia had some of the strictest lockdown rules in the world. Businesses had to quickly shift gears, depending less on traditional trade shows and gem tourism and far more on internet and app sales to keep businesses afloat. For a country that shares no borders, this was difficult for some companies to navigate. The town of Coober Pedy suffered from lack of tourism, particularly gem agents from outside the country, causing a lull in mining that has resulted in a rough shortage, according to Terry Brennan-Kuss.

It is also natural that the call for opal should be greater than the output, given that it is incredibly difficult to retrieve opal from deposits – it takes one tonne of dirt to find one carat of opal, on average. But even if it was not, concerns about retrieving



*This 4.07 ct specimen is a stunning example of black opal from Lightning Ridge, NSW. Photo courtesy of Cody Opal.*





*A very fine 121-ct Andamooka (white) opal pendant set in 18K white gold with 0.99 tcw diamonds. This specimen was found around the same time as the Queen's Opal. The pendant was designed by Fiona Altmann. Photo courtesy of Altmann + Cherny, Opal Specialists.*

what is, ultimately, a finite resource are valid. "Supply levels have fallen since the peak production of the late eighties," said Damien Cody. "We have also seen significant market shifts over the decades. Japan was the biggest consumer of opal up until the Asian financial crises in the early nineties. Sadly the market for opal in Japan has never recovered to anywhere near the previous levels. This has been offset to some degree by the rise of consumption from China." Furthermore, pointed out Renata Bernard, creative director of fine jewellery maison Opal Minded, all things are not equal in the gem world when it comes to opal. "The limited supply has always been a barrier to this gem's popularity. The annual production of diamonds may be now anything between 110 -150 million carats, while Australia produces probably an estimate 80,000 carats of opals, although that figure is difficult to obtain reliably. That means that if an average stone is one carat (as a diamond's average size will be much lower than that of an opal), then only one in 1,425 -1,875 of new owners of a one-carat diamond could purchase one carat of opal in a given year."

### AUSTRALIA-SPECIFIC CONCERNS

Even with the aforementioned supply issues, people still seek out the gemstones from Australia, because to people the world over, there is just

something special about opal from Oz. Perhaps it is the formation from the sedimentary rocks, different from everywhere else in the world, that makes them so desirable. Perhaps it is simply because Australia itself feels distant

## TYPES OF PRECIOUS OPAL FOUND IN AUSTRALIA

Precious opal is characterised by the presence of play-of-colour, caused by the interaction of light with the internal structure, which is composed of silica spheres in grid-like patterns. Within the category of 'precious opal' there are several varieties. The following precious opal types can be sourced from Australia and are listed alongside the major locations from where they are retrieved (as per Mindat.org).

- **Boulder:** A variety found primarily in Queensland (except for Lightning Ridge, NSW), as cracks or coatings in and around ironstone or sandstone boulders (Jundah, Koroit, Lightning Ridge, Opalton, Quilpie, Winton, Yowah).
- **Black:** A generic term for any opal that has a dark bodycolour when viewed from above (Andamooka, Lightning Ridge, Mintabie).
- **Crystal/Water:** A transparent-to-translucent variety of where the play-of-colour is visible both on the surface and in the interior (Coober Pedy, Lightning Ridge, Mintabie, Yowah).
- **Harlequin:** A variety in which the play-of-colour is arranged in a vivid harlequin, diamond-shaped or rectangular pattern (Coober Pedy, Lightning Ridge).
- **Pipe:** Opal that forms in long, tubular or cylindrical cavities within a host rock, usually sandstone (Mintabie, Winton, Yowah).
- **White/Light:** Opal with a white bodycolour (Andamooka, Coober Pedy, Mintabie, White Cliffs).



and unusual to people who have never visited, and that essence is associated with the gems that form there.

Whatever the case, it is true that the industry has issues that are specific to its homebase. Both Damien Cody and Renata Bernard mentioned that the strict laws governing of the industry are difficult to navigate. "Many would argue that opal mining activities are over-regulated by over-arching federal, state and regional jurisdictions," Mr Cody disclosed. "Very tight regulations and ever-increasing complexity for compliance covering matters such as work health and safety, workplace conditions, land access, native title, environmental protection, historical and cultural heritage are burdening miners with layers of bureaucracy often well beyond the capabilities of a small operator." There is also the harsh environment to deal with; opal mining sites are in the sparsely populated desert and semi-desert areas of the Outback.

When contemplating what made the country's opal trade so distinct from the industries of other regions, Renata Bernard considered that not only does the gem have an excellent reputation, it might have that status despite the Australians who may inadvertently be selling themselves, and their products, short. "Being Australian is about being unassuming and non-grandiose, about not taking anything, and definitely not oneself, too seriously," she explained. "We are lucky as a nation to be quite trusting and open. Having generally such a low-key and eclectic approach may be at times detrimental to how we project



*The Purple Quartet from Opal Minded's Opal Dream collection brings together four remarkably rare matching boulder opals from Winton (47.33 tcw) showing blue, red and black play-of-colour. The one-of-a-kind four-opal necklace can be worn as a detachable pendant, earrings and ring set. Photo courtesy of Opal Minded.*

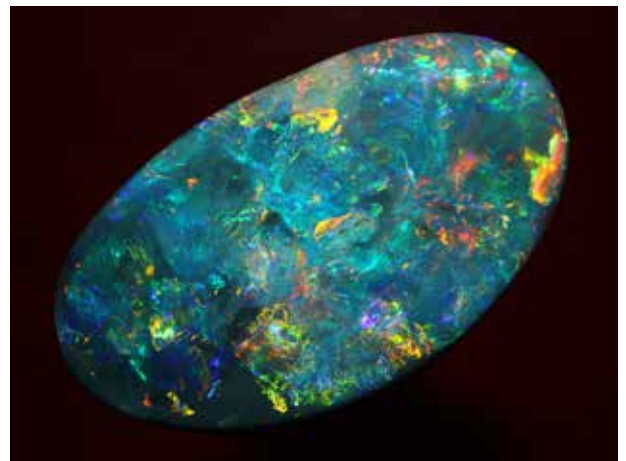
the value of opals. Australian opals are exceedingly rare and outlandishly beautiful, and each opal is absolutely, irrevocably unique. We may be at times a little bit too blasé about conveying how extraordinary these are as a result."

### CLIMATE CHANGE

Australia is considered one of only seventeen megadiverse countries; to be

called such, it must have at least 5,000 species of endemic plants and must border marine ecosystems. This is a positive designation; however, climate change is having a tremendous impact on the environment in Australia and, consequently, on numerous Australian industries. In 2019, the Climate Council of Australia estimated that the accumulated loss of wealth due to reduced agricultural and labour productivity resulting from climate change is projected to exceed AUS\$19 billion (£11.18 billion) by 2030. Opal mining is in the same situation as many other Australian industries. Renata Bernard of Opal Minded explained that "With global warming and La Niña bringing more water to the Outback than it can handle, our mining seasons have grown shorter and less predictable." Terry Brennan-Kuss agreed with this assessment, although he felt there was slightly more room to be optimistic. "The last few years has seen an increase in winter rains that have disrupted mining, which is predominately undertaken during the winter months. This might be due to climate change or just a weather cycle." Either way, it has negatively affected the ability of miners to extract material.

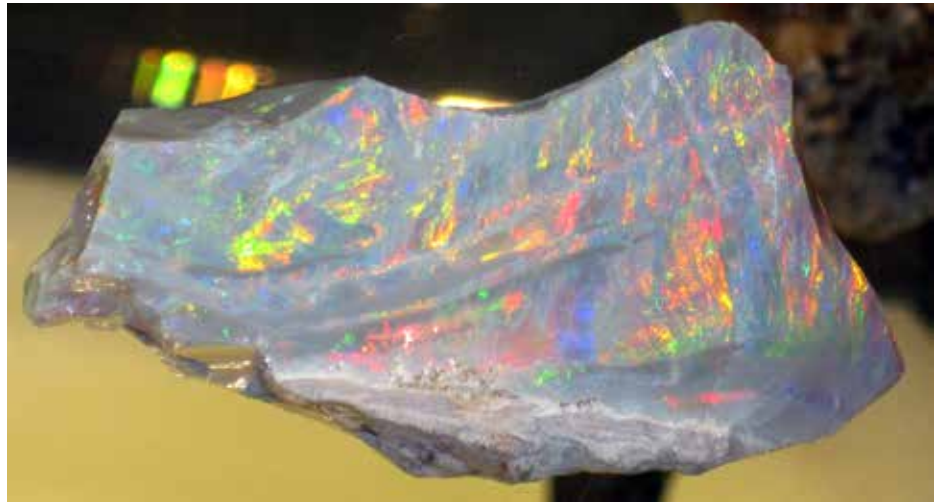
According to Damien Cody, however, there are steps being taken to mitigate these effects on opal mining, based on efforts that companies are making toward transparency and ethical behaviour. In fact, noted Cody, "We have seen many changes in the supply chain which will have positive impacts for the issues surrounding climate change and the environment. At the mining stage of



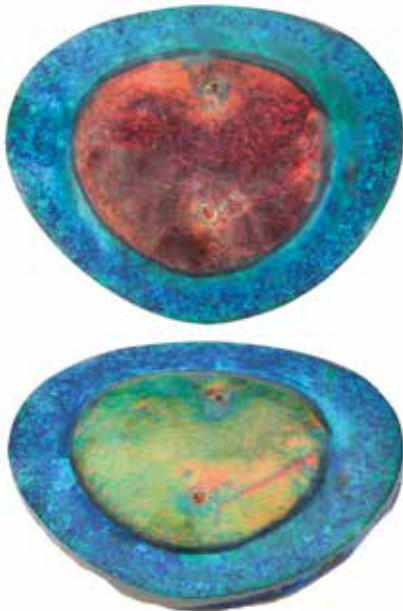
*The Queen's Opal parure, gifted to Her Majesty Elizabeth II during her visit to Australia in 1954, centres around a 203-ct opal that was extracted from the Andamooka opal fields in 1954. The opal was set in a diamond-and-palladium necklace, with earrings created to match, by Wendts Limited of Adelaide. Right: The Aurora Australis originated in Lightning Ridge, where it was discovered in 1938. It is considered the world's most valuable black opal. Photos courtesy of Altmann + Cherny, Opal Specialists.*



the supply process, we are seeing many new regulations that require a range of measures depending on the location, including rehabilitation, revegetation, mullock\* stockpiling, backfilling, geological soil layering, compacted ground rectification, artesian water use limitations, building requirements and weed control." Since Australia's number-one environmental concern is considered to be land degradation, these efforts have long-term benefits to the industry, and the country as a whole, on many levels. Additionally, Cody pointed out, "The hot Outback environment has provided perfect conditions for the increased use of solar power reducing the reliance on fossil fuels."



*White opal from Australia showing play-of-colour. This specimen is on display at the Carnegie Museum of Natural History, Pittsburgh, Pennsylvania (U.S.A.). Photo by James St. John/Wikimedia Commons.*



*One of the most famous opals in the world, the 261.03 ct Flame Queen Opal (showing different colours depending on the angle of view), was mined from the Bald Hill Workings in Lightning Ridge in 1914. It sold at auction in 2021 for \$87,500 (£77,770). Photos courtesy of Christie's.*

## ETHICAL ISSUES

Environmental stewardship is not the only issue of sustainability that faces members of the gem trade in 2022. A greater push for traceability and ethically sound action are felt across the industry, and those businesses located in Australia are no different. Both Opal Minded and Cody Opal have taken steps to run responsible, sustainable businesses in accordance with, and in some cases above, what is required by law.

Opal Minded has a full view of their supply chain and takes pride in both

their conflict-free gemstones and their own personal ties to the indigenous Australian population. They have moved their mines to an open-pit setup to maintain worker safety and perform to the 'gold standard' of land reclamation, rehabilitating the land by re-landscaping and replanting disrupted vegetation with native seedlings to ensure minimal disruption to native flora and fauna. In the vein of environmental protection, traceability, human rights and safety, they are moving into using traceable metals in their jewellery lines whenever possible. "We have looked at it every year for many years and are now closer than ever to being able to make informed metal choices. Both John (Bernard, opal miner and founder of Opal Minded) and I are quite black-and-white, so unless something is 100% true, we are not going to make claims to it. At this stage, many of our high-end pieces have known clean origin gold, and many bespoke projects have repurposed family gold and other gem material to bring the family history together in a new creation."

Damien Cody related that Cody Opal is an Accredited Ethical Member of the International Colored Gemstone

Association (ICA), which requires a self-assessment and a voluntary pledge on responsible sourcing. It is also "a stimulus for continuous improvement within our organisation. It requires a commitment to abide by The World Jewellery Confederation's (CIBJO) guidance and recommendations in the CIBJO Responsible Sourcing Book, ICA's Code of Ethics and ICA's Duties of Disclosure. Some of our customers require us to undertake training in these areas and supply detailed information regarding our practices and sourcing of materials." He also noted that Cody Opal has worked, and continues to work, with many indigenous miners beyond simply negotiating for land use. "In addition to the use of the land is the recognition of the native cultural heritage, which includes archaeological, anthropological, contemporary, historical, scientific, social or spiritual significance. This can extend to Aboriginal tradition, which are the intangible aspects of culture."

## THE FUTURE OF OPAL MINING

In recent years there have been reports of diminishing interest in opal mining among younger generations, which our



Even with supply issues, people still seek out the gemstones from Australia, because there is just something special about opal from Oz.



\* An Australian term meaning 'refuse or rubbish, as rock or earth, from a mine; muck'.

contacts confirmed. Damien Cody noted "a severe shortage of younger miners working the opal fields. This has been due to growth of large-scale mining for other materials." Efforts to extract gold, iron ore, uranium, copper, coal, rare-earth minerals and other resources have become more lucrative for young people in search of jobs. Cody explained, "The attraction of high wages and good working conditions has made it difficult for the small scale opal miners to compete for workers." Furthermore, he noted, "The combination of it being harder to find opal with the increased costs and regulatory complexities means fewer miners are prospecting." For all the beauty of opal, the work is physically and financially difficult. Renata Bernard admitted, "The decline in interest in opal mining is not surprising given the hardships one has to endure. It is daily toil for nothing to show for weeks or months at times."

Yet, there have been some signs of renewed interest. All our interviewees noted that there has been greater attention on opal mining since the premiere of *Outback Opal Hunters*, a reality television show that has filmed in various well-known fields since its debut in 2018. The show completed its eighth season in May 2022 and airs in 100 countries, including the UK. Terry Brennan-Kuss reported that Coober Pedy "is seeing a resurgence of mining from a diverse age group, so I have no doubt that opal mining will survive and thrive in the coming years."



This natural, untreated 4.94 ct boulder opal was ethically mined from Jundah-Opalville (QLD). Photo courtesy of Opal Minded.

## ANDREW H. CODY FGA (1951 - 2022)

**G**ems&Jewellery is saddened to announce the recent passing of Andrew H. Cody. His tireless passion for and dedication to the gem trade, and his advocacy for the reputation of Australian opal, spanned over five decades. Among his many industry achievements are involvement in the proclamation of opal as Australia's national gemstone, the production of an award-winning opal stamp series with Australia Post and the development of the official opal nomenclature.

Mr Cody began collecting fossils, minerals and gemstones at the age of twelve; he started cutting opal in 1964 after a school excursion to Coober Pedy. In 1971, at the age of twenty, he established the wholesale opal and gem-cutting business Cody Opal. In 1991 Mr Cody wrote the book, *Australian Precious Opal – A Guide Book for Professionals* that was published in English and Japanese and used extensively by the industry. In 2010, along with his brother Damien Cody, he published *The Opal Story*; there are now more than 50,000 copies in circulation. Andrew Cody was also joint founder of the National Opal Collection with offices, showrooms and museums in both Sydney and Melbourne. His opalised fossil collection is expansive and includes a 2.5-m opalised plesiosaur and the opalised upper jaw of a rare Mesozoic mammal. His businesses were winners of both Government Export and Tourism Industry Awards. He was awarded a Gold Commendation from the Lord Mayor of Melbourne and was a research associate of The Australian Museum.

Mr Cody was a founding member and chairman of the Australian Jewellery and Gemstone Industry Council. Other acts of service to the gem industry included terms as president of both the Australian Gem Industry Association and the International Colored Gemstone Association (ICA) and special projects officer of the World Jewellery Council (CIBJO).

