

Gems & Jewellery

Autumn 2021 / Volume 30 / No. 3



FIELD EXPEDITION TO
GREENLAND'S RUBY MINES

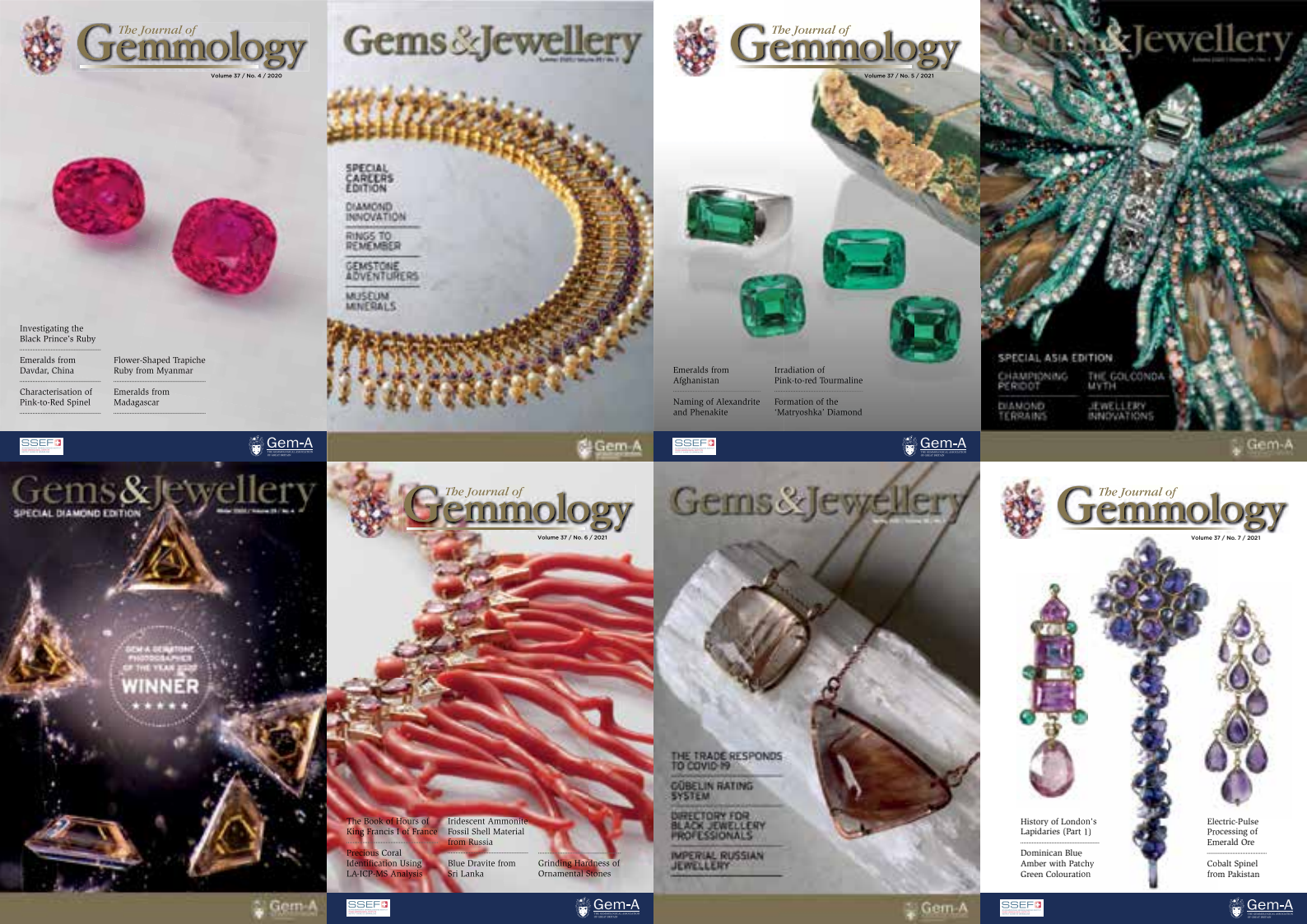
MOKUME-GANE IN JEWELLERY

ETHICS AND ANTIQUE DIAMONDS

PHOTOGRAPHER OF
THE YEAR COMPETITION



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OF GREAT BRITAIN



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Gems & Jewellery

AUTUMN 2021

AN EXPEDITION TO GREENLAND'S RUBY MINES

Vincent Pardieu recounts the story of his first expedition in 2021, to Greenland's ruby deposit, and discusses the future of the Aappaluttoq mine and its production.



COVER PICTURE

Rubies from Greenland's Aappaluttoq mine are seen on our cover, both in the host rock and in a pendant and ring from Hartmann's, a Danish-based jewellery retailer. Photo by Michel van Steenwijk, courtesy of Hartmann's.



INTRODUCING MOKUME-GANE

A metalsmithing technique once used for decorating samurai swords has transitioned to jewellery and found a niche that may only expand in the coming years.

CHANGUÉ KANDOR

Traditional sources of jadeite and nephrite are well established, but a lesser-known source in the Pacific Rim has a fascinating history.