Among his many accolades, Mr Cody was awarded an honorary FGA in 2017. At the time, he said "I never considered myself deserving of this honour and feel there would be many more that would be better qualified! But it is with gratitude that I accept this important award from the world's oldest gemmological institution."

*Andrew Cody is survived by his wife, Lynore, and sons James, Patrick and William. We send our condolences to them and to rest of the Cody family.*



Everyone we spoke with indicated that their companies intend to stay open and operating for the foreseeable future. Terry and Josephine Brennan-Kuss of Josephine's Gallery will mine for the next few years in Coober Pedy before launching an opal retail outlet in Adelaide. Opal Minded will keep building their online business while working on designs to raise the 'trendy' profile of the gemstone, while Cody Opal will continue their presence at worldwide trade shows while managing demand from China through a combination of agents and internet marketing platforms.

### CONCLUSION

The opal industry in Australia is built on a combination of the gemstone's

inherent beauty and unique characteristics of the material and the country from which it hails. While the industry has faced difficulties, and the road ahead is not smooth, there are reasons to be optimistic that Australia's opal mining industry will persevere in the years to come, due to the popularity of the gem itself and the plans in place to mitigate the challenges the miners, cutters and sellers face. Overall, said Terry Brennan-Kuss, "it is safe to say that the opal industry is in good shape at the moment. Australia's national gemstone is going from strength to strength in both value and in demand, taking its place amongst the precious stones of the world." ■



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At 101 carats, the *Estrela de Fura*, discovered in Mozambique in July 2022, is the world's largest gem-grade ruby.

# WORLD'S LARGEST GEM-QUALITY RUBY UNEARTHED IN MOZAMBIQUE

The *Estrela de Fura*, a 101-ct vivid ruby, was discovered by Fura Gems in Mozambique in July 2022. Independent journalist Richa Goyal Sikri explains the relevance and impact of this ground-breaking gemstone.

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In Mozambique on 24 July, when Fura Gems' sort house supervisor, Balbir, opened the jig at the mine's wash plant, he was shocked to see a bright red stone glowing under the UV rays of the morning sun. It took him a few seconds to realise that he may have discovered one of the largest rubies in the world, glowing from the fluorescence caused by the gem's chromium content. He alerted security and, after securing the stone, sent it to the sort house. Ten minutes later, founder and CEO of

Fura Gems, Dev Shetty, received a call from his team in Mozambique. They had discovered a 101-carat gem-quality, vivid red ruby.

Ahmed Bin Sulayem, executive chairman and chief executive officer of Dubai Multi Commodities Centre (DMCC), and Mr Shetty unveiled the spectacular ruby on 14 September in Dubai in anticipation of a private auction in October 2022. Aptly named *Estrela de Fura*, or Star of Fura in Portuguese, its discovery challenges the antiquated

notion of assigning top-grade status primarily to historic deposits such as Myanmar (Burma). Dr Daniel Nyfeler, managing director of Gübelin Gem Lab explained that "The *Estrela de Fura* ruby is likely to yield an intense, saturated red colour once fully and properly faceted with adequate proportions. Compared to most rubies, including those from Burma, which tend to be fairly included when reaching sizes above five carats, this ruby is relatively free of eye-visible inclusions. Considering its very large



size, the vivid red colour and clarity characteristics of this ruby give it an extraordinary potential to become one of the largest high-quality faceted rubies ever seen."

Although Mozambique rubies were formed 500 million years ago, a commercially viable deposit was only discovered in 2009. It is now considered one of the most significant sources in the world. The first formal mining venture in the country was the Montepuez Ruby Mine (MRM), which formed in June 2011 and is jointly owned by Gemfields and Mwriti. Industry sources estimate that MRM supplies 70% — 80% of mined rubies to the worldwide market. Fura Gems — established by Dev Shetty in 2017 and listed on the Toronto Stock Exchange — began mining in Mozambique in early 2020. Their mine is located to the west of MRM, three hours' drive from the town of Pemba. In October 2020 Fura Gems was acquired for US\$41 million (£35.87 million) by its largest shareholder, Lord of Seven Hills Holdings FZE, by Michael Kuan, chairman of Kuan Capital (Shanghai, China). Fura's mine in Mozambique has approximately 575 employees, of which approximately 88% are local Mozambican nationals. "With over two years of production, Fura has proven its



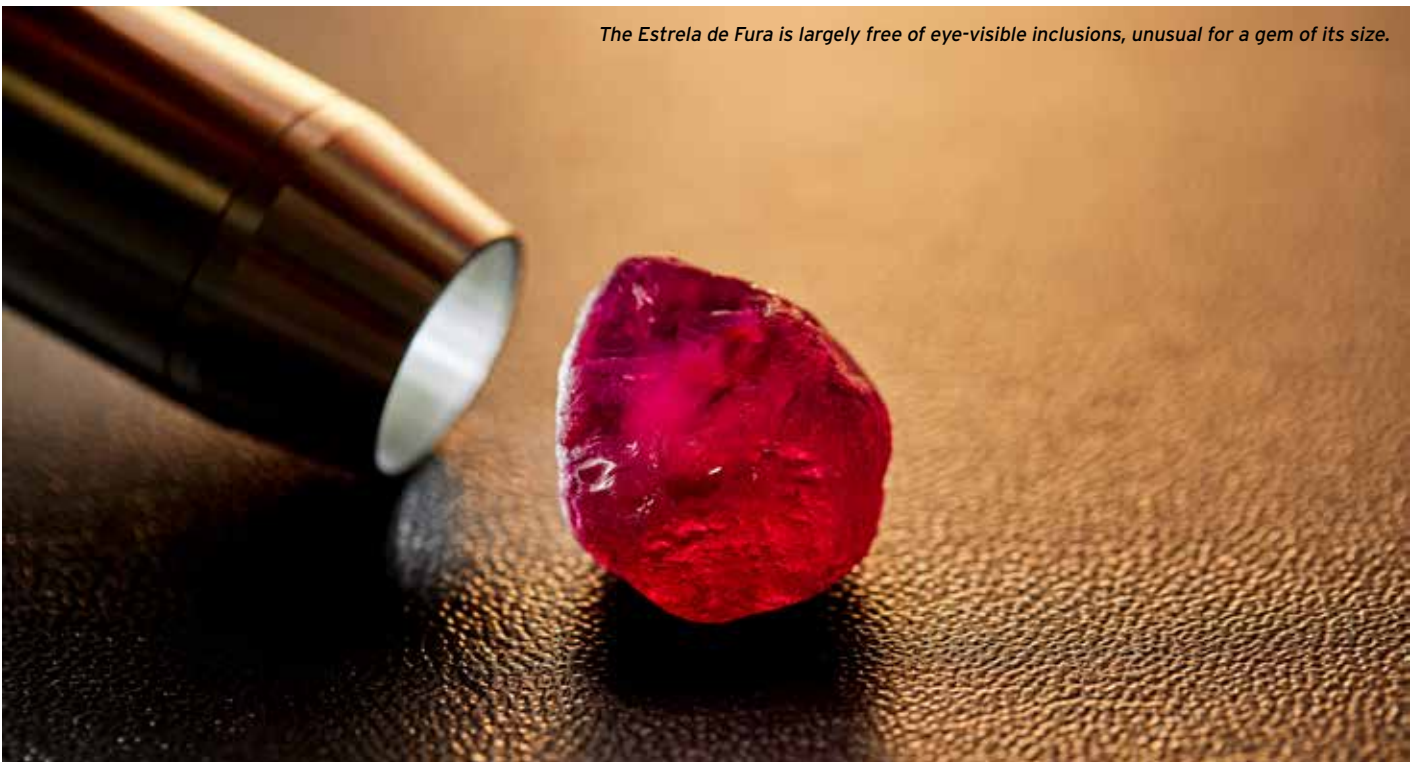
*The team that announced the discovery of the Estrela de Fura ruby in September 2022. From left: Gaurav Gupta, director, Fura Gems; Dev Shetty, founder and CEO, Fura Gems; Ahmed Bin Sulayem, executive chairman and CEO, DMCC; Feryal Ahmadi, COO, DMCC; and Yogita Vichare, head of strategy, Fura Gems.*

ruby mine is a world-class deposit. We pride ourselves on being a progressive and sustainable company, using the finest technology to set benchmarks in the coloured gemstone mining industry," stated Mr Shetty.

Fura Gems will allocate 2% of the sale of the Estrela de Fura towards setting up the Fura Training Academy to support the community by providing much-needed training in mining, carpentry, engineering and agriculture.

The company will further pay 6% royalty on the sale and 32% corporate tax on their annual profit. While the ruby is currently in Dubai for viewing by potential bidders, the final export will take place only once the gemstone is sold at auction. All proceeds will be paid to Fura's bank account in Mozambique, as all invoices are done from Mozambique with export clearance. ■

*All photos courtesy of Fura Gems.*



*The Estrela de Fura is largely free of eye-visible inclusions, unusual for a gem of its size.*

# A Journey to Remember: Travelling to East Africa with Gem Legacy Adventures

Olga González FGA DGA went to northern Tanzania and southern Kenya with Gem Legacy Adventures, the financial partner of a not-for-profit that works to benefit East African coloured gemstone miners. Here, she provides a day-by-day accounting of her trip.

## INTRODUCTION

For many people, the summer of 2022 will go down in history as the summer of rescheduled 2020 travel plans. The inaugural pandemic year had many people under strict lockdown, and in 2021 most people were not at liberty to travel extensively. But this year, much of the world has adapted to the idea that we may live alongside COVID-19 for a much longer timeline than originally imagined, if not indefinitely. As a result, people are moving ahead with their holiday bookings, even for overseas travel as permitted.

In 2022, Gem Legacy Adventures became the financial resource for Gem Legacy, a 501(c)3

not-for-profit organisation that supports entrepreneurship, vocational training, and community development in East African coloured gemstone mining communities. It will offer excursions in East Africa that include wildlife safaris, gem mine visits and touring various Gem Legacy initiatives. The profit from the trips will, moving forward, fund the administrative costs of Gem Legacy. The first of these expeditions, in northern Tanzania and southern Kenya, took place in the summer of 2022. Olga González FGA DGA traveled on a Gem Legacy Adventures itinerary and provided *G&J* with a diary of the trip... a journey that was worth the wait and then some.

## THE TOUR

**Days 0-1:** As a New Yorker, I sought a direct route to Tanzania, with as few layovers as possible — JFK to Nairobi to Kilimanjaro. On our first evening as a full group, we stayed at the New Safari Hotel in Arusha, Tanzania. The next morning started with an orientation run by Rachel Merisheki, our gracious host and go-to for everything. The next day we drove to the Longido region to visit the Kitarini Primary School the next day, which is attended by Maasai children. After a presentation and the handing out of lollipops, the kids played outside and enjoyed having their picture taken. Gem Legacy helps the school by supporting the meal program, so parents are motivated to send their children, as it is one less meal to cover at home. As housing issues have kept school staff retention rates low, Gem Legacy also helps with on-site housing for teachers. After our visit to the Kitarini School, we visited a small ruby mine in Longido that was protected by wood scaffolding and sheet metal, materials used across construction locally for homes and businesses. The owner, Sendeu, gave us a tour and answered questions about the geology of the area.

**Day 2:** The next morning began with a tour of the Arusha Gem Faceting School where we met four students and their professor. They demonstrated the steps in preforming and preparing the dop, as well as faceting. Students learn how to practice on marbles before practicing on donated stones. I faceted my first table at the bench, which was exciting to learn. The students were confident in their skills, and all enjoyed learning from them.



Olga González with students from the Kitarini Primary School, in Tanzania.



In Tanzania, ruby, sapphire, emerald and tanzanite over two grams must be faceted within the country before it is exported, so it is essential to have schools where lapidary training is provided. Donations to Gem Legacy have led to the purchase of the equipment, including Facetron machines – American-made precision faceting machines – along with dops, transfer tools, laps and other accessories necessary for precision faceting. Gem Legacy also supports the instructor, Diana, along with student scholarships, which are \$750 for the five-month program. Upon completing the program, the Arusha Gem Faceting School assists students with job placement. While there, we heard of a ruby mine that would need to hire five hundred people for faceting positions; current and former students of the school would be contacted for the positions. It was wonderful to see



*Tour members visit a ruby mine in the Longido region, Tanzania.*



*Students demonstrate their lapidary skills for tour members at the Arusha Gem Faceting School.*

proactive job placement in action. After visiting the faceting school, we began our drive towards the Merelani Wall.

For those unfamiliar with the setup of the tanzanite mining operation there, the area inside the Merelani Wall is separated into four sections, or 'blocks'. Beginning at the southern end is Block A; continuing to the northeast are Blocks B, C and D. Blocks A and C have been assigned to large mining companies, while Blocks B and D are divided into numerous small-scale mining interests that are all owned by native Tanzanians.

The JW vein is the most famous of the veins of tanzanite that occur at different depths. It is named after Ali Juluawatu, the farmer who became the first miner to work the deposit in the late 1960s. Juluawatu is reported to have mined between 200 and 400 kilos of tanzanite in a three-year period. The JW vein is the most productive tanzanite ore zone. But most of the small-scale mines have produced tanzanite rough, with some having produced hundreds of kilos of gem-grade material. In general, the quality of the stones increases to the north, with Block D having produced the best grades and colours.

Sune's mine is in Block D. Sune was assigned ownership to his claim in 2003, as a result of a government allocation. His application was one of several hundred filed in an attempt to receive claim ownership. Sune won the claim rights because he owned a compressor and jackhammer, with which he had previously helped several other small-scale miners successfully produce tanzanite.

Sune's mine would be considered an 'average' or 'medium-sized' mine. There are many mines that have hundreds of workers, much longer and larger shafts, with equipment that blasts frequently. There are also some mines that are still very much unworked.

For our group, visiting this mine was the adventure of a lifetime — it was especially great if you love rock climbing. Holding onto two metal cables, one by one, we descended approximately 400 ft (121.9 m) down the tunnel, each with a miner to help us. We brought our own headlamps and gloves, but to say it was difficult is an understatement — I had trouble walking downstairs for days. That said, I am so glad we went down and experienced it. After only ever experiencing large commercial mines, it gave me an appreciation for the physical difficulty of artisanal mining, alongside the challenges of sustaining extended periods in the heat and dust. What took our group forty-five minutes to climb took the miners only twenty minutes.

It gave me an appreciation for the physical difficulty of artisanal mining, alongside the challenges of sustaining extended periods in the heat and dust.



*Giraffes (left) and zebras (right) on the early-morning game drive at Tsavo East National Park, Kenya.*

On the way back, we stopped for some samosas on the go, and checked into the Marangu Hotel for dinner and an overnight stay before the next day's adventures.

**Day 3:** From our latest lodging, we had a delightful morning walking tour of a Chagga village. For me, it felt like home at my grandparents' place in Puerto Rico, with coffee and bananas growing, and chickens all around. Our host, Roderick, explained the lifestyle there and showed us his farm and animals, with additional pigs, rabbits, goats and more, as well as other local homes. In Tanzania, wealth looks quite different; it often lies within one's livestock, so animals are kept as a savings account.



*The author with Thamana, her adopted elephant, at the elephant orphanage.*

The subsequent border crossing into Kenya was an experience. When we arrived, there was one person in line, and our group was eighteen in number. Yet somehow, it took three-and-a-half hours for us to officially cross the border. If you ever need to cross by car, my advice is to bring patience and a book. Once we arrived and dropped our things at the Voi Wildlife Lodge, we visited the David Sheldrick Wildlife Trust, which acts as an elephant orphanage. Earlier this year, I adopted Thamana, a saucy and adorable cutie of an elephant. The trust sends monthly updates

from the keeper's notes, which I enjoyed reading in anticipation of meeting her. The experience of meeting the elephants was even better in person. The orphaned calves are grouped by age and have time to roam around and play with friends. Eventually, they are re-introduced to the reserve to prepare for the wild. We fed the elephants straw, pet their trunks and scratched them behind the ears; in turn, they loved snatching cameras. The view from the orphanage was breath-taking, and it was wonderful to support the wildlife in the area. A monkey popped into our car, and we spotted our first dik-diks and impalas in the area, reinforcing the country's balance of people living in harmony with the surrounding wildlife.