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Gems & Jewellery

Autumn 2021 Edition Featured Contributors

1. LIZ BAILEY

Liz Bailey is a jewellery, watches, silver and designer specialist who has been affiliated with Wilson55 Auctioneers & Valuers since 2019. In addition to her FGA and DGA from Gem-A, she completed an MA in Antiques specialising in Georgian sentimental jewellery from the University of Central Lancashire. In 2020, she re-founded the North West branch of Gem-A, of which she is the chairperson. Ms. Bailey has had her work published in magazines such as Gem-A's *Gems & Jewellery*, *Antiques Inf* and *Antique Collecting Magazine* as well as having press releases published in national media outlets, including *BBC News*, *Daily Mail* and *ITV News*.

2. OLGA GONZÁLEZ

The CEO of Pietra Communications, Olga González has over fifteen years of experience working within the field of gem and jewellery communications. A certified gemmologist (FGA DGA) and appraiser, she specialises in growing companies within the trade, empowering through storytelling. Ms González currently serves as the president of the Women's Jewellery Association New York Metro Chapter Board, is a past president of the Public Relations Society of America New York Chapter, chaired the inaugural 15 Under 35 Awards and is a regular and award-winning contributor to trade and consumer publications on gem and jewellery-related topics.

3. JAUME LABRO

Jaume Labro, a master of the mokume-gane technique, graduated from the Autonomous University of Barcelona with a degree in art history. He also studied gemmology at the Gemological Institute of America (GIA) in 2007. Mr Labro channelled his love for coloured gemstones and diamonds into learning the mokume-gane technique in Kyoto, Japan, as a student of Master Norio Tamagawa. He produces jewellery art under the LABRO brand name. His work is available at <https://www.jaumelabro.com>.

4. JONATHAN MUYAL

Jonathan Moyal is an independent gemmologist living in Paris, France. In addition to an FGA and GG, he holds a Bachelor's degree in visual arts and art history from Pantheon-Sorbonne University. Mr Moyal has worked as a gemmologist in various capacities for GIA laboratories in Bangkok, Thailand and Carlsbad, California. He has travelled to multiple continents collecting specimens and documenting the mining industry. Mr Moyal was Gem-A's Photographer of the Year in 2017, the same year he took second prize with the Royal Microscopical Society.

5. VINCENT PARDIEU

Vincent Pardieu is a world-renowned field gemmologist and consultant. Since 1998 he has led hundreds of successful field expeditions to coloured gemstone-producing areas in Asia, Africa, Australia and South America. Mr Pardieu studied

gemmology in Myanmar (Burma) and at GIA's Bangkok campus. He has worked as a director of the AIGS Lab in Bangkok, as a gemmologist with the Gübelin Gem Lab and as senior manager for field gemmology at GIA. Through VP Consulting, which he founded in 2017, Mr Pardieu has advised Greenland Ruby and the Bahrain Institute for Pearls & Gemstones (DANAT).

6. VICTOR TUZLUKOV

Lapidarist Victor Tuzlukov's achievements include winning the Grand Master Division of the United States Faceters Guild's Single Stone Competition with a perfect score of 100 (2008) and winning the 2010 International Faceting Challenge in Australia – the world championship in faceting – with a record-setting 299.17/300 points. Mr Tuzlukov founded the Russian Faceters Guild as well as the international faceting competition The Russian Open. He lives and works in Thailand as a master cutter, teacher and researcher of precision and artistic faceting.

7. BETH WEST

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

Special thanks to Dmitry Stolyarevich.

Straight from the heart

Opinion and comment from CEO Alan Hart FGA DGA

I don't know about you, but one of the things I have missed most during the last two years is in-person events.

Gemmology is a personable profession full of fascinating people with their own stories to tell and unique experiences to bring to the table. While we've all learned to adapt and make sure our microphones are switched to the 'on' position on Zoom, nothing can completely replace the meeting of minds that happens when colleagues and peers meet face-to-face. With this in mind, we struck a compromise in November 2021. We opted to host a condensed version of our annual Conference digitally but reinstate the Gem-A Graduation Ceremony and Presentation of Awards as an in-person gathering.

Firstly, I would like to thank the 330 Members who registered to attend the Online Conference on Sunday, 7 November. As you are no doubt aware, the Gem-A Conference is a highlight on the annual gemmology calendar and

gemmological properties of beryl and tourmaline and screening for laboratory-grown diamonds, among many others. I would like to thank all the speakers for their contribution.

We've always reserved the first week in November for big events at Gem-A, including the Graduation Ceremony and Presentation of Awards. This year, we celebrated graduating Students from both 2020 and 2021 at Church House in Westminster, London. It was inspiring to see so many new gemmologists feel proud of their achievements, even if they have been required to wait an especially long time to receive their Diplomas due to COVID-19! Gem-A Members appreciate just how challenging and intensive our courses are... so now imagine completing them during an international pandemic. Our sincere congratulations go to each and every student who navigated their studies during this challenging time for society and our Association.

Our sincere congratulations go to every student who navigated their studies during this challenging time for society and our Association.

typically encompasses two days of talks, plus a range of workshops and field trips. With international travel still limited and COVID-19 precautions still front-of-mind here in London, we simply couldn't justify such a large-scale event.