**Day 4:** While in Kenya, we had the option of rallying early for a 5:30 a.m. game drive through Tsavo East National Park. Most did not partake, but for me it was certainly a highlight of the trip, and it offered those not doing the five-day safari add-on at the end of the trip a true safari experience. First, the lighting was magic. The dust of the desert makes sunrises and sunsets seem otherworldly in Kenya. The sun looks massive, and the colours are spectacular. I felt like I was in a film. We saw roaming elephants and zebras, hundreds of buffalo, four lionesses, more dik-diks and impalas, and and mongooses. After arriving at our hotel we had breakfast overlooking a watering hole, where two elephant families were meeting and greeting, complete with teenaged elephants embracing trunks – it was the most beautiful morning I had ever experienced.

That day we visited three mines. The first, in Kamtonga, was a woman-owned tsavorite mine, where we met with the owner, Gladwell. Surprisingly, the Bishop



of Taveta was there with a large party when we arrived. He visits annually to bless the mine, so we met and prayed for the welfare of the mine and miners. The second mine we visited was owned by three friends, one of whom was Maina (see Big Picture, pp. 8-9). There, tsavorite and green garnet was mined. The third mine, owned by Peter, hosted green garnet and a tourmaline vein. At each mine we went down with our headlamps and gloves, inspecting the host rock and viewing the veins and indicator minerals. On the way to the mines, we drove through sisal fields, which locals used to make handcrafted baskets to sell at the local market. Along the way, the road also went through the Bridges Scorpion Mine, which was interesting to see.

**Day 5:** The day started with breakfast while watching a family of elephants at



*Maasai women at the Kitarini Primary School, Tanzania.*



the watering hole, a view I never tired of. We then drove to a mine with parallel tunnels of golden tourmaline and green garnet. There, they followed feldspar as the indicator for the golden tourmaline. This mine is owned by Antony, who is related to Peter from the mine we visited the day before. In a fun bit of trivia, we learned that Antony's father was the first person in Kenya to obtain a mineral mining permit.



*A pocket in the wall of a mine can indicate the presence of gem material. The pocket shown here (whitish area) was found in the wall of a golden tourmaline and tsavorite garnet mine.*

From the top of the open pit, we made our way down to the tunnels. The green garnet tunnel had a steep, six-foot drop at the beginning, and most opted out of further exploration after seeing that.

After our visit to Antony's mine, we went to the Mwatate Children's Home, where children are placed by the government as a last resort, when there is no place to go. We met Edith, a volunteer who is a single mom and the house mother, who acts as a parent to all forty-two children in the home. There, it costs \$550 (£462) per year for each child to attend secondary school, and Gem Legacy supports the home in several ways via donations to initiatives, including solar panel installation, new beds and library books. Everything we brought was so deeply appreciated – from the toys to the candy. Gem Legacy also delivered new mattresses on trucks the day we arrived at the school.

**Day 6:** On this last official day of the tour, our group of eighteen would now become seven (those that chose to stay for the optional safari). Before leaving Kenya, I visited the gift shop and found a beautiful jacket, locally made with a 'spiderweb meets trees' African print. The full day was spent driving back from Kenya to Tanzania – admittedly a long day. Saying goodbye was sad, but our WhatsApp group is still going strong, and we will be having a reunion at the 2023 Tucson gem shows. Arriving at the Boulevard Hotel in the evening was delightful, with delicious food and lovely views from the hilltop.

For those looking to explore East African mines with industry experts, or to support the mining communities in an impactful way, I recommend contacting Gem Legacy ([gemlegacy.org](http://gemlegacy.org)) or Gem Legacy Adventures ([www.gemlegacyadventures.com](http://www.gemlegacyadventures.com)) to organise or join a coloured gemstone tour. With their feet on the ground, Gem Legacy provides the trade access to support artisanal mining communities. It is our responsibility as an industry to ensure that those at the source of our supply chain are taken care of, and this is a fantastic way to educate oneself while giving back. ■

*For previous reporting on Gem Legacy, see Spring 2021 G&J, pp. 14 -15.*



*Tsavorite garnet production from southern Kenya held by the mine's owner, who has been mining coloured gemstones for over 30 years. Photo by Rachel Merisheki.*

## GEM LEGACY

**A not-for-profit organisation that works to bring long-term benefits to East African artisanal gem miners.**

Gem Legacy Adventures is the financial partner of Gem Legacy, a 501(c)3 not-for-profit organisation that was founded in 2018 to support entrepreneurship, vocational training and community development in East African gem mining communities. Their purpose is to connect the gem and jewellery industry – and gem and jewellery lovers – with tangible philanthropic work that directly affects the supply chain. Its main goal is to serve artisanal coloured gemstone miners, those who are working without outside assistance or financial support and who are using the most rudimentary methods and tools.

The organisation also works with these groups to expand the benefits of mining beyond the immediate families of miners to their more marginalised members: orphans, disabled, the elderly and the impoverished. They look to provide assistance that has a long-term impact; this often comes in the form of education or vocational training. Many of Gem Legacy's initiatives are based on gem cutter Roger Dery's charitable work in East Africa since 2010. Dery's established relationships helped to give Gem Legacy the foundation to grow in its work in East Africa. Though Dery founded the organisation, it is now operated by the board of directors.

Gem Legacy is committed to financial transparency to its donors. The organisation never provides cash support to any initiative, instead donating items or paying directly for necessary items that are then delivered. One hundred percent of every donation goes directly to the initiative the donor selects. All administrative costs for running the non-profit have, until the founding of Gem Legacy Adventures in 2022, been covered by contributions by the board of directors on mutually agreed-upon cost.

# Microscopic Exploration of Gem and Mineral Surfaces

Nathan Renfro, GIA's manager of colored stones, explains how studying the surface of minerals and gemstones can provide a wealth of information about the material.

The gemmologist's most powerful instrument, the microscope, is typically used to examine the interior of gem materials to observe clues about a gem's identity, treatments or even place of geographic origin. As gemmology is an observational science, these microscopic, optically observable irregularities, or inclusions, are essential to understanding the gems one may find themselves examining. One area, however, that may be overlooked when examining a gemstone is the surface.

The surfaces of polished gems and gem minerals regularly contain interesting features that provide useful information to the observant gemmologist. This may include clues that a gem has been heat treated after it was cut and polished, leaving behind melt damage; there may simply be a beautiful etched pattern that gives clues about the crystal system to which that material belongs. It is therefore important to not only explore the interior of a gem with the microscope, but also spend some time carefully looking over a gem's



1. Left: The author's Nikon SMZ10 stereomicroscope with gemmological base and fibre-optic illumination setup. Right: The author's custom vintage Zeiss Universal compound microscope equipped with differential interference contrast (DIC) components, which facilitates the examination of surfaces of gem materials at high resolution.



surface to find hidden clues about the material at hand.

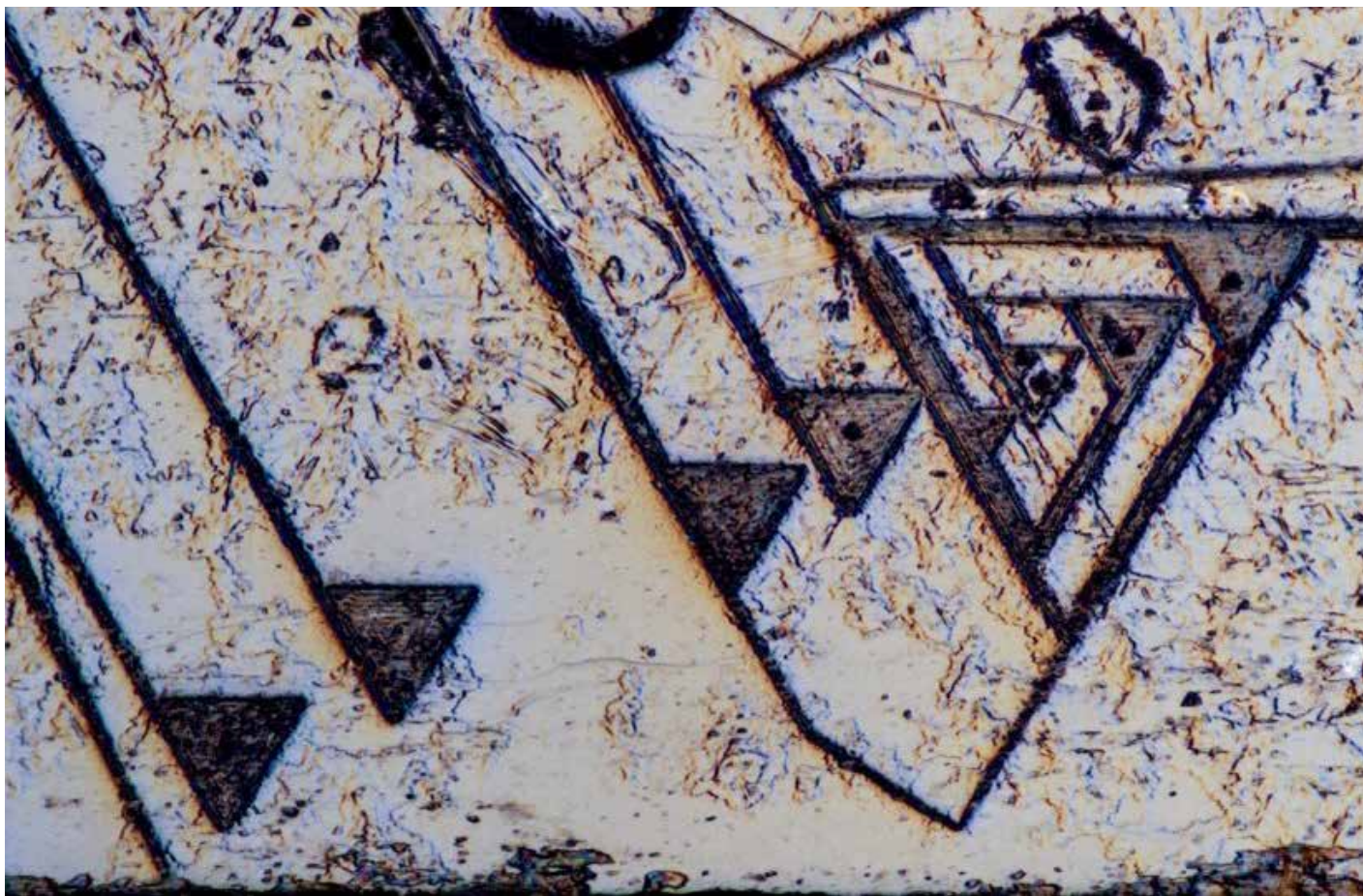
To properly examine a gem material, a gemmologist requires the ability to inspect the stone under magnification. While this can be accomplished with a device as simple as a 10× loupe or handheld

lens, there really is no replacement for a well-equipped microscope. The microscope is the only tool that becomes more powerful with use as a gemmologist becomes more experienced; its only limitations are the experience of the microscopist and the resolving power of the optics. Most gemmological microscopes are low-power stereomicroscopes, which work very well at resolving details in objects the size of most gems. But there are many other microscope options – including high-magnification compound microscopes – that can enhance one's ability to resolve the fine details that comprise the surfaces of gems and minerals. Many compound microscopes can also be fitted with specialised hardware to facilitate contrast enhancement, using a technique



2. Trigons are commonly seen on the octahedral faces of natural diamonds, as they dissolve while being transported to the earth's surface. The trigons in this example, from Greenland, are visible with DIC illumination. Field of view 2.8 mm. Stone courtesy of the John Koivula Inclusion Collection.





3. Triangular etch marks may be observed on the octahedral faces of cubic minerals other than diamond, such as on the surface of this spinel. Field of view 0.72 mm.

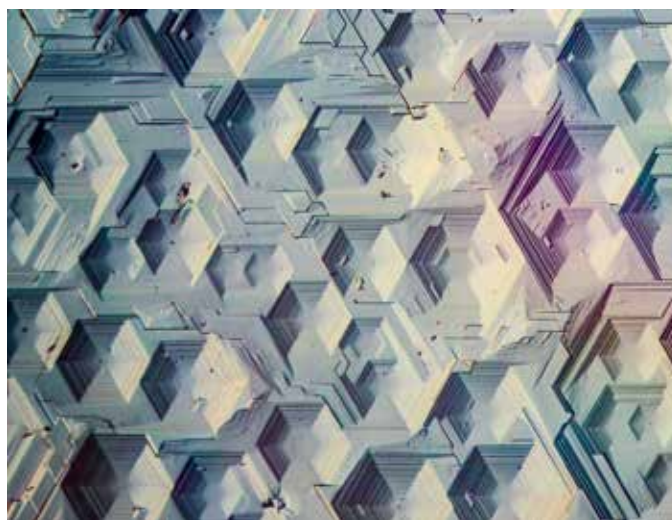
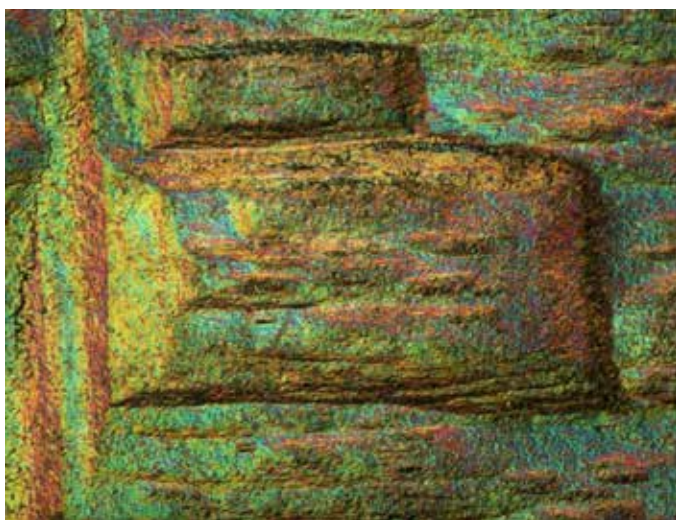
known as differential interference contrast (DIC). An example is shown in the right-hand photo of (1). Proper lighting, including darkfield, brightfield and shadowing can also help to improve the details one can observe with the microscope. Modified Rheinberg

illumination, or adding coloured filters to increase contrast, is also a useful technique that can be applied to surface features.

### MINERALS

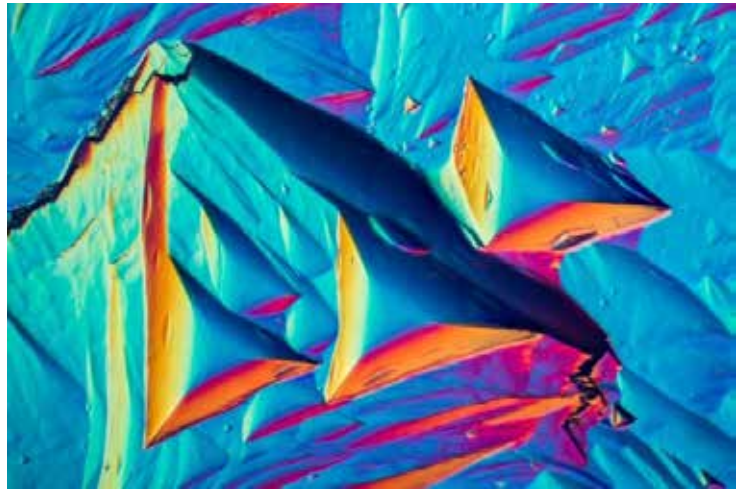
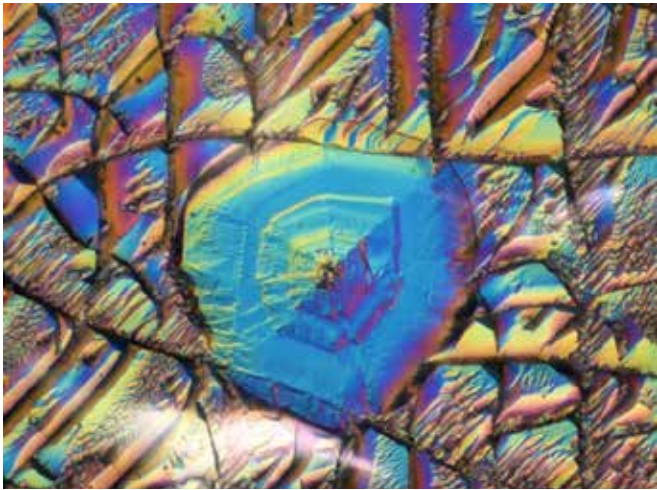
The surfaces of minerals often become etched when they are out of equilibrium

with their growth environment and then begin to dissolve away. This dissolution process can leave structural clues on the surfaces of minerals that hint at the gem's identity or crystal structure or reveal subtle zones of defects in the structure of a specific crystal. These zones →



4. Rectangular etch features may sometimes be seen on the prism faces of beryl crystals (left), while the basal pinacoid faces on beryl crystals may show hexagonal etching (right). Both features, viewed using DIC, give the observer clues about the structure of the host crystal. Field of view 0.72 mm (left) and 1.5 mm (right).