Instead, we organised a one-day Online Conference complete with some wonderful speakers, including renowned jeweller Wallace Chan; Vice-Director of the German Gemmological Training Centre, Dr. Tom Stephan; gem-education consultant, Rui Galopim de Carvalho FGA DGA, and co-founder of GGTL Laboratories - Gemlab (Liechtenstein), Prof. Thomas Hainschwang. The topics covered during the day ranged from historic diamonds, international royal jewellery collections, the

On the horizon, we have another important event that I would like to draw your attention to – the Gem-A Annual General Meeting (AGM). Taking place on 15 December at 17:00 GMT, this is your opportunity to participate, ask questions and raise concerns. This will be the second time we host our AGM online. Gem-A Members will receive registration details via email shortly.

Finally, I would like to mention another project we have been working on that we are preparing to launch soon: GemIntro. This is a new, beginner's level and purely online gemmology course that has been specially designed to fill a gap in the market for accessible gemmological learning. Our goal with this digital course is to equip both amateur enthusiasts,



jewellery consumers and those working in jewellery retail environments with the essential baseline knowledge required to make confident decisions and offer accurate advice.

Once completed, we predict many GemIntro participants will move on to the Gem-A Gemmology Foundation course, which provides more depth and offers a formal qualification. We will share more details about GemIntro over the coming weeks, but do contact our Education department if you would like to know more in the meantime.

All that's left to say is enjoy reading this issue of *Gems&Jewellery*. We have an issue full of exciting content. Our articles demonstrate the diverse audience to be found among our readership. They range from field gemmologist Vincent Pardieu's first expedition in 2021 to the ruby mines of Greenland, to Jonathan Muyal and Jaume Labro's discussion of a new way to use an old metalsmithing technique. Liz Bailey recounts how she came to find a rewarding career in the auction industry, and Beth West looks at how diamond mining's history is seen through the lens of contemporary ethics. Our student project considers jade from an unexpected locality. Indeed, there is something for everyone in our Autumn issue.

Best Wishes,

Alan Hart FGA DGA

Gem-A News

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



Precious coral (*Corallium rubrum*) as seen in the Mediterranean Sea.
Photo by Labetaa Andre/Shutterstock.

CIBJO ISSUES SPECIAL REPORTS ON COLOURED STONES, CORAL DURING VIRTUAL CONGRESS

Two special reports were released by the World Jewellery Confederation (CIBJO) during the 2021 Virtual CIBJO Congress (1-4 and 15-18 November). The first of these pertained to approaches towards supply chains and transparency in the coloured gemstone industry. An update by the Coral Commission, on research and issues related to colour classification and sustainability in the precious coral sector, was also published. These most recent publications bring the number of special reports published by CIBJO in 2021 to nine.

The Coloured Stone Commission's report, published on 3 November, endorsed a 'holistic' style to creating ethical and sustainable supply chain. This includes the perspective of local populations and industry members dedicated enough to make long-term

commitments to the source. The report also calls for clear and transparent disclosure of treatments to buyers, but without putting the burden and expense of such discoveries on dealers. The commission also announced plans to release a mobile-based application that allows members to access existing Blue Book standards and requirements.

The Coral Special Report was released on 8 November. The Coral Commission outlined advances in a system designed to classify colour in Mediterranean coral (*Corallium rubrum*). Five categories, ranging from 'deep red' to 'light pink', were culled from 20-30 distinct shades by the International Colored Gemstone Association (ICA) GemLab. Updates on research projects pertaining carbon dating of coral from multiple sources and culturing and transplantation of

various species of precious coral, are also included.

The Coral Commission also indicated a need to comply with the United Nations' Sustainable Development Goal 13: 'Take urgent action to combat climate change and its impacts.' Climate also was a focus of a Pearl Special Report that was issued mere days before the start of the Virtual Congress, on 27 October. There, CIBJO also discussed the effect of the COVID-19 pandemic on the pearl trade.

Other topics of publication from CIBJO in 2021 included reports on the recovery of the precious metals sector after low points due to the ongoing pandemic; the standardisation of methods, classification and terminology related to diamonds; and conventions used to create names for gem varieties. All reports are available for download from CIBJO.org.

JEWELLERY OF GRAND DUCHESS RESCUED DURING RUSSIAN REVOLUTION SOLD AT AUCTION

A sapphire brooch and matching ear clips once belonging to Grand Duchess Maria Pavlovna, smuggled out of Russia with other items from her collection during the Revolution of 1917, were auctioned by Sotheby's through its Geneva location. Part of the 'Magnificent Jewels and Noble Jewels: Part I' sale, the three-piece set, designated as Lot 279, was valued in the range of 280,000-480,000 CHF (£227,368- 389,774). It sold on 10 November for 806,500 CHF (roughly £654,900).

The pieces, created ca. 1900, included a brooch with a centre oval sapphire weighing 26.80 ct and bordered by cushion-shaped and rose diamonds. Russian assay marks and maker's marks for Sophia Schwan indicate that it was probably made for Bolin in St. Petersburg. The ear clips were set with step-cut sapphires (6.69 and 9.36 ct). Like the centre stone of the brooch, the sapphires

in the ear clips were surrounded by cushion-cut and rose diamonds. Documentation from the Swiss Gemmological Institute (SSEF) indicates that the sapphires are untreated, and originally from Ceylon (currently Sri Lanka).