5. Using DIC microscopy, the surface of a tourmaline (left) and sapphire (right) both show triangular etching perpendicular to the *c*-axis, a clear indication of their trigonal crystal structure. Field of view 0.28 mm (left) and 1.1 mm (right).

of high concentrations of defects often have much higher solubility, making etch features in these areas more prominent. These could be areas in a crystal that are twinned, they might have a dislocation in the crystal lattice that extends to the surface or it simply may be an area where strain has caused a crack to form and was subsequently etched. Some common features that are readily identifiable that give clues to a gem's identity are triangular etch features on the surface of octahedral faces of diamonds (2), and occasionally other cubic minerals such as spinel (3). Other minerals, such as beryl, may show rectangular etch features on prism faces (4, left), or hexagonal patterns on the basal pinacoid that reveal their hexagonal crystal system (4, right). Tourmaline and sapphire may show triangular etching perpendicular to their

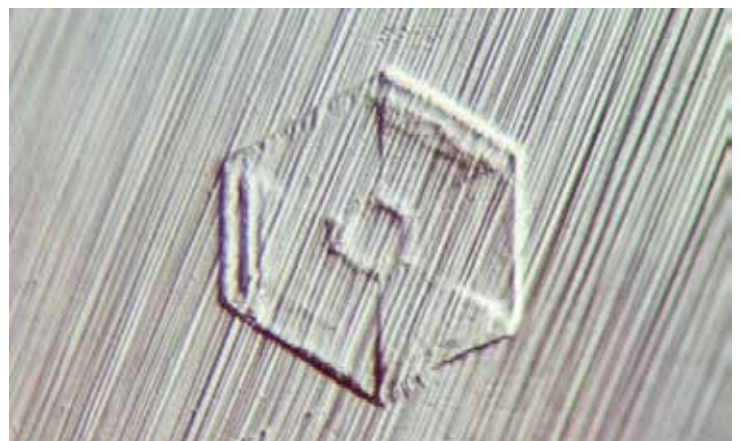
length; this reveals their trigonal crystal structure (5).

Other minerals may have 'impression marks' or 'casts' where other foreign mineral phases existed on the surface during late-stage formation of a crystal. These foreign materials subsequently dissolved away, leaving a so-called cast of the long-dispersed mineral behind. Such marks are visible in the titanite crystal and Arkansas quartz shown in (6).

### CUT GEMS

Surface features of cut gems occasionally provide subtle clues about their history if you examine them carefully. Melt damage on the surface of sapphires is often used as diagnostic proof of heat treatment (7). Occasionally, flame-fusion synthetic ruby may reveal a pattern of curved striae on the surface resulting from heat damage (8). Drag lines cutting across fractures or cracks on the surface of a gem,

If examined carefully, the surface features of cut gems occasionally provide subtle clues about their path to the microscope.



6. Foreign minerals that nucleate on the surface of mineral crystals during late-stage growth sometimes dissolve, leaving their "impressions" or "casts" as the only evidence of their existence. The titanite crystal surface (left; field of view 7.54 mm) has casts from what was likely chlorite, while the Arkansas quartz (right; field of view 1.1 mm) shows a cast of what was probably pyrite. Stones courtesy of the John Koivula Inclusion Collection (left), and Avant Mining (right).



7. Melt damage on the faceted surface of this sapphire, as seen using DIC microscopy, offers diagnostic proof of heat treatment. Field of view 0.72 mm.



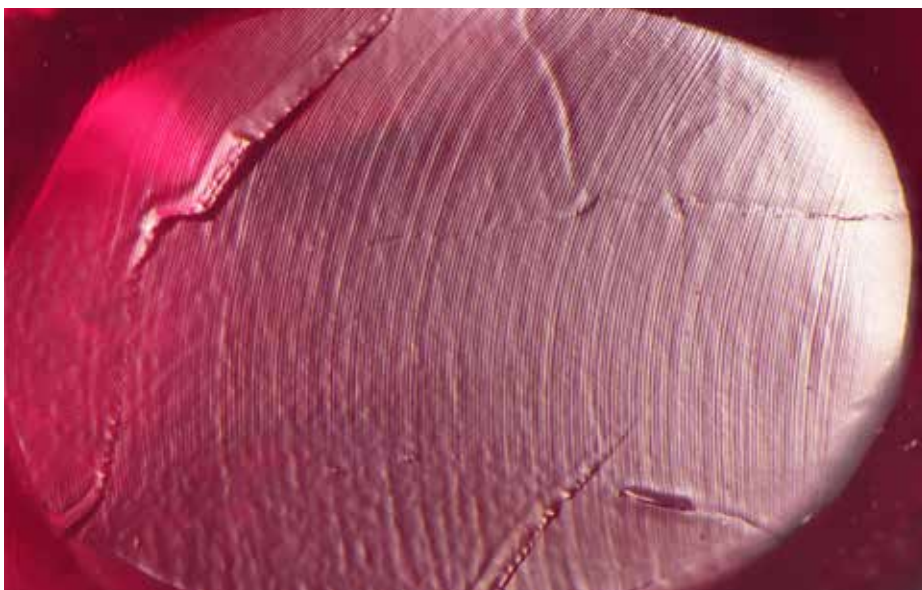
as in the diamond in (9), may be used to determine if such a feature was present at the time the stone was polished.

If polish lines cut across a break in a stone uninterrupted, then the feature was unlikely to be present at the stone's last polishing. If the fracture or crack shows drag lines starting at the damage feature, then that would prove that

the feature existed when the stone was cut, indicating that the crack existed before the stone was last polished.

In summary, gemmologists often use the microscope to explore the internal world of gems in order to gain information about specific stones that are being examined. However, it is important for the gemmologist to

carefully scrutinise surface features as well as internal characteristics to gather information about a gem. It is also important to remember that the microscope is the gemmologist's most powerful instrument, with the limitations only being that of the microscopist's experience and how thoroughly its use is employed when examining a gem. ■



8. The structure of the curved striae is clearly visible in this flame-fusion ruby that has been heat damaged. Field of view 5.40 mm. Stone courtesy of the John Koivula Inclusion Collection.



9. Drag lines emanating from a cleavage crack in a faceted diamond, viewed using DIC microscopy, indicate that the crack was present at the time it was last polished. Uninterrupted polish lines would indicate that the crack occurred after the stone was polished. Field of view 0.28 mm.

A list of references is available by contacting the editor.



# NICHE DESIGNER BRANDS

## CREATING A TARGET AUDIENCE

Some jewellers are creating successful businesses by finding and filling untapped niches in the market. Olga Gonzalez FGA DGA speaks to several designers who have found ways to make their aesthetics their calling card among very specific audiences.

**B**uilding a niche in the jewellery industry is an excellent branding strategy. It requires a level of discipline and business savvy that leaves only the best of the best standing. Selecting a target audience, meeting an unmet or underserved need, and developing product that fulfils that need are only the first steps to building and becoming a viable jewellery business. In the field of design, a company that focuses in on one aesthetic, or market, and develops it to perfection, is a company that will be around for the long haul. These designers are breaking ground in their various niches, developing jewels with a signature look, and for a specific audience, with a gorgeous aesthetic.

### KARINA BREZ

Equestrian fine jeweller and gemmologist Karina Brez first combined her passion for jewellery and horses when she launched her inaugural collection, Horse LUV, at Florida's Wellington Equestrian Center in 2013. Horse LUV combines the form of two horses into a heart, acting as a symbol for those who love the animals and an heirloom for connecting those who share this endearment. Brez says, "I grew up

admiring horses, and began riding in my early twenties. My inspiration comes from these majestic animals." Timeless and elegant, Karina Brez's designs capture the bond between human and horse. Her pieces throughout her various signature collections, which include Huggable Hooves, Bit of LUV and the Lucky Horseshoe collection, are wearable with one's everyday style. By being a niche designer, Brez says "it is easy to



*Jewellery by Karina Brez. Left: 18K yellow gold Bit of LUV bracelet. Right: 18K rose gold Horse LUV ring. Photos courtesy of Karina Brez.*



*Signet rings from Rebus. Top: 9K yellow gold Oxford oval signet ring, set with bloodstone (14 x 12 mm), with deep seal engraved family crest. Bottom: 18K yellow gold round signet ring, measuring 14 mm, with deep seal engraved family crest. Photos courtesy of Rebus.*

know my target audience, and when creating new collections, I stick to my horse theme." To learn more about Brez's work, visit [karinabrez.com](http://karinabrez.com) or follow @karinabrezjewelry on Instagram.

### REBUS

Steeped in tradition, Rebus ([rebussignetrings.com](http://rebussignetrings.com)/Instagram @rebussignetrings) has specialised in crafting hand-engraved signet rings since 1975. In their Hatton Garden workshop, a team of award-winning goldsmiths use long-established methods and tools to lovingly create exclusive, one-of-a-kind pieces that are cherished and passed down for generations. "An item of jewellery is a very personal and valued possession, which lends itself perfectly to the creation of something significant to recognise and celebrate the importance of the connection," noted Emmet Smith, founder of Rebus. "By concentrating on a clearly defined range of products, we can be master specialists with recognised

expertise, virtuosos in our chosen field." Exploring vision and ancestry, one can choose to have a motif rendered, such as an initial, crest or coat of arms. "A signet ring has a long and classic history. I love being able to play with the form in a way that is contemporary and fashionable without losing the classic quality that can still be appreciated by future generations", continued Smith. "Unique designs are also a great option, such as a child's fingerprint, a pet, or *memento mori* symbolism. Each ring can be engraved in reverse for use as a seal, adding an elegant touch to future correspondences."

### FRANCESCA VILLA

Inspired by *objet trouvés*, or the 'found object', Francesca Villa ([www.francescavilla.it](http://www.francescavilla.it) or @francescavillajewellery on Instagram) designs and creates pieces strongly linked to the past. She has always been passion about Essex crystal and reverse intaglio jewellery, an art where miniatures were traditionally engraved and hand painted onto rock crystal and cabochons. After collecting many of her own examples, Villa decided to collaborate with artisans who have mastered this difficult technique, creating a collection of her own designs. To add her own twist, she adds enamelling to the traditional hand painting. Describing her work, Francesca Villa explained, "In 'The Mermaid', our charming siren loves cherries, leaves the ocean and takes a piece of the sea into a drawer, afraid of being homesick. In the



Top: Kamala Ring by Cleopatra's Bling, featuring 22K gold, diamond and enamel. Right: Suki Earrings by Cleopatra's Bling, featuring 18K gold, emeralds, ruby, blue sapphire, freshwater pearls and enamel. Photos courtesy of Cleopatra's Bling.

same way, in the titanium ring 'The Fish Out of the Sea,' the little bird seems to scurry on a carpet of grass, embellished with peridots, tsavorite and enamels."

### CLEOPATRA'S BLING

Ethereal and symbolic, Cleopatra's Bling is the creation of Olivia Cummings. The jeweller-designer moved to Turkey, finding inspiration at the Grand Bazaar and fusing Eastern enticement with Western style. "The mixing pot of cultures got me very interested in researching ancient



techniques of jewellery making that came from the Far East via the Silk Roads," Cummings related. Every Cleopatra's Bling design is developed in wax and then handmade; each one is authentic to the designer's vision. Regarding her personal connection to this aesthetic, Cummings said, "I love the mythology and symbolism, it makes me feel grounded and connected. I want the jewellery to create a bridge between people that elicits empathy and compassion. These values are important to me in a world that polarises and separates." To learn more about the line, visit [cleopatrasbling.com](http://cleopatrasbling.com) or follow @cleopatrasbling on Instagram. →



Jewellery by Francesca Villa Left: Fish Out of the Sea ring, with titanium, yellow gold, tsavorite, peridot and a rock crystal cabochon that was carved and depicted by hand on a crystal turquoise plate, with an enameled sea-star on the back of the ring. Right: The Mermaid and the Sea ring, featuring pink gold and a rock crystal cabochon, carved and depicted by hand, on a crystal green turquoise plate, with an enameled ocean inside the drawer. Photos courtesy of Francesca Villa.





*The Enclosed Effervescence necklace by Maria Blondet, which uses Argentium silver and gold. Photos courtesy of Maria Blondet.*

## MARIA BLONDET

Based in San Juan, Puerto Rico, Maria Blondet creates sculptural sheet metal jewellery with both polished and textured finishes that can be rearranged to create a variety of positive and negative spaces, alongside juxtaposing light and dark metals. Her pieces are wearable sculptures, where the sheets can be moved to give a necklace or a pair of earrings half-a-dozen looks. Blondet stated "I am a niche of a niche of a niche, and I love it. It differentiates me from the crowd. I do not like to be conventional, nor one of the crowd. Being in a niche allows me to create my art regardless of commercial trends. I offer exclusivity, uniqueness and empowerment to the wearer through my work. I celebrate each person's individuality and want them to be able to feel like, love and celebrate themselves." For her, the principal elements of design are balance,

colour, texture, shape, weight and the actual wearer. Each piece is made with individuality in mind, which is completed once it reaches its final destination, by being worn. To learn more, visit [mariablondet.com](http://mariablondet.com) or follow @mariablondetjewelry on Instagram.

## CARBON 6

Brooklyn-based Carbon 6 ([carbon6rings.com](http://carbon6rings.com)/ IG: @carbon\_6\_rings) has developed a niche market of customers via their high-quality carbon fibre and Damascus steel rings. Their forged Carbon Fiber is created by fusing together two elements – carbon fibre and resin – that together create something stronger and more resilient than either material could be on its own. The material itself symbolises the strength and beauty a relationship can hold, and it has become a popular choice for alternative wedding bands.

Each in a category unto their own, these niche designers embrace an aesthetic that is unmistakably linked to their brand identity.

Carbon 6's Damascus steel is inspired by the metal of choice used for swords and intricate patternmaking in the Near East. It is reminiscent of the beauty in the decoration of forged blades. Offering a comfortable fit with a sleek, modern aesthetic, Carbon 6's rings are natural conversation starters. "What makes forged carbon so striking, compared to other carbon-fibre rings, is the depth of layers that are reminiscent of marble," stated Claire Easley, the company's CEO.



*The Carbon Gold ring by Carbon 6, shown here in rose gold. Photo courtesy of Carbon 6.*



*The work of Christina Malle. Left: Leaf bracelet with 18K Fairmined gold and emerald. Right: Amethyst Leaf earrings featuring 18K Fairmined gold and amethyst. Photos by Ralph Gabriner, courtesy of Christina Malle.*

## CHRISTINA MALLE

Former human rights attorney-turned-goldsmith Christina Malle was drawn in by the words of Colombian miner Robert Alvarez. Speaking on the topic of Fairmined gold, Alvarez related how his local community was helped when a mine he worked at received Fairmined certification, a powerful message Malle took to heart. Believing that 'when it comes to gold, if one is not part of the solution, one is part of the problem', Malle herself became Fairmined certified. Working to further draw attention to the topics related to the issue, she created the Flora Collection. This new concept is inspired by the flowers, plants and trees in and around the Fairmined mining regions of Colombia and Peru. The Alliance for Responsible Mining (ARM), which manages Fairmined gold, agreed to Malle's request for images of what the mines looked like, including the plants growing there, to develop this collection. As a niche designer, Malle indicated that "I feel free to express my own aesthetic vision — and feel free to share my observations on the inequities in the jewellery supply chain." Christina Malle is also on the board of directors for Ethical Metalsmiths, and is slated to become president of the organisation in 2023 (to learn more about Ethical Metalsmiths, see Summer 2022 *G&J*, pp. 10-13). To learn more about her jewellery, visit [christinamalle.com](http://christinamalle.com) or follow @christinamallenyc on Instagram.