The wife of Grand Duke Vladimir Alexandrovich, who was the paternal uncle of Nicholas II, Maria Pavlovna was the last member of the Romanov family to escape the Russian Revolution. Her extensive jewellery collection was dismantled and smuggled out of the Vladimir Palace in St. Petersburg by British antiques and art dealer Albert Stopford. Other pieces from the 244-piece collection included a diamond-and-pearl tiara, created by Carl Edvard Bolin and later purchased from Princess Nicholas of Greece and Denmark (Maria Pavlovna's only daughter) by Queen Mary, consort of George V. Known as the Vladimir Tiara, it is currently owned by Elizabeth II.



The sapphire ear clips (left) and brooch shown here were part of the jewellery collection of Grand Duchess Maria Pavlovna. Her jewels were smuggled out of Russia in the autumn of 1917. The set sold at auction in November 2021 for 806,500 CHF. Photo courtesy of Sotheby's.

AMAZON HOMEMADE REPORTS GROWTH IN ARTISANAL BUSINESSES, INCLUDING JEWELLERY

The United Kingdom has seen a marked increase in artisanal businesses, including jewellery creation, with the largest percentage in a decade recorded in 2020. Almost one in five British people who took up creative hobbies has left more traditional employment to become

self-employed crafters; over 80% of people under 35 who found such hobbies now make at least part of their income in this fashion.

According to a study from market consultancy group Metro Dynamics on behalf of Amazon Handmade, an online platform for handcrafted products,

1,215 of the 15,265 artisanal businesses – 8.1 percent – were in the jewellery field. Hotspots for this activity included London, Edinburgh and Birmingham. The last of these cities, along with the rest of the West Midlands, saw the greatest amount of growth among these businesses. The West Midlands was, in fact, noted for its jewellery specialisation, just as it has been in a historical context.

To honour the creative endeavours of these entrepreneurs, Amazon Handmade has sponsored three billboards, each advertising a different artisanal business. Birmingham-based Mani & Lizaa are the recipients of the jewellery-related billboard. Named after the daughters of owners Asad Bangash and Asiya Asad, the company has handcrafted one-of-a-kind wooden jewellery pieces since 2019.



Asad Bangash and Asiya Asad of Birmingham were awarded a billboard by Amazon Handmade to promote their business, Mani & Lizaa, which creates handcrafted wooden jewellery. Photo courtesy of Amazon Handmade.

DE BEERS REVISITS 'FOREVER' IN NEW CAMPAIGN

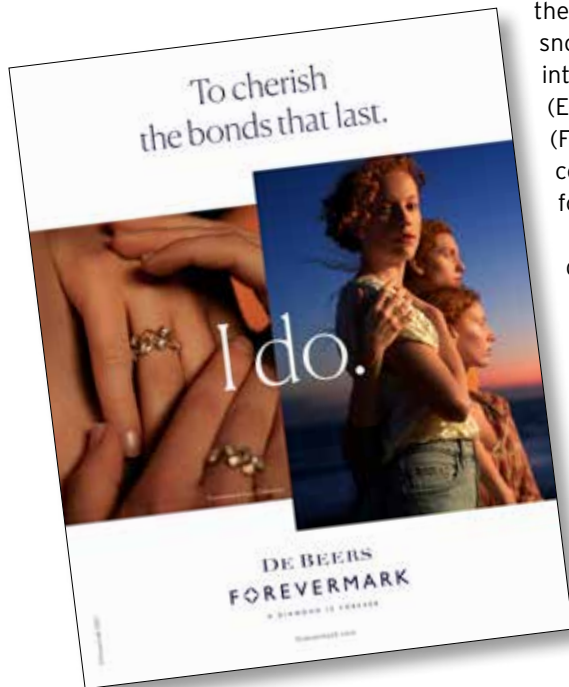
Retracing its roots to an earlier story of success, on 1 November De Beers announced a callback to its successful 'A Diamond is Forever' campaign. Through 'I Do.', their new global marketing plan, De Beers celebrates other attachments: to family, friends, nature and society.

Bruce Cleaver, CEO of the De Beers Group, noted, "De Beers has played a central role in helping people express their enduring commitment to their partner. Today we see a new generation of consumers who wish to communicate a wider commitment: a commitment to their own personal development, to their

friendships, to their families, to society, and to the natural world. The meaning of 'I do.' has expanded and it's more relevant than ever – and diamonds have a broader spectrum of meaning than ever before."

De Beers views their collections – created by De Beers Jewellers and De Beers Forevermark as part of their 'One Brand, Two Houses' effort – as the result of their new, 'purpose-driven brand strategy', reminding the wearer to make the right choices for themselves and their relationships. Some new lines are inspired by natural phenomena, including dawn and morning dew (Dewdrop), the night sky (Forevermark Icon), and snowflakes (Snow Dance); others invoke intangible qualities such as renewal (Enchanted Lotus) and individuality (Forevermark Tribute). These allow consumers to access jewels that speak for them and De Beers' principles alike.

De Beers is working toward a greater positive impact on the planet (see a breakdown of their 'Building Forever' pillars on p. 39); efforts that are reflected in 'I Do.' Many of the advertisements are set outdoors, and act as an impetus to say 'I do' to nature. They serve as a reminder to protect those natural resources along with De Beers. These ads are populated not only by couples, but by families and people alone – diverse in makeup, and in various states of happiness.



The Enchanted Lotus Drop earrings, comprising 8.99 tcw round-brilliant and pear-shaped diamonds set in 18K white gold, are among the jewels featured in advertisements for De Beers' new 'I Do.' campaign (left). Photos courtesy of De Beers.

De Beers is no stranger to groundbreaking advertising. Their best-known campaign, based around the phrase 'A Diamond is Forever', has endured in the public consciousness for almost 75 years. The four-word slogan was coined by American copywriter Frances Gerety in 1947 for Philadelphia, Pennsylvania advertising company N.W. Ayer & Son. The agency was hired by De Beers in 1938 to help the company with diamond sales, which had drastically declined since the end of WWI. In 2002, *Advertising Age* magazine called this four-word phrase 'the slogan of the twentieth century'.

GRAPHITE ON RUBIES FROM GREENLAND PROVE ANCIENT LIFE

Researchers at a Canadian university that were studying rubies from Greenland (pp. 12-17) found graphite, a form of pure carbon and a sign of early life. The team from the University of Waterloo in Ontario, Canada, were engaged in a study of conditions of ruby formation when they discovered the presence of the graphite. The team was able to test

the carbon's isotopic composition, measuring the relative amounts of different carbon atoms. While over 98 percent of all carbon atoms have a mass of 12 atomic mass units (amu), some have a mass of 13 or 14 amu. This granite is found in rocks older than 2.5 billion years.

"Based on the increased amount of carbon-12 in this graphite, a form of pure

carbon, and a sign we concluded that the carbon atoms were once ancient life, most likely dead microorganisms such as cyanobacteria," said Chris Yakymchuk, professor of earth and environmental sciences at the University of Waterloo. The researchers' models suggest that the graphite, which changed the chemistry of the surrounding rocks, also accounts for the presence of the gemstone in Greenland, which is the oldest known source of rubies. Findings were published in *Ore Geology Reviews* and *Chemical Geology*.

GEMFIELDS UNEARTHS 'CHIPEMBELE', LARGEST EMERALD PRODUCED FROM KAGEM MINE

Zambia's Kagem mine has produced another epic gemstone for Gemfields. On 8 November, the company revealed the largest high-quality emerald ever produced from Kagem. Weighing 7,525 ct, the emerald is called 'Chipembele'. The name comes from the word for 'rhino' in Bemba, a local indigenous dialect, and was so named when Kagem team leader Richard Kapeta announced upon its discovery, "look at this rhino horn!" It is unusual for a rough emerald specimen to receive a name; this is a privilege reserved for the very rarest gemstones. Yet other large gemstones recovered from Kagem, which formed in proximity to Chipembele, were also named to celebrate local wildlife. The 6,225 ct Insofu (Bemba for 'elephant') was discovered in 2010, while Inkalamu ('lion'), found in 2018, weighed 5,655 ct.

Chipembele will be sold at auction by Gemfields along with other high-quality production from Kagem. All will receive the Gübelin Gem Lab's 'Provenance Proof' service, which renders the emeralds traceable. The winning bidder may exercise the option to have a DNA nano-tag identity, developed by Gübelin, tied to the rough. This distinction will allow the cut and polished gems that Chipembele yields to be traceable to the original gem.

As with Inkalamu, ten percent of Chipembele's sales price will be donated to aid conservation efforts in Africa. In this instance, the North Luangwa Conservation Programme in Zambia will receive funds for

their critical black rhinoceros conservation efforts.

The Kagem mine is owned by Gemfields in partnership with the Zambian government's Industrial Development Corporation.



The latest high-quality emerald from Gemfields' Kagem mine in Zambia weighs 7,525 ct. It is called 'Chipembele', which means 'rhino' in a local dialect. Photo courtesy of Gemfields.

RESEARCH PROVES PEARLS ACHIEVE SYMMETRY THROUGH 'PINK NOISE'

Researchers have answered the long-standing question of how pearls are able to achieve their symmetry despite the shape of their initial irritant or implant. By studying naturally forming keshi pearls from akoya pearl oysters from an Australian pearl farm, the team discovered that the symmetry is an outgrowth of 'pink noise' (or 1/f noise), wherein all seemingly random events

are in fact connected. Pink noise has applications in astronomy, physics, classical music, and other fields. In pearl formation, the thickness and formation of nacre is determined by the previous layer's formation of previous layers. Each layer 'self corrects' and adjusts its thickness by adapting to the nacre immediately preceding it. According to study author Robert Hovden, material studies expert

and engineer at the University of Michigan, "These thin, smooth layers of nacre look a little like bedsheets, with organic matter in between. There's interaction between each layer, and we hypothesise that that interaction is what enables the system to correct as it goes along." The results of the study were published in the 9 November issue of *Proceedings of National Academy of Sciences (PNAS)*.