## K.I.L. NYC

Mythology has influenced the art of centuries, especially in ancient Greece and Rome. Animals and symbols have been used to create powerful messages

in fine art and sculpture, as well as within wearable works, such as jewellery. Konstantinos I. Leoussis, founder of K.I.L. NYC, has reintroduced ancient creatures into modern forms. Mr Leoussis said, "My family is Greek, and using many photos I took whilst in Greece as a child, I began practicing my own style of jewellery based on creatures from Greek mythology. I created Teras to bring those imaginary creatures into our world." With designs displaying a passion for history and tradition, his Teras Collection plays on a love of myths and monsters. "Each scale is lovingly hand carved, and precious stones are meticulously selected to bring the Minotaur, the Chimera, and the Argus from the pages of old times and into the world of modern jewellery. Our pieces are designed for

world explorers, history lovers, and those who would like to add a bit of eccentricity to their jewellery box." Visit [kil-nyc.com](http://kil-nyc.com) or follow @kil\_nyc on Instagram for more information on the Teras Collection.

While the inspirations for their pieces may differ, there is a striking similarity among the abovementioned jewellers. Each in a category unto their own, these niche designers embrace an aesthetic that is unmistakably linked to their brand identity. Whether the customer is an equestrian, art or mythology buff, environmentally conscious or looking for a unique men's ring, each company meets the desire with luxurious product, setting the bar high for other designers looking to specialise and carve out their own space in the trade. ■



*Rings by KIL NYC. Left: Harpy ring in sterling silver; centre: Medusa ring in sterling silver; right: Minos Ring sterling silver and turquoise. Photos courtesy of KIL NYC.*





# THE RETURN OF GEM-A'S ANNUAL PHOTOGRAPHER OF THE YEAR CONTEST!

Gem-A is thrilled to announce the return of the Photographer of the Year competition. This year introduces an exciting new theme: 'Metamorphosis'. Details on the rules and the prizes are found below.

**G**em-A's Photographer of the Year competition is back! We are delighted to announce that the contest is once again open to members of the general public, with fantastic prizes for one first-place winner and two runners-up.

This year's theme is 'Metamorphosis'. The world has undergone so much

change over the past few years, and the field of gemmology is no exception. We would like to see entrants capture the concept of metamorphosis – any complete change of physical form or substance, character or appearance – in their images.

Subjects that display metamorphosis may include a photomicrograph of

inclusions, a capture of a lapidary scene or a captivating picture of a suite of jewellery. We look forward to seeing the many interpretations of this theme.

*The Christmas Star, by Dr Clemens Schwarzing, was the winner of the 2021 Photographer of the Year Competition. The above photo shows rutile needles in the shape of star found in a colour-change garnet from Tunduru, Tanzania.*

## HOW TO ENTER

Email all entries to [editor@gem-a.com](mailto:editor@gem-a.com). Please send files larger than 10 mb via Dropbox.com or WeTransfer.com to [editor@gem-a.com](mailto:editor@gem-a.com) (these are free-to-use media transfer services).

The competition is open and we will be accepting entries until 28th October 2022. The ten photos selected for public voting will be posted to Facebook, and voting will be open until 23 November, with the five shortlisted finalists announced in early December; all three will be featured in the Winter 2022 issue of *G&J*. Good luck!

*For more information on the contest rules, or on how to enter the Photographer of the Year Competition, please contact [editor@gem-a.com](mailto:editor@gem-a.com).*

## JUDGING PROCESS

The *G&J* team will select ten entries, which will then be posted to our Facebook page for a public vote to create a shortlist of five finalists. Your 'Like' may be the one that pushes a photograph onto the shortlist, so be sure to follow us on Facebook.

A guest judge will then choose a first-place winner and two runners-up from the finalists.

## PRIZES

The first-place winner, along with the two runners-up, will be published in the Winter 2022 issue of *Gems&Jewellery* magazine. In addition to being featured on the cover of the issue, the first-place winner will receive a £300 voucher to spend at Gem-A Instruments, along with a one-year Gem-A Membership. The two runners-up, who will be featured within the issue, will each receive a £50 voucher redeemable at Gem-A Instruments. ■

## COMPETITION RULES

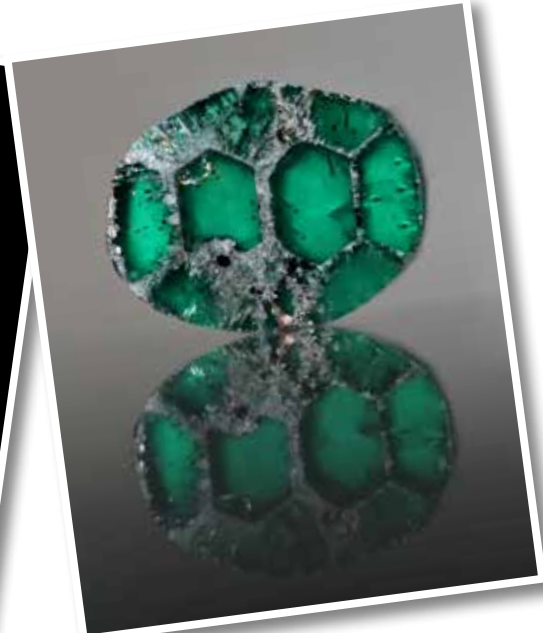
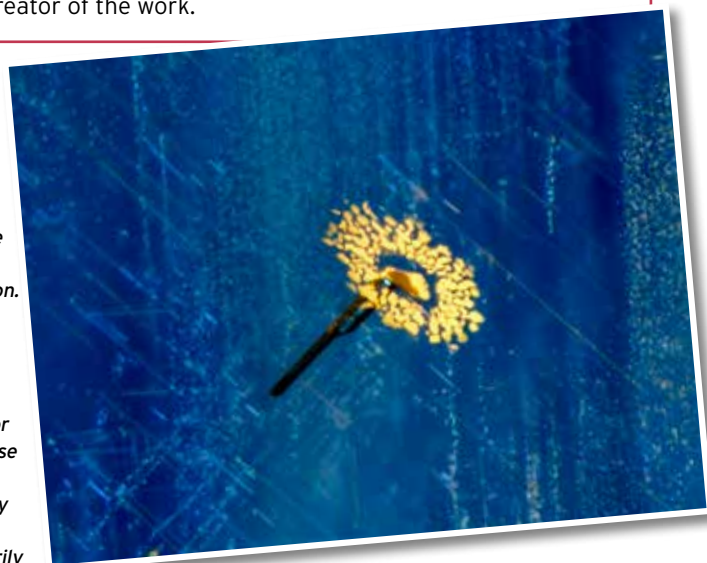
- A maximum of three photographs may be entered per person.
- Photographs must be high resolution (a minimum of 300 dpi and ideally at least 1 mb in size).
- Photomicrographs must be accompanied by field of view for proper digital representation (contact [editor@gem-a.com](mailto:editor@gem-a.com) if you need instruction on calculating field of view).
- Entries must be accompanied by your name and post-nominals (if applicable).
- Images must be captioned and a description of no more than 150 words telling the story behind the photograph must be included.
- All photographs entered into the competition must have been taken within the last twelve months.
- By entering the Photographer of the Year Competition, you accept and acknowledge that your image may be used in *Gems&Jewellery* magazine, on the Gem-A Blog and on Gem-A's social media channels. You will always be credited as the creator of the work.

*Right: Jonathan Muyal FGA was the 2017 Overall Winner with his 'Dandelion Flower' in Sapphire, showing a growth blockage with thin-film rosette in Sri Lankan sapphire using modified Rheinberg illumination. Field view 1.34 mm.*

*Below Left: In 2018, Maryam Mastery Salimi FGA won in the Humanity in Gems category for her photo of a Persian turquoise dealer near Neyshabur, Iran. Here, he is presenting a variety of Persian material and his finest blue turquoise temporarily mounted in a ring.*

*Below Centre: The 2018 Overall Winner was Richard W. Hughes FGA, with his photo Going for the Green. In this image, traders scramble for Myanmar jade at Yangmei's night market in Guangdong Province, China.*

*Below Right: In Wonder of Muzo, Wilma van der Giessen FGA GG AJP (a runner-up in the 2020 competition) captured an exceptional trapiche emerald with two hexagonal cores surrounded by eight trapezoidal sectors.*





# AN INHERITED PASSION TO A SPARKLING CAREER

Robin Hansen FGA BSc (Hon) grew up in a science-loving family (with a gemmologist mother) who embraced her love of rocks and colour, leading to the education – including her Gemmology Diploma – that made her career at the Natural History Museum in London possible.

**A**s a child I could never have imagined that ‘when I grew up’ I would be working with one of the world’s finest gem and mineral collections. My love of rocks, minerals, gems and generally all things colourful and sparkly started at a young age. I grew up in Perth, Western Australia (WA) in a science family. My dad is a science communicator. My mum is a researcher in science education; however, she initially studied geology and completed her diploma in gemmology from the Gemmological Association of Australia, and I definitely inherited her passion. As a family we went on many picnics in the nearby national parks and looked at the different types of rocks and textures they contained. I also remember spending hours trying to chip flakes of mica from the concrete curbs outside our house. Mum took us to local rock and gem shows, and I had a cabinet on the wall with my precious stones alongside other things I had collected.

When I began my studies at Curtin University, I knew I wanted to study science, but I didn’t know what to specialise in. My mum said, “Just try one unit of geology, you might really like it!” I did, and I was hooked! Geology became the focus of my degree, and I completed a BSc with Honours in geology.

Following university, I gained a graduate position with a Perth-based iron ore mining company, spending about three months of the year out in the remote WA bush working on exploration drilling programmes, admiring the hematite, chert and tiger’s eye. After three years my now-husband and I decided to move to London in order to travel in Europe. I worked as a personal

assistant for a few years, then took an opportunity to work for a partnership of high-end mineral dealers, thinking it would be nice to work with rocks again. It was a wonderful opportunity. I was based mostly in the UK and partly in the U.S. I was able to travel around the world to different mineral shows, including France, Germany and Japan. I also met a lot of amazing people, all of whom were passionate about minerals and collecting.

When I started in this new position, I thought I knew a lot about minerals, but the job completely opened my eyes to their diversity and where they come from. I remember being amazed that someone could look at a seemingly random mineral specimen and tell exactly which location around the world it came from, sometimes even the year

it was discovered! I learnt so much and was soon able to recognise the different forms, colours or mineral combinations that are unique to different locations. My appreciation also grew for their beauty – some specimens were simply works of art in the most beautiful colour combinations – each one unique and all created by nature.

It was whilst I was working there that I decided to do my Gemmology Foundation course, and then the Gemmology Diploma, through Gem-A. At the time I wasn’t working with gemstones, but it was a natural progression in my learning as, of course, many gemstones are cut from minerals (however, when talking to mineral collectors, you would never dare suggest that a crystal be destroyed to facet a gemstone!). I studied the courses remotely because I lived outside of London. I have to say it was challenging to go back to studying whilst working full time, but I had great tutors, such as Starla Turner and Kerry Gregory, that kept me motivated and I enjoyed chatting online with other students in the course. I was pleasantly surprised at how much science was involved in the study of gemmology; it gave me a whole new way to look at minerals. With a mineral specimen you have the natural crystal shape and other minerals on the specimen to help you identify what it is and where it comes from, but with gemstones all of those external features have been removed by faceting! The added complication of treatments that can alter a gemstone’s appearance means you cannot rely on colour for identification; you also need to consider if the gemstone could be synthetic. Gemmology was a whole new ball game



*Handling the gemstones and minerals (here, she installs tanzanite) is one of Mrs Hansen’s responsibilities as curator; her ability to do so allowed her to photograph the specimens for her book during the COVID-19 pandemic.*

to me, with completely different methods needed to identify gemstones.

One of the things that drew me to gemstones is my love of colour and sparkle (glitter is now banned from our household!). When I was at university, I did a short course on the science behind rainbows, which was fascinating and has always stuck with me. Did you know that everyone sees their own personal rainbow? Studying gemmology brought me back to my interest in learning about light, physical optics and causes of colour. It is fundamental to understand the way light interacts with a gemstone in order to identify it.

It was my dream to work at the Natural History Museum (NHM) from the moment I visited as an adult. I remember walking into the historic Mineral Gallery in awe; I spent hours walking up and down to look at every specimen on display whilst my husband and friends went off to see the rest of the museum. I even came back the next day so that I could complete it. I thought “how do I get a job here, even if it is just dusting the minerals?” Fifteen years later, the opportunity arose when one of the curators retired, and I was thrilled to be selected for the role from over 100 applicants. I believe that my gemmological knowledge, gained through my Gem-A qualifications, combined with my knowledge and experience of minerals, enabled me to win this role. My gemmological background has also helped shape my career at the NHM. I was employed as a mineral curator, but in the seven years I have worked here I have shifted to focus on the gem collection, and my role now straddles both minerals and gems.

One of the things I am most proud of in my career is writing my new book *Gemstones: A Concise Reference Guide*. The NHM publishing team were keen to update and expand their very popular *Gems* book. I was eager to write it because



*Mrs Hansen examines specimens while surrounded by objects that represent her journey into curatorship at the Natural History Museum, London*

I knew that I would learn a lot in the process, and it would be a great opportunity to utilise the museum’s gem collection. I also quite enjoy writing. At the time, we were so busy with other projects it was decided that I would write the book outside of work hours. I have a fairly long commute to the museum, so I thought I would do a bit on the train each day. I now look back and laugh at my naivete! I did loads of research to make sure I had accurate and up-to-date information, and the *Journal of Gemmology* was a great resource for this. I am very proud of the result; I have packed in as much information as I could, including interesting facts, properties and cause of colour, as well as an introduction to the science behind gemmology and identification of gems. I also really enjoyed selecting images for the book. I spent a lot of time trawling through the NHM collection to find the best example of different gems or features. During the COVID lockdowns, I was able to get permission to come on-site, while the public was not in, to take a bunch of gemstones off display for our Photo Unit

to capture — a very surreal experience in a completely quiet museum.

I have met many wonderful and interesting people through gemmology — dealers, carvers, jewellers, researchers and enthusiasts. They may come from different backgrounds, but everyone shares a love of gemstones. I have enjoyed conferences, including those of the Gem-A and the Scottish Gemmological Association. It is a great community and I have met some incredible role models. I have even managed to write some gemmological articles with my mum!

Gemmology is such a fascinating subject. Gemstones are something that nearly everyone is familiar with and can connect with; we wear them because they bring us joy. But there is so much more to them — how they got their names, how they have been treasured over time, the geology of how they formed and how they fit into the big picture of the history of the earth. At the opposite end of the scale is how their internal crystal structure and elemental composition determine their colour and other properties, how we identify them and (bringing us back full circle) how we use and enjoy them. Gemmology really does have something for everyone, and through my education with Gem-A, I have had the pleasure to make it my career. ■

*Robin Hansen is curator, minerals and gemstones, at the Natural History Museum, London.*

**Did you know that everyone sees their own personal rainbow? Studying gemmology brought me back to my interest in learning about light, physical optics and causes of colour.**



# THE IMPACT OF DURABILITY & TECHNOLOGY ON GEMSTONE FASHIONING

**Danielle Wallace FGA investigates how a gemstone's hardness affects its cut, and how technological advances have affected the fashioning of gem materials in recent years.**

**T**he ability of rockhounds to fossick for gems, and the availability of rough material online, in specialist stores, gem markets and from traders, has made it possible for people from all walks of life to fashion their chosen gemstones. A person does not need to be a lapidary, diamond manufacturer, gemmologist or jeweller to fashion and mount gemstones — after all, gems have been fashioned for thousands of years, and techniques that were used in antiquity can still be used today. But knowledge and experience will certainly make the difference in whether the end result of their efforts is a thing of beauty, quality and fit. Additionally, new technology and equipment continues to

be developed that takes the guesswork out of identifying gemstones and their inclusions, and can scan, plan, cut, facet and polish gem material.