Cradling the Russian Jewellers

Gem cutter Victor Tuzlukov and photographer Dmitry Stolyan
an egg-shaped cubic zirconia cut in honour of Carl Fabergé

This year, 2021, is the 175th anniversary of the birth of Peter Carl Fabergé (1846-1920) a jeweller who is famous for his many masterpieces, including the Imperial Easter eggs he made for Emperor Nicholas II and the Romanov family. I chose to spend the year cutting an egg of my own. While I was motivated by this anniversary, I was also inspired by Indian mythology when I cut this cubic zirconia. According to Hinduism, Brahma (The Creator) originates from the golden egg that is the source of the universe; this is known as *Hiranya Garbha*. Brahma creates our world from himself after about two billion years of activity; this period is known as the 'Day of Brahma'. I named my completed work 'Hour of Brahma', because his gemstone contains 3,600 facets, just as an hour contains 3,600 seconds. Now this cubic zirconia is the most faceted gemstone in the world. Its egg shape reminds me of *Hiranya Garbha* – that golden cradle of the worlds. 'Hour of Brahma' was suspended in a cradle where worlds crossed. In the cutting of this egg, a modern Russian cutter draws upon ancient Indian gods while working in the traditions of a famous Russian jeweller more than 100 years after his passing.

Victor Tuzlukov
Bangkok, Thailand



The Worlds of and Hindu Deities

evich discuss their work on and with the 'Hour of Brahma',
rgé, which is now the world's most faceted gemstone.



I have worked with Victor for a long time; every gemstone cut by him has always been a challenge for me to photograph.

I am a gemmologist as well as a photographer, and I know that each stone is a separate world from any other; it is an art object all of itself, full of special meaning. But this particular photo, of the 'Hour of Brahma' egg, was a real test for my photography skills. This gemstone twinkles from the inside, with a soft violet light of its own. Not only did I have to accurately depict the shape and color of this cubic zirconia and show all its 3,600 facets, but I also wanted to be sure I expressed my own emotions about what I was seeing. The gem seems to come alive as it is photographed, drawing amazing patterns on the surrounding walls with its bright flashes. A slight shift in the camera's position and the entire picture – the egg and the designs it spins around itself – changes. This was one of the scenes we captured of all the gem's wonders. I hope that my time spent capturing the 'Hour of Brahma' is considered well spent.

Dmitry Stolyarevich
Moscow, Russia

Back in the Field: An Expedition to Greenland's Ruby Mines

After a year of near-total inactivity, members of the trade are starting to cautiously meet their collaborators along the supply chain. World-renowned field gemmologist Vincent Pardieu recounts his first expedition in 2021, to Greenland's ruby deposit. He looks at the operations on the ground, as well as what lies ahead for the Aappaluttoq mine and its production.



Greenland ruby in matrix and in finished form in a keychain.

In August 2021, I resumed traveling after being grounded for one year due to the ongoing COVID-19 crisis.

What a pleasure to be on the move! The previous year had been difficult, and I lost several close friends. When I was finally able to get vaccinated, I was very excited to start traveling again and focus on field activities. Most of all, the thought of resuming my regular visits to Greenland to work with the ruby miners in Aappaluttoq was a pure delight.

I started working as a consultant with Greenland Ruby, a subsidiary of Leonhard Nilsen & Sønner AS (LNS) in Norway, when the mine officially opened in May 2017 after several years of exploration by a Canadian mining company called True North. This new adventure gave me the unique opportunity to witness the evolution of a modern ruby-mining operation located in Greenland, one of the most remote places on Earth.

There was a known ruby deposit, but it was a challenge to extract the material found there.



Vincent Pardieu (right) cleans the ruby-rich ore inside the Aappaluttoq ruby mine in order to document the local geological settings and study the mineral associations present. Photo by Leonard Cornuz.

THE BACKGROUND

At first glance, Greenland would seem to be a most unlikely location for a ruby mine. In fact, it is a very challenging place to produce gemstones: Greenland is, after Antarctica and Australia, the world's largest island. It is larger than France and Germany combined, and more than 75% of the land is covered with ice. There are very few roads, and most people travel within Greenland either by boat or by plane. While working along the coast of Greenland in the 1960s, Danish geologists discovered

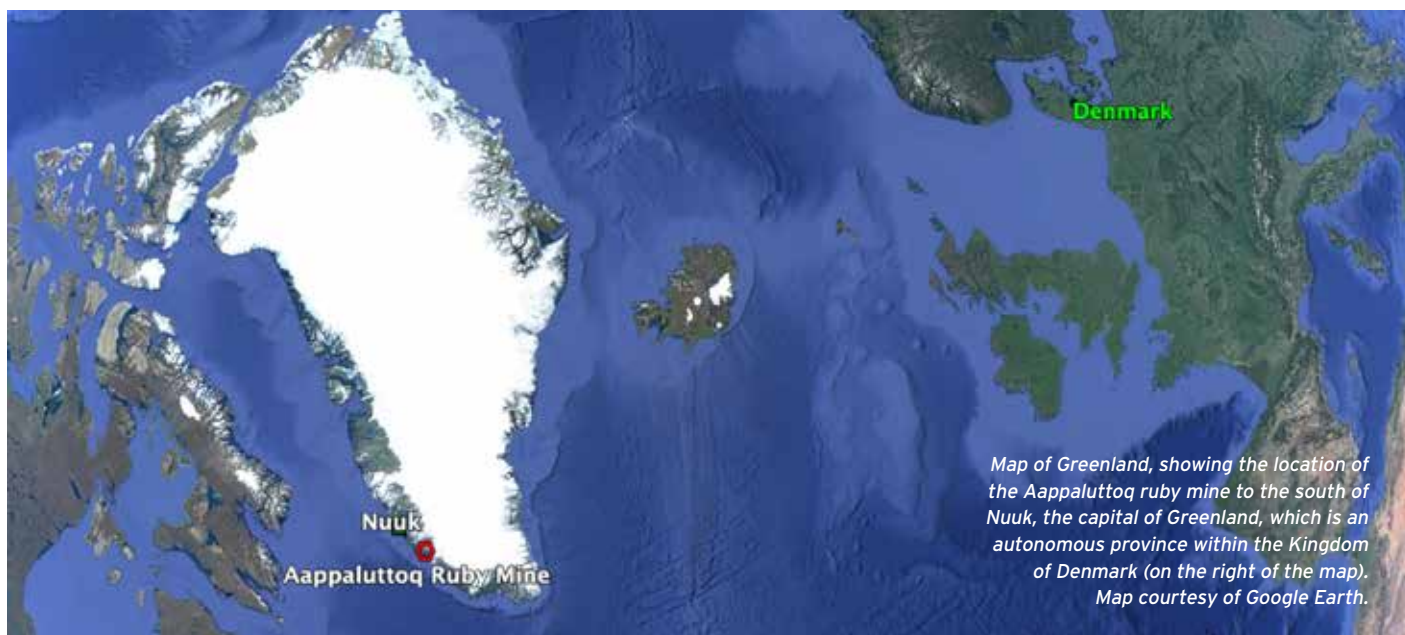
rubies on rocks, on an island that was soon called 'Ruby Island'. It took a long time for that deposit to become an active mine, for several reasons. The deposit is very remote – particularly in winter when the fjord is frozen – and communications with such areas were not easy before the global spread of the internet. Further, traders did not regularly visit either Greenland or Denmark. In short, there was a known ruby deposit, but it was a challenge to extract the material found there and, finally, there was no market for the rubies once they were retrieved.

Thanks to the technology developments that became available to Greenland since the beginning of the twenty-first century (e.g., improvement in communication, transport, machinery,) and with growing interest for responsible gemstones, the deposit became viable.

While I have consulted with Greenland Ruby since 2017, since November 2019 I have provided field training to the staff at the mine. In simpler terms, I am trying to turn iron miners (LNS also operates an iron mine at Mo-I Rana, in Norway) into ruby miners by focusing on



Geologist and gemmologist Leonard Cornuz with a piece of rock from the Aappaluttoq ruby mine in Greenland hosting many large ruby crystals in association with mica.



Map of Greenland, showing the location of the Aappaluttoq ruby mine to the south of Nuuk, the capital of Greenland, which is an autonomous province within the Kingdom of Denmark (on the right of the map). Map courtesy of Google Earth.



Top: Leonard Cornuz studies some of the ruby-bearing cores found during the summer 2021 ruby exploration programme near the Aappaluttoq ruby mine.

Bottom: Mr Cornuz presents a ruby-bearing core for inspection. Pink-to-light-red rubies in this core are associated with greenish amphibole, mica and feldspar. Photos by Vincent Pardieu.

understanding and producing based on quality (of gemstones) rather than quantity (of ore). This is to help the mine's geologists evaluate the areas with the best-quality rubies over areas with much higher grams of corundum ore per ton of rock. It also teaches the miners the difference between potentially valuable ruby material and what can be considered waste.

This endeavour is not as easy as it may sound, as most 'classic' gemmological courses train people for retail work or for the identification of faceted gems, either on their own or as used in jewellery. They do not focus on mining or rough, and so most gemmologists are not trained to understand gems from the production side, which means thinking about a rough gemstone for its potential: What can be done with that piece of rough ruby? How can I maximise its market potential value? Does it require any treatment? The same is true in the study of geology: few geologists study gemstone deposits during their studies, or even their careers. These different perspectives make the whole challenge even more fascinating.