## CONSIDERATIONS

Choosing the right gemstone to fashion is important, as not all material is right for cutting and faceting. Taking the time to evaluate each stone and its individual qualities will mean a better outcome and minimise any surprises.

### Identification

When selecting material for fashioning, Dr Neil McCallum FGA – who travels around the world seeking gem rough to facet – advises buyers to select material in a 'blocky shape'. This achieves the

best yield and give the widest range of style options for faceting. 'Stones with a length divided by its width greater than 1.2 will have a poorer return of light which affects value and beauty' (pers. comm. with N. McCallum, 2020).

If the gem type was not disclosed at the time of sale, the material must also be established before the work begins. If the rough material has not been identified by a reliable source, a gemmologist will, in many cases, be able to provide this information; if not, they can recommend that it be sent for laboratory testing. Once the identity of the material has been ascertained, the crystal structure is determined. This dictates the material's qualities, such as its ability to be cut in different directions, handle grinding and polishing during fashioning process, reflect and refract light, and show certain colours and special effects in different lights and directions.



*An amethyst crystal and cabochons alongside faceted stones and earrings.*



*Clockwise from top: citrine crystal, faceted stone and mounted pendant.*

## Fashioning Choices

Fashioning may take many forms such as cutting, shaping, faceting and/or polishing, tumbling, carving and engraving. Form and style are often influenced by the material's durability. The durability factors of hardness, toughness and stability determine how susceptible a gemstone is to scratching and abrasion, an impact or blow, pressure, temperature changes, chemical attack and atmospheric conditions (Gem-A, 2008).

*Inclusions and Treatment.* Inclusions within a gemstone may also affect cutting, fashioning and setting decisions. For example, heat from the grinding wheel or the jeweller's torch may cause



*Gems in rough (left), polished (centre) and fashioned and mounted states (right).*

inclusions to expand or fracture further, in some cases causing the stone to split. For this reason, identifying all inclusions is very important before deciding to purchase. 'Good lighting, a loupe and 4x magnification are essential' (pers. comm. with N. McCallum, 2020). One tip Dr McCallum has for viewing rough is to smear the gem face with cinnamon bark oil to make any inclusions more visible. One must also note that windows may be polished into transparent rough that has an outer coating that makes it difficult to see inclusions (Gem-A, 2008).

Some treatments a gemstone may undergo can affect the durability of the specimen. Overbleaching may weaken the durability of some materials, such as jadeite. While fracture filling may improve a gem's durability (e.g., ruby), it can also be damaged during the cleaning, fashioning and setting processes (Gem-A, 2008).

**Cut.** Durable materials such as diamond, sapphire, ruby, topaz and spinel are usually faceted. Generally, the full range of cutting styles can be used on these gems. Common cuts include the round brilliant, oval, princess, pear, emerald, baguette, step cut and mixed cut. Brittle or softer materials (e.g., garnet, emerald and aquamarine, tourmaline and quartz) may also be faceted, but the style chosen may be adapted to reduce the risk of damage to the stone. For example, the rounded cushion cut or the rectangular emerald cut with the corners cut off might be used to

prevent the fragile points from being chipped or broken.

A cabochon cut, with its rounded dome, is the ideal choice for soft, easily scratched, damaged or heavily included material. The curved shape minimises the appearance of scratches, leaving no sharp edges to break and hopefully deflecting direct impacts. Gem specimens that displayed phenomena, such as asterism (star) and chatoyancy (cat's eye) effects, are also best cut as cabochons to display their qualities.

Relative hardness is utilised with harder materials polishing softer materials. When cutting any stone, diamond-bonded saw blades with a steel core can be used. For faceting gem materials, sheets of plastic or metal, called laps, are pre-coated or applied with a slurry made from an abrasive polishing compound like cerium, aluminium, tin or chrome oxide.

When working with a variety of gem materials, diamond-coated laps of metal or ceramic can be used. Diamond powders and diamond paste of various grits are also available (Harris, 2019; North Shore Rockhounds Club, 2020).

### Differential Hardness

Some gem materials have differential hardness according to the Moh's Scale, meaning there may be different hardness levels in different directions on the crystal faces; this will affect cutting and polishing (Gem-A, 2008). Changing the direction in which the lap is spinning for some facets can resolve the problem for some gems, such as spinel (pers. comm. with N. McCallum, 2020). Kyanite has two different hardness directions: approximately 5 along the length and 7 along the width, which can make it challenging to cut (Gem-A, 2009). Diamond has several directions that vary from soft to hard to



*The small fragment of kyanite below shows distinct fracture lines along the length of the crystal compared to the width. The pearly lustre on the surface is indicative of kyanite's perfect and easy cleavage in one direction.*





*Richard Ussher (left) shows how to shape the material – in this case, green glass – using a lap, once the specimen is mounted on a dop (right).*

hardest; these directions can be used to cut and polish the stone.

### Fracturing

Cleavage or fracturing can occur when an impact is received or stress is applied to the body of a gem material. Not all gem materials have cleavage but those that do may split in one or more directions along the crystal's structural planes (Gem-A, 2008). This feature may be exploited by the gem cutter to divide a stone, or skill and experience can be employed to keep this from happening.

When polishing a gem that has a cleavage plane, the specimen should be polished on a slight angle so the plane does not shear away (Gem-A, 2009; Phillips, 2020; pers. comm. with R. Ussher, 2020). Topaz has basal cleavage in one direction, and tourmaline is



susceptible to fracturing. 'Tourmaline will fracture with the build-up of heat from grinding and fineness, speed of cutting and use of water are pertinent' (pers. comm. with N. McCallum, 2020). Harder materials may be polished to a higher degree, resulting in a better, longer-lasting lustre. While it is possible to fashion softer gem materials, success depends on the skill and experience of the gem cutter (Gem-A, 2008; Schumann, 2013).

### FACETING

On a visit to the North Shore Rockhound Club in Auckland, New Zealand, I was able to observe and then interview Richard Ussher, who was teaching a new member the art of faceting. The rough was cemented to a dop – in this case, green glass – and then mounted at a 90-degree angle to the lap to shape the glass.

When cutting, a table of facet angles is referred to that identifies the hardness and refractive index of commonly faceted gem materials. Pressure is kept on the material being faceted. If too much pressure is applied to the dop, the cement holding the material in place may break (pers. comm. with R. Ussher, 2020). If this happens it can be very difficult to realign the stone accurately, and this will affect the precision of the facets (Phillips, 2020). When fashioning diamonds, friction between a diamond and the scaife (grinding wheel) may cause burn marks on a diamond during polishing (Gemmological Association of Australia, 2019).

### Setting

If the finished jewel is to be used in jewellery, durability must also be considered in the type and style of the setting. Will it be worn as a pendant on a long chain where it may come into contact with other hard objects. or a short chain protected by close proximity to the neck? Will the gems be used in earrings where more delicate cuts, such as marquise, briolette, triangle or other fancy cuts can be considered? If the jewel is to be used in an engagement or wedding ring and worn every day, or a bracelet that will come in constant contact with surfaces, hard materials such as diamond, ruby or sapphire are recommended. A robust setting is also advised to protect the gem(s) from being



*The Lesedi La Rona, at 1109 ct (left) was the second-largest gem-quality diamond ever mined. Graff, which purchased the rough, used state-of-the-art technology to cut and polish the rough into a 302.37 square-emerald cut gemstone (right). Photos courtesy of Lucara Diamond Corp.*

## Danielle Wallace FGA talks about the path that led to her new career as a jewellery valuer.

I can remember hanging out at the gemstone stand at the annual Arts and Crafts Show when I was about seven years old. I was fascinated by the variety of stones, how they looked and how they could be polished or faceted and made into jewellery. I still have the blue lace agate and the rutilated quartz pendant I bought with my pocket money.

The love of gemstones and jewellery grew, and when my daughters started university I decided, after many years as a self-employed software trainer, that I wanted to learn more about gemmology. When I bought an antique butterfly brooch and had it valued I asked the gemmologist "How do I learn to do what you do?" I was told that Gem-A was the place to study. I signed up and threw myself into my studies. I loved it. My tutors from around the world were great. In New Zealand we are very fortunate to have our own Gem-A practical tutor and to be able to sit our exams in Auckland; this was another major factor in choosing to study with the Association.

My supportive family spurred me on; when a U.S.-based student from my Diploma year put up a post asking if anyone would be interested in forming a study group, I was in. Our small group consisted of people from the UK, the U.S., Australia and me, the Kiwi, meeting over Zoom at 2:00 am NZ time. Our group kept us motivated and connected while COVID-19 played havoc with our focus and exam dates. We still have our chat group, and I'm so excited to be attending Conference this year and hoping to meet some of these wonderful people in person.

After gaining my Diploma, I trained with an FGA/DGA Gemmologist as a jewellery valuer. I have taken over the business upon her retirement and achieved my goal of working in this multifaceted industry. All I can say is it is never too late to learn. Gem-A has led me to a whole new career, and I count myself as truly fortunate.



damaged. The claw or prong setting is one of the most popular choices for mounting almost any fashioned gemstone; however, for less-durable stones or shapes with delicate edges, a bezel cut may be advisable.

### TECHNOLOGY

Technology specifically created to assist with the fashioning of gemstones continues to evolve. Computer-Aided Design (CAD) software such as GemCad and GemRay (Strickland, 2012), and Gem Cut Studio (2018) enables the gem cutter

to do additional work, such as designing and planning new facets, working out the cutting angles and index settings to replicate famous stones like the Hope Diamond (Rowland, n.d.), and sharing their designs with others (Keller, n.d.).

The Graff Lesedi la Rona Diamond is an example of finding a solution to cut a unique diamond and maximise the yield using CAD. The software available at the time was not able to be applied to such a large rough diamond. The development team at Graff created new scanning, planning and mapping equipment to design the best possible stones and instruct the state-of-the-art laser equipment to cut the 1109 ct rough into an exquisite 302.37 ct square-emerald-cut gemstone of the highest quality (Graff, 2019).

A further sixty-six smaller diamonds of a variety of shapes and sizes were also cut and polished from the original rough (Graff, 2019). Advanced laser technology has enabled diamond to be cut in any direction and shape, regardless of directional hardness. At this stage it is not possible to use laser on other gem materials as they are not able to conduct heat as efficiently as diamond and would be adversely affected. (Gem-A, 2009)

The Sarine Galaxy 1000, in the Sarine Technologies range of computerised equipment, is able to identify and render a 3D visual of every inclusion in the diamond rough. It can then map out exactly how the diamond should be cut to produce the best yield, maximise the clarity, colour, cut and carat of each stone and lay out the path the laser should take to cut out these stone (Sarine Technologies, Ltd., 2019).

### CONCLUSION

Durability plays a core role in the selection, planning, fashioning and setting of gem materials. Technology continues to advance and automate many of the roles performed by skilled lapidaries and diamond manufacturers. However, beautiful jewels and jewellery can be fashioned with or without computerised automation by master craftsmen or enthusiastic amateurs. Beauty is in the eye of the beholder when it comes to gemstones and there is an ever-evolving range of choices to suit our own individual tastes. ■

*A list of references is available upon request to the editor.*







*The Princess of Wales, then known as the Duchess of Cambridge, wore pearls borrowed from Queen Elizabeth II to the funeral of Prince Philip, Duke of Edinburgh on 17 April 2021. She is shown here wearing the Bahrain Pearl Drop Earrings and the four-strand Japanese Choker Necklace. She wore this same combination to the Queen's funeral on 19 September 2022. Photo by Chris Jackson/WPA Pool/Shutterstock.*



*Princess Anne accompanied her mother's coffin to London from its starting point in Balmoral. During the journey, she wore the gold, diamond and pearl Grima earrings the Queen and Prince Philip gave to her in the late 1960s. Photo by Victoria Stewart/Daily Record.*

# THE TRADITION OF MOURNING JEWELLERY AMONG THE ROYAL FAMILY

As the UK witnessed the passing of a monarch for the first time in seventy years, we saw the protocol that the royal women followed regarding their jewellery. We noted the historical relevance of wearing pearls as HM The Queen's family paid their last respects.

**F**or the first time in seven decades, the United Kingdom became familiar with the protocols that surround a monarch's passing.

In the days following the death of HM The Queen on 8 September up until her state funeral on 19 September, much was made about the activities, rituals and even the adornment of her mourners, including their jewellery. Some younger members chose to wear pieces with sentimental value; for example, both Lady Louise Windsor and Princess Charlotte of Wales wore jewellery that emphasised the love of horses they shared with the Queen. Other family members, including Princess Anne, the late queen's granddaughters-in-law and other relatives, largely embraced pearls to honour their beloved matriarch, just as they did alongside Her Majesty when honouring the life of the Duke of Edinburgh in April 2021.

This is to be expected, for two reasons. First, Elizabeth II herself was so closely associated with pearls, wearing them throughout her lifetime. Second, for generations pearls have been recognisable as an acceptable jewel for those in mourning, both within the British Royal Family and in the general population.

Indeed, it is no surprise that the House of Windsor, known for its Crown Jewels and the extensive private jewellery collection of the monarch, has established its own customs around the use of jewellery to express bereavement.

While jewels have always been a way of conveying emotion, a strong tradition of using pieces to define grief dates to Queen Victoria and her own significant period of mourning. Victoria's loss is usually associated with the death of her consort, Prince Albert, and her subsequent widowhood. But the deaths of other family members, including that of her daughter, Princess Alice, also affected her deeply, and led to the popularisation of mourning jewellery in the Victorian era and beyond. While pearls were worn as a symbol of grieving by Victoria – and others who followed her example – other materials, such as jet, onyx and white enamel were also embraced.

Jewellery to commemorate the dead predates the Victorian era by centuries; the most famous type may be *memento mori* which, translated from Latin, means 'remember that you must die'. In such jewels, skulls, crossbones, skeletons and coffins were frequent motifs. These pieces, however, were also an exhortation to live a moral life to earn a heavenly reward. According to Hatton Garden-based Rebus, which includes *memento mori* signet rings in its catalogue, "These reminders of the inevitability of death serve to remind us of those who have passed, but also to live our own lives to the full. It's a universal notion that serves as a humbling reminder of the transience of life." Even among the popularity of such reminders, people wore lockets or items that were simply remembrances

of lost loved ones. In a notable example, Queen Elizabeth I wore the ring now known as the Chequers Ring when she died. Within a secret compartment of the mother-of-pearl ring, which was set with gold and rubies, was a locket with two portraits. One was of the queen herself, and one was believed to be of her mother, Anne Boleyn, who was executed when Elizabeth was only two years old.

Yet it was the nineteenth-century reign of Queen Victoria – and particularly in the year 1861, when she lost both her mother Victoire, Dowager Duchess of Kent and Albert, her prince consort – where mourning jewellery took centre stage. The death of her husband sent Victoria into mourning for the rest of her life, a state only enhanced by the three children who preceded her in death. For Victoria, who wanted to wear her losses on her person, this prompted a shift from the more macabre symbols of previous



*Memento mori rings, such as this gold signet example from Rebus in Hatton Garden, served as reminders of the dead but also to for the living to embrace life and to work towards earning eternal life. Photo courtesy of Rebus.*

years to the precious objects that others soon sought to emulate. “Queen Victoria was the biggest jewelry influencer of all time,” Rebecca Selva, creative director of Fred Leighton, told U.S.-based magazine *Town & Country* in 2021. Because she loved jewellery so much, as did Albert, she sought to make it as fashionable as possible, and while doing so “...imbued the pieces with romance. And everyone in court followed suit.”

The motifs they emulated included anchors (for unswerving faith), angels, hearts and other symbols associated

with love, in colours associated with mourning (whether the full black of deep mourning, or the greys or light purples of half-mourning). This led to the popularisation of jet, particularly from the Whitby area of England, and onyx, as well as some agates. Pearls were not only considered to ‘suppress’ colour, according to Vivienne Becker, they were thought to do so without being ‘glittery or brash’. The Victorians saw pearls as representative of tears, making them the perfect choice to wear with the dress code of all stages of the mourning process.

Mourning jewellery has its fans today. In 2021 Sotheby’s auctioned several of Victoria’s mourning pieces, inherited by her great-great-granddaughter Patricia Knatchbull, 2nd Countess Mountbatten of Burma. Three jewels were related to the death of her daughter, Alice (the first of Queen Victoria’s children to die, in 1878; Victoria also outlived her sons Leopold and Alfred, who died in 1884 and 1900, respectively), while one was commissioned by Prince Albert for Victoria after the loss of her mother. All four pieces sold at auction for thousands of pounds more than was expected.

As for the current Royal Family and their own mourning, they are following in the tradition of using pearls to express their grief. Queen Elizabeth II herself wore pearls to a number of funerals during her own lifetime. She wore them to her own father’s funeral in 1952 — as did her own mother, Queen Elizabeth the Queen Mother, and her grandmother, Queen Mary. Her Majesty also wore pearls to the ceremonies for Diana, Princess of Wales (in 1997) and Princess Margaret (in 2001). At the funeral of her consort Prince Philip on 17 April 2021, the Queen wore the Richmond Brooch. The pearl-and-diamond piece was originally given to Elizabeth II’s grandmother, then-Princess Mary of Teck, as a wedding gift in 1893.



*A jet mourning brooch dating to the nineteenth century. Photo by Detlef Thomas/Wikimedia Commons.*

With Queen Elizabeth’s love of pearls well established and her proclivity for wearing them at funerals recognised, it is not surprising that so many of the women in her family would show up in pearls for their monarch and matriarch. Princess Anne, who stayed with her mother from Balmoral to Edinburgh to London, notably made the last part of the trip while wearing the Andrew Grima pearl, diamond and gold earrings in a modern leaf design, that were a gift from her parents in the late 1960s. The Princess Royal has worn these for other pivotal events in her life, such as the tour of Australia she took with her mother in 1970, her 1992 wedding to Timothy Laurence and her father’s funeral in 2021.

The Victorians saw pearls as representative of tears, making them the perfect choice to wear with the dress code of all stages of the mourning process.





Zara Tindall wore pearl drop earrings as she attended the funeral of her grandmother, Queen Elizabeth II. Photo by PA Images/Alamy.

At the state funeral on 19 September, Catherine, Princess of Wales was stunning in jewellery she had previously borrowed from her grandmother-in-law on multiple occasions. She wore both the four-strand Japanese Choker Necklace, a necklace by Garrard – which features pearls from the Japanese government and an unusual diamond clasp as the centrepiece – and the Bahrain Pearl Drop Earrings, also featuring diamonds, that were a 1947 wedding gift from the Hakim of Bahrain. Prior to Her Majesty's Funeral, the Princess of Wales had borrowed both pieces on a number of occasions, and had most recently worn them together at the April 2021 funeral of Prince Philip. At the Procession to Westminster Hall on 14 September, she honoured both the Queen and the late Diana, Princess of Wales by wearing a pearl-and-diamond brooch belonging to the former and the Collingwood Pearl Earrings that had been a wedding gift to the latter.

Meghan, the Duchess of Sussex, wore pearl-and-diamond studs that were a 2018 wedding gift from Her Majesty, while Zara Tindall, daughter of Princess Anne and Elizabeth II's oldest granddaughter, and Sophie, Countess of Wessex, daughter-in-law of Her Majesty, both wore pearl drop earrings with their funeral ensembles. Other royal relatives that wore pearls included Princess Margaret's daughter, Lady Sarah Chatto; Princess Michael of Kent; and the



This banded agate and diamond locket (1861), with a miniature photograph of the Duchess of Kent and a lock of hair inside, was commissioned by Albert for Queen Victoria on the death of her mother. It sold at auction in 2021 for \$45,264 (£39,811). Photo courtesy of Sotheby's.

Duchess of Gloucester. Camilla, the new Queen Consort, wore her four-strand pearl necklace with pearl earrings to events leading up to the funeral.

The women of the Royal Family wore pearls as a mark of respect and grief for an almost-two-week span as well as on 19 September, as they, and the world, bid goodbye to Queen Elizabeth II. But there is something else that pearls acknowledge, according to London-based jeweller Melanie Georgacopoulos. In speaking to *Vogue* Ms Georgacopoulos, who specialises in pearls, stated that "pearls in part represent a departure that is the end of one thing but the beginning of something else." An apt observation for a ceremony, and tradition, that marks such a major transition. ■



Queen Victoria four decades into her widowhood, wearing pearls as a symbol of her mourning for Prince Albert. Portrait by Heinrich von Angeli (1899). Photo courtesy of the Royal Collection.



One of Queen Victoria's mourning pieces honouring her daughter, Alice: an onyx, banded agate, enamel and diamond pendant ca. 1878, cantering on an onyx heart with 'ALICE' beneath a coronet (left), and a glazed compartment containing a lock of hair (right). This jewel sold at auction for \$34,821 (£30,607). Photos courtesy of Sotheby's.



# Platinum Jubilee

## THE QUEEN'S ACCESSION

In celebration of HM The Queen's seventieth year on the throne, an exhibition from the Royal Collection Trust looks at jewellery, portraiture and other items related to her accession and reign. Jewellery historian Rachel Church visited Buckingham Palace to see these stunning jewels.\*

Reaching a platinum jubilee, the celebration of seventy years on the throne, is a rare achievement for any monarch. Queen Victoria's reign, the longest in British history before her great-great-granddaughter Elizabeth II broke her record in December 2007, was just under sixty-four years. Before our current queen, only Louis XIV of France, at seventy-two years, had surpassed Victoria; he, of course, had the advantage of assuming the throne as a toddler.

As would be expected of such a major milestone, Queen Elizabeth II's Platinum Jubilee year is being marked by a series of celebratory events, including two jewellery-themed exhibitions. While Windsor Castle's show concentrates on the coronation and includes a series of the Queen's brooches, the exhibition at Buckingham Palace, called *Platinum Jubilee: The Queen's Accession* (open from 22 July to 2 October), focuses on her assumption of the throne in February 1952 and showcases some of her most iconic jewels. The exhibition combines great state jewels, like the Diamond Diadem, with those given to the Queen as personal gifts.

The exhibition, curated by Caroline de Guitaut of the Royal Collection Trust, is based on a clever concept. It combines twenty-four official photographs taken by Dorothy Wilding in the 1940s and 50s with the jewels worn by Her Majesty for the sittings. The enlarged photographs form the background of each of the eight cases; the jewels, on neat metal mounts, are placed in front of them. The photographs help bring the jewels to life

and place them in their historical context, while the sparkle and colour of the jewels adds another dimension to the images.

The displays can be found in the Ball Supper Room, part of the State Rooms visit. Eight cases have been fitted into a circuit around the darkened room, showing jewels dating from the 1820s to the 1950s. Non-reflective glass and excellent lighting (always a challenge when staging a jewellery exhibition) bring the jewels to sparkling life.

The exhibition opens with a portrait of the family of King George VI taken on his coronation day in 1937. His daughter, Princess Elizabeth, is shown in the lace dress, ermine-lined robe and the silver gilt Garrard and Co coronet she wore to the ceremony. Her robe and coronet are shown alongside the portrait. The next jewel on display is the double strand of

pearls Her Majesty was given for her eighteenth birthday in 1944. Pearls were the classic gift for a young woman and the Queen's fondness for this necklace is clear. It can be seen in portraits throughout the exhibition, including her 1947 engagement portrait, and in the final image in the exhibition, taken in 2022 for her Jubilee.

For that pivotal birthday she also received a beautiful 1920s geometric bracelet, set with diamonds and square-cut sapphires, which her father George V bought from Cartier in London. Princess Elizabeth's eighteenth birthday had fallen towards the end of WWII, which had seen serious restrictions on jewellery. Gold and platinum were severely limited, and new jewellery was all but unavailable. Cartier must have had the bracelet in stock when the king purchased it. She wore both



The Dorset Bow Brooch (above) was first a wedding gift in 1893, to the future Queen Mary, who then gave it as a wedding gift to her granddaughter, who became Queen Elizabeth II.

The Delhi Durbar Necklace (left) was created in 1911 and worn for the crowning of King George V and Queen Mary as Emperor and Empress of India. It is part of a larger parure, but the necklace itself might be considered a symbol of the British Empire.

\* Ms Church attended the exhibition at Buckingham Palace, and submitted this review, before the passing of Her Majesty The Queen on 8 September 2022.





*The Vladimir Tiara, shown here with fifteen of the Cambridge cabochon emeralds, may be worn with the original pearl drops or with no pendants at all. Her Majesty inherited the tiara in 1953.*

the bracelet and the pearls to sit for her formal portrait in 1946, in advance of her state visit to South Africa.

The exhibition includes three other bracelets: a tiny bracelet made from diamonds from a previously existing necklace (see below) and a pair of Indian diamond bangles given to Her Majesty by her grandmother, Queen Mary, as another wedding present. They had been given to Mary herself as a wedding present from the Bombay Presidency in 1893. Married women wore bangles in pairs and these are a splendid example of the type, set with thirty-nine diamonds each.

Princess Elizabeth's twenty-first birthday was also marked with a gift of jewellery. She was given a necklace, commissioned from Garrard & Co by the South African government, when she was touring the country with her parents. The necklace was originally made up of a very appropriate twenty-one graduated brilliant-cut diamonds, the largest of which weighs ten carats. The larger diamonds are each linked by two smaller brilliants and a baguette-cut diamond. In 1952, six of the stones were removed to

make a strikingly tiny matching bracelet.

The exhibition includes three major tiaras, one of which is the Girls of Great Britain and Ireland tiara, made by E. Wolff & Co. for Garrard & Co in 1893. This might be the most instantly recognisable jewel in the exhibition, as it appears on the Queen's portrait on coins and banknotes to this day. The design combines diamond festoons and fleurs de lis; pearls that originally topped it were replaced with diamonds in 1914. The geometric band around the base was removed by Queen Mary to wear as a separate bandeau but was later restored by Elizabeth II.

The tiara takes its name from the committee that raised money to purchase and present it to Mary of Teck (called May) – as Queen Mary was known before her wedding – when she married the future George V in 1893. May was delighted by the gift – she wrote to committee head Lady Eva Greville to say "How can I find the words sufficiently to thank you and all the young ladies of England for the truly magnificent present I have received? I need scarcely assure you that the tiara will ever be one of my

most valued wedding gifts as a precious proof of your goodwill and affection." In 1947, the tiara became a wedding gift again, when Queen Mary presented it to her granddaughter, Princess Elizabeth, on the occasion of her marriage to Lieutenant Philip Mountbatten. She can be seen wearing it in the head and shoulders pose taken by Dorothy Wilding in 1952, as part of a series of photographs commissioned by the General Post Office, for use on stamps. The Girls of Great Britain and Ireland tiara has become one of Her Majesty's favourite tiaras.

The Dorset Bow Brooch was also a piece that was twice a wedding gift. Princess May of Teck received this very pretty diamond brooch as a wedding present from the County of Dorset.

The jewellery acts as an expression of continuity – many of the pieces were worn by the Queen's predecessors, and a number of Queen Mary's wedding gifts were passed to her granddaughter at her own marriage.



*Left: The diamond and sapphire bracelet from Cartier that Princess Elizabeth received from her father, George V, on her eighteenth birthday in 1944. Right: These bangle bracelets were given to Princess Mary of Teck (the future Queen Mary) as a wedding present in 1893; she gave them to her granddaughter, the current Queen Elizabeth II, as a wedding gift in 1947.*



It was made by Carrington, from diamonds set in gold and silver with a setting that cleverly mimics the flutter of a ribbon. She gave it to her granddaughter Princess Elizabeth upon her own marriage in 1947. The following year, Her Majesty, then The Princess Elizabeth, Duchess of Edinburgh, wore the Dorset Bow Brooch for the christening of her first child, Prince Charles.

One of the most glamorous photographs in the exhibition, taken by Dorothy Wilding on 26 February 1952, also shows Her Majesty wearing

a wedding gift. The Queen is dressed in an elegant pleated black taffeta evening dress accessorised by the spectacular necklace given to her by Asaf Jah VII, the Nizam (hereditary ruler) of Hyderabad. It was made by Cartier in 1935 and had been returned by its original purchaser. In 1947, the Nizam generously offered the opportunity for the Queen to select wedding gifts for herself from Cartier. She chose this necklace and its matching tiara (which was subsequently dismantled). The necklace comprises thirty-eight brilliant-cut open-set diamonds and a pavé-set centre that incorporates thirteen emerald-cut diamonds.

The Delhi Durbar Necklace, part of a larger parure, is both stylistically beautiful and historically fascinating. The parure was made by Garrard & Co in 1911, as a birthday gift from George V to his queen consort, May of Teck. The necklace is made of platinum, which sets off the diamonds perfectly. It is set with eight large cabochon emeralds, which are themselves set in gold and surrounded by small brilliant-cut diamonds. Slim chains of diamonds link the emeralds to six large diamonds. A removable *négligée* pendant gives it an unmistakable Edwardian feel – the longer pendant

terminates with a cabochon emerald, while the shorter holds the 8.8 carat marquise-cut Cullinan VII diamond.

The necklace was part of the fabulous Delhi Durbar parure, which also included a tiara, earrings and stomacher. The Durbar, which took place in December 1911, marked the state visit by the recently crowned King George V and Queen Mary, during which they were crowned as Emperor and Empress of India. It was the only time a British monarch attended the India-based celebration, and the last one held under British rule. Full descriptions of the festivities appeared in all the British newspapers. It was described by the *Aberystwyth Times* as 'a brilliant spectacle' that included state dinners, fireworks, processions of Maharajahs mounted on gem-clad elephants and a review of the 40,000-member Indian Army.

As the new Empress, Mary's jewels had to compete with the family jewel boxes of the Maharajahs. To achieve this, she turned to two sets of newly acquired gemstones.

The impressively large emeralds, known as the 'Cambridge emeralds,' were won in a charity lottery in Hesse, Germany, by Queen Mary's maternal grandmother, Princess Augusta, Duchess of Cambridge. The lucky duchess won a box containing



*The Diamond Diadem was originally made for King George IV's coronation, but it has since been worn by queens and queen consorts. Elizabeth II has worn it to every State Opening of Parliament she has attended as monarch.*

40 cabochon emeralds, perhaps one of the best lottery prizes imaginable. Augusta left the emeralds to Mary's brother, Prince Francis of Teck, known as Frank, in her will. Frank was unmarried, but he was having a passionate love affair with Nellie, Lady Kilmorey. In a draft of his own will, dated 1902, Frank left 'my emeralds, pearls, etc., in fact all my jewellery that I inherited from my Mother I leave to C.O.X (Countess of Kilmorey) with a hope that C.O.X. will have the emeralds re-set to suit.' This was the situation when he died in 1910, a potential embarrassment for Queen Mary. Faced with the prospect of seeing the Cambridge family emeralds worn by her brother's mistress, she applied to have his will sealed, then bought the stones back from the countess.

The diamonds in the necklace came to her through a more straightforward route. The Cullinan diamond was found in 1905, at the Premier 2 mine in South Africa. In its rough state it was an enormous stone, weighing 3,106 carats. The Cullinan was bought by the South African government and presented to Edward VII, great-grandfather of the current queen, in 1907. The king sent it to Amsterdam to be cut into nine named stones – the largest of which is the



*Garrard & Co made the silver gilt coronet that Princess Elizabeth wore to the 1937 coronation of her father, King George VI.*



Cullinan I (also known as the Great Star of Africa), now in the Sovereign's Sceptre – as well as ninety-six smaller brilliant-cut gems.

The diamond now known as the Cullinan VII was added to the Delhi Durbar necklace, a piece that might be considered the jewelled embodiment of the British Empire. Made to commemorate the 'high point' of British rule in India, it was set with some of the fabulous diamond wealth of South Africa, then also part of the Empire. By the time Elizabeth II inherited most of the suite – including the necklace on display in this exhibition – from her grandmother in 1953, India had been an independent nation for



*The Girls of Great Britain and Ireland Tiara, given to Her Majesty in 1947 by her grandmother, Queen Mary, on the occasion of her marriage to Lieutenant Philip Mountbatten (later The Prince Philip, The Duke of Edinburgh).*



*The Nizam of Hyderabad necklace (and the matching tiara, later dismantled) was a wedding gift to Her Majesty from Asaf Jah VII, the Nizam of Hyderabad.*

six years. In 1961, South Africa also became fully independent from Great Britain. The necklace, however, remains, and has been worn many times by the Queen over the past seven decades.

Fifteen of the Cambridge emerald cabochons are frequently seen in the Vladimir Tiara. This piece is made up of interlocking diamond circles from which pendants may hang; the tiara originally held pearl drops, which are still used, but the Cambridge emeralds are often substituted (as in the Jubilee display) or the tiara may be worn without any pendants at all.

The Vladimir Tiara was made around 1874, probably by the Russian court

jewellers Bolin, for Marie Pavlovna, wife of Grand Duke Vladimir Alexandrovich of Russia (and thus known herself as Grand Duchess Vladimir Alexandrovich). When she fled Russia after the 1917 Revolution, she hid her jewels in a secret safe. Her son, Grand Duke Boris Vladimirovich, along with British art dealer Bertie Stopford hatched a dangerous plan to rescue them, and they were finally smuggled out of Russia in a Gladstone bag. Marie's daughter Elena (married to Prince Nicholas of Greece and Denmark) inherited the tiara, and in 1921 decided to put it up for sale. Queen Mary, always a jewellery enthusiast, eagerly bought it and asked Garrard to adapt it to include fifteen of the Cambridge emeralds. Elizabeth II inherited the Vladimir Tiara upon the death of Queen Mary in 1953. She has frequently worn it at state events and on foreign tours, making it widely recognisable.

The Diamond Diadem is the third of the three great headpieces in the

exhibition, and one that has played a key part in the ceremonial life of Great Britain. It was created in 1820 by Rundell, Bridge and Rundell, the great London jewellers of the early nineteenth century. George IV commissioned it for his opulent coronation ceremony the following year, to be worn over his large velvet 'Cap of State'. The Diamond Diadem is set with 1,333 diamonds (originally hired from the jewellers for £800) and two rows of pearls (169 in total). The design refers to the 1800 Acts of Union, which created the single state of the United Kingdom of Great Britain and Ireland, by combining a rose, thistle and two shamrocks, the traditional emblems of England, Scotland and Ireland, respectively. The floral sprigs are divided by four crosses-pattée, the front cross set with a striking yellow brilliant-cut diamond. The diamonds are mounted in transparent settings (which had only recently been created); these give the diadem a notable lightness and luminosity.



*This necklace from Garrard & Co (left) was a twenty-first birthday gift to then-Princess Elizabeth from the South African government. Later, six diamonds were removed to make a matching bracelet (right).*



*The engagement portrait of Lieutenant Philip Mountbatten and Princess Elizabeth, taken in 1947. She is wearing the double strand of pearls she received for her eighteenth birthday.*

Although the Diamond Diadem was made for a king, it soon became associated with women. Queen Adelaide, the consort of George IV's successor (and brother), William IV, wore it frequently, as did her niece, Queen Victoria, who was often painted wearing it. Elizabeth II wore it when she sat for a photograph with Dorothy Wilding in April 1952. Subsequently, she wore it on her journey to be crowned at Westminster Abbey and for every State Opening of Parliament during her reign.

*Platinum Jubilee: The Queen's Accession* gives us a deep dive into the Queen's jewellery box. It shows jewels worn by Elizabeth II during her tenure as the embodiment of the nation — jewels for foreign tours, state dinners, to be featured on postage stamps and on coins for the United Kingdom and the

Commonwealth. Visitors to the exhibition pass through the throne room, dining room and many state rooms in which the jewels have been worn, forming the perfect context for the display.

Alongside those jewels associated with the Crown itself, the visitor can see some very personal items, including wedding and birthday gifts and inherited jewels. Some items, worn to family events in addition to affairs of state, must surely hold a great sentimental importance for the Queen. The jewellery also acts as an expression of continuity — many of the pieces were worn by the Queen's predecessors, and a number of Queen Mary's wedding gifts were passed to her granddaughter at her own marriage. Additionally, the exhibition is a roll call

of the great jewellery houses of the nineteenth and twentieth centuries, including Rundell, Bridge and Rundell, Garrard & Co, Carrington and Cartier. This exhibition is time well spent, walking through a display of truly wonderful gemstones from one of the great jewellery collections of the world. ■

*Platinum Jubilee: The Queen's Accession runs through Sunday, 2 October. The exhibition is closed on Tuesdays and Wednesdays. Admission is £30 for adults, £19.50 for young adults (ages 18-24), £16.50 for children ages 5-17. Children under 5 are free.*

*All photos are courtesy of the Royal Collection Trust.*

The exhibition combines twenty-four official photographs taken by Dorothy Wilding in the 1940s and 50s with the jewels worn by Her Majesty for the sittings.



*Garrard & Co made the silver gilt coronet (p. 43) that Princess Elizabeth wore to the 1937 coronation of her father, King George VI. The coronet is displayed alongside the robe she wore, in front of a portrait of the royal family (Princesses Elizabeth and Margaret, King George VI and Queen Elizabeth).*



# GEMSTONES

## A CONCISE REFERENCE GUIDE

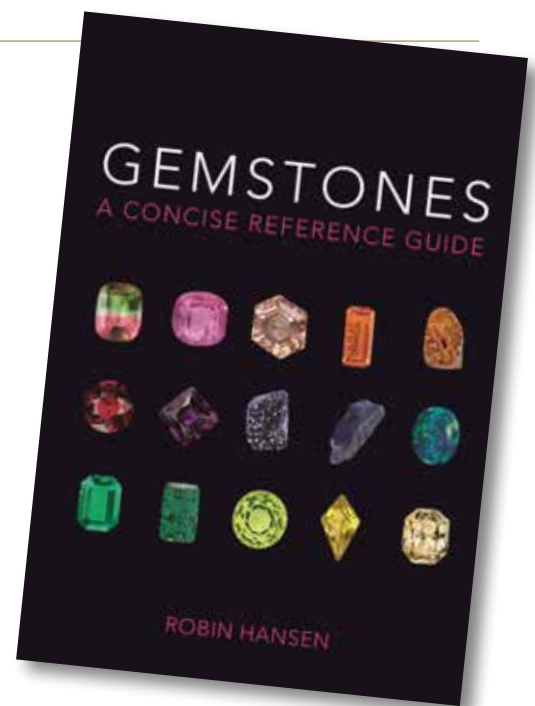
Reviewed by Jennifer-Lynn Archuleta

There is no shortage of reference materials on gem materials for gemmologists, novice and experienced alike, to add to their bookshelves. Available sources run the gamut from quick charts for easy review to Pliny the Elder's *Natural History*, which is still found in print two thousand years after his death. With so many sources available, it may be hard for someone who is looking to develop a serious gemmological library to know how to select an excellent, reliable guide that will be useful through several stages of their career.

There will need to be room for one more, but happily, the volume is brief and affordable. *Gemstones: A Concise Reference Guide* by Robin Hansen FGA is an excellent addition to any gemmologist's bookcase. As curator of minerals and gemstones at the Natural History Museum in London (NHM), Ms Hansen (profiled in this issue on p. 32-33) is uniquely positioned to write this excellent guide. Considering that one of the purposes of the book is brevity,

it is surprisingly packed with pertinent information.

As early as the first chapter, an introduction to the subject of gemstones as a whole, the book is thoughtfully organised. Hansen writes a general definition of a gem and a history of their formation, properties, fashioning and analysis methods before breaking out into the main body of the text. From there, Hansen separates the gemstones into 'Well-Known,' 'Lesser Known' (placed there, she explains, because of their rarity or low durability) and 'Organic' chapters. She elects to organise the gems by mineral species, barring feldspar, tourmaline, garnet and jade, which are listed by group with the most common species given their own sections. If the so-called lesser-known sections (examples include painite, sinhalite and taaffeite) are shorter in chapter length, the content of the coverage is no less impressive, considering how little is known about some of the material. The Organic chapter, with extensive information

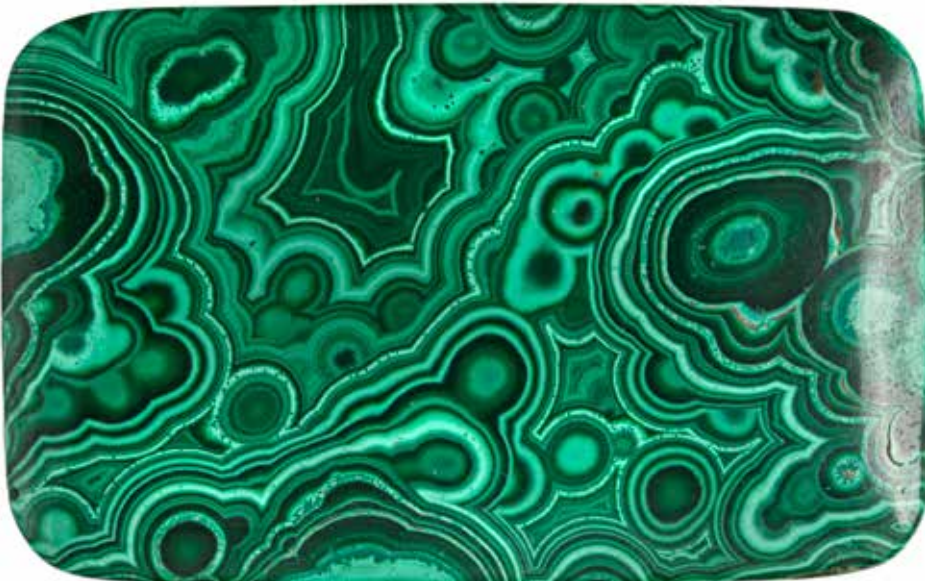


**By Robin Hansen FGA, paperback, 240 pp., illus., publ. by the Natural History Museum, London, UK, 2022, price £14.99.**

on amber and pearl and several other shorter entries (e.g., tortoiseshell, ivory, jet, coral) is just as informative.

Each gem, regardless of placement, opens with a short box summarising its properties – composition, crystal system, Moh's hardness, cleavage, fracture, and lustre, refractive index (RI) and specific gravity (SG), birefringence, optical nature and dispersion – before launching into a detailed examination of the material. There is extensive information on the diamond, corundum and beryl, of course; varieties such as quartz and opal get their own place in the sun. Other gems get more attention than one might anticipate; some readers might not expect to find andalusite or sillimanite in the Well-Known Gems chapter, but it is a pleasure to find them covered in any case.

Not only does Hansen elaborate on the qualities that lead each material's section, but she provides information such as colour, historical relevance, locality, treatment, cleaning advice and more. Malachite, she points out, is usually found in association with azurite; the Ural Mountains in Russia was a major producer, and it was highly prized by the Russian Imperial Family. She names today's major sources as the Democratic Republic of Congo, Namibia, South Australia and the American Southwest.



*A polished slice of malachite revealing attractive banding. Specimen BM.1909,230.*

The Beryl section of course discusses emerald, morganite, heliodor and chrysoberyl (alexandrite is listed under the latter, as one would expect). But Hansen also is sure to mention red beryl, the rarest variety, with gem-grade material only found in select locations in Utah (in the western United States). She further discusses ways to distinguish pure, colourless beryl – known as goshenite and often backed silver or green foil – from emerald (goshenite usually lacking in inclusions). She points out that varieties other than emerald can usually be cleaned in an ultrasonic cleaner.

The NHM is in possession of an impressive beryl, what may be the world's finest faceted morganite: a flawless, 598.7 ct bubble-gum pink specimen from Madagascar, acquired only three years after the variety was first discovered in 1910. A photo of the pink morganite is included in the book,



*A superb 598.7 ct flawless morganite gemstone from Madagascar, specimen BM.1913,300.*

which leads to a discussion of a tremendous strength of *Gemstones*. The volume is well executed not only because Hansen is able to communicate her impressive knowledge through the written word, but because of the visuals she has chosen to grace the pages. Specimens from the museum were captured for many of the entries (again, see her profile for her discussion of the photography). The full-colour representations – the bold greens, bright reds, rich blues and purples and lovely



*A hyalite opal natural specimen and faceted gemstone from Zacatecas, Mexico, exhibiting strong fluorescence under UV light, specimens rough – BM.2014,72 (rough) and BM.2017,112 (cut).*

pastels – peppered throughout the volume are not only stunning from an aesthetic point-of-view, but from a scientific viewpoint. The ability to discern a hyalite opal's strong greenish yellow fluorescence under UV light – or the blue flash effect from the glass-filled fractures in a natural ruby – might be too subtle for someone without an eye for gemmological properties to miss. These important images share space with previously photographed gemstones, minerals and objects.

In *Gemstones: A Concise Reference Guide*, Robin Hansen has created an excellent, affordable collection of

reference information for gemmologists of all levels. While she did not create an encyclopaedia pertaining to every gem material, it is important to remember that this is not what she set out to do. Even so, what she has accomplished to list in only 240 pages is impressive. The information is comprehensive enough to be understandable enough to even the beginning student or amateur rockhound but is complete enough to still be useful to experts with years of practice in the field. ■

*All photos from the collections of the Natural History Museum, London.*

The volume is well executed not only because Hansen is able to communicate her impressive knowledge through the written word, but because of the visuals she has chosen to grace the pages.



# Looking Back at *Gems&Jewellery*

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

Since it was first published in 1991, *Gems&Jewellery* (then *Gem & Jewellery News*) has been dedicated to keeping Association Members up-to-date by publishing articles on industry-related matters, historical reports, retail topics, auction updates and book and museum reviews. While the format has changed from its original black-and-white newsletter to the full-colour digital version of today, the dedication to news has not wavered since its inception as a joint effort between Gem-A and the Society of Jewellery Historians (which it remained until 2008). Here is a brief look back at some past issues of *Gems&Jewellery*.

## Five Years Ago...

Autumn 2017 (Vol. 26, No. 3):

The photomicrograph on the cover of the Autumn 2017 issue is of Tiffany stone (opalised fluorite), seen with reflected light from a fibre-optic source. Within this issue was a look at trends seen at JCK Las Vegas. Simon Bruce-Lockhart FGA DGA EG explored the restricted-access sapphire fields to the north of Aksum, Ethiopia, while Helen Molesworth FGA considered Marco Polo's written references to gemstones in 'Seilam' as she visited modern-day Sri Lanka. Cara Williams FGA discussed changes to gemmological laboratories, and Maggie Campbell Pedersen FGA ABIPP noted the importance of coral conservation. Coverage of Gem-A's 2017 Conference

was also included. Cover image courtesy of Claire Ito, field of view 4.79 mm.

## Ten Years Ago...

Autumn 2012 (Vol. 22, No. 3):

The cover shows the Argyle Pink Jubilee, recovered from Rio Tinto's open pit Argyle Diamond Mine, Western Australia. This gem is the largest pink rough diamond crystal found in 26 years, weighing in at 12.76 ct. The cover image references a Gem News entry submitted for the issue by Gary Roskin. Other articles consider the origin of chatoyancy in tiger's eye, ruby treatments, and the history of the Midlands branch of Gem-A, which at that time was approaching its sixtieth anniversary. Cover image courtesy of Argyle Diamonds and the Melbourne Museum.

## Fifteen Years Ago...

October 2007 (Vol. 16, No. 4):

A diamond, ruby, garnet and topaz ornament in the Treasury of the Archdiocese of Évora graces the cover of this issue. The jewel references a talk given by jewellery historian and gemmologist Rui Galopim de Carvalho FGA DGA to the Gem Discovery Club on seventeenth- and eighteenth-century Portuguese gemstones. Other content includes a discussion by Maggie Campbell Pedersen over what should, and should not, be called a mabé pearl; a review of the gems and minerals of the United States; and a look at peasant silver buttons in the nineteenth century. Cover photo by Carlos Pombo Montiero © Fundação Eugénio de Almeda, Évora.

## Twenty Years Ago...

September 2002 (Vol. 11, No. 4)

Our front page revealed that Terry Davidson FGA had been appointed the CEO of the Association; among the accomplishments that were listed along with this announcement was his oversight of the development of the Asprey Cut while at Asprey & Garrard. The proprietary cushion cut by Gabi Tolkowsky was also publicised to Members in this issue. John and Catriona McInnes recounted their trip to central Namibia with the International Association on the Genesis of Ore Deposits Geocongress. Roger Harding provided an in-depth report on talks by Richard Hughes FGA to Gem-A Members on 'Corundum Treatments' and 'Mogok Rubies'. ■



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