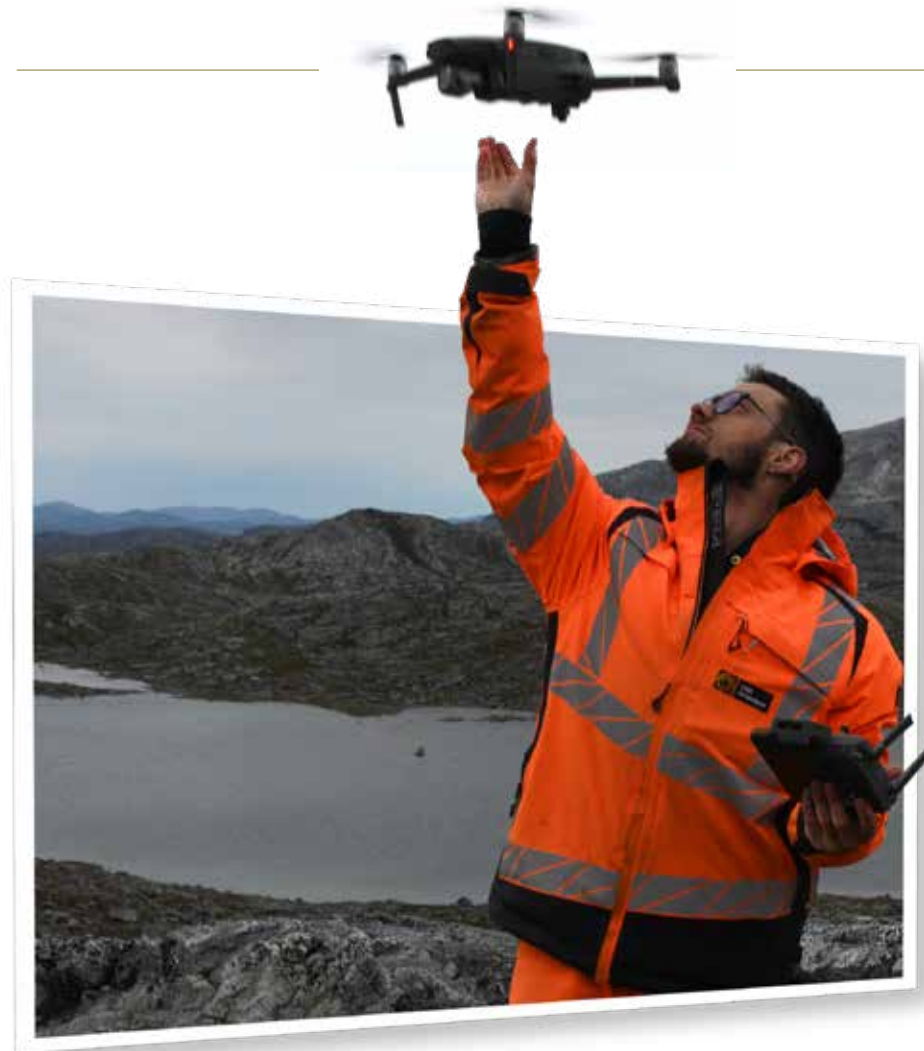
THE EXPEDITION

As part of my work, Greenland Ruby asked me to join their ambitious programme, in the summer of 2021, to collect data on places that could be worth mining for ruby in the future. Taking advantage of the absence of snow around the Aappaluttoq mine, I teamed with Leonard Cornuz, a young geologist I had previously travelled with in Brazil and Madagascar. Leonard is now an employee of Greenland Ruby; he is the resident mine geologist at Aappaluttoq.

It is important to realise that in Arctic regions such as Greenland, rubies are not found by washing gem-rich gravels that are the result of millions of years of weathering like in Sri Lanka or Mozambique. In the Arctic, most rock was weathered by the grinding of frost and glaciers rather than by the combined action of heat and running water. Thus, in Greenland, rubies are found mainly in hard rock. The key to any successful mining here is understanding of where and how fine-quality rubies are likely to form and then finding a cost-efficient way to extract them. The August 2021 programme focused on several aspects of this exploration. First, the company geologists planned an



View of the Aappaluttoq ruby mine from Greenland Ruby's helicopter. The mining site is an open pit located between two barren lakes. The large red building located by the lake in the centre of the photo is the processing plant, where ruby-rich ore is crushed and sorted. The small red dots behind the processing plant are the main camp where ruby miners sleep.



Leonard Cornuz collects his drone after using it to photograph a potentially ruby-rich area at Siggartutalik, roughly 6 kilometres (3.6 miles) from the Aappaluttoq mine.

ambitious drilling programme to collect and study several kilometres of cores in the areas of interest. These cores will be logged and studied to build a three-dimensional model of the area on which a possible mining plan could be elaborated. To support the core-drilling venture, a helicopter was stationed at the mine to bring teams back and forth from the camp to the site and to carry the drilling equipment. The helicopter also transported the ruby-bearing cores back to the Aappaluttoq mining camp.

Second, taking advantage of the presence of the helicopter and its pilots, we asked to be dropped in areas of

interest to do surveys on foot.

This would allow our expedition to study some ruby-bearing outcrops, while mapping the area with a drone to fine-tune existing geological maps and plan possible additional core-drilling programmes. The interest of studying outcrops was, of course, limited by the fact that we were not the first people to scout these mountains. Indeed, over the past 60 years other geologists, and probably small-scale miners, came and collected the attractive material available. During our visits we found the remains of several temporary camps. Nevertheless, the days we spent scouting

these mountains were useful. We started from a theoretical point of view, and developed a more practical standpoint as we looked at the rocks in field conditions and compared our maps with the photos taken by the drone. Through these efforts we were able to better understand the whole deposit.

Finally, when the weather was too bad to explore, we started to study and log the cores. We anticipated that this last part of the work would take weeks and would continue after the end of the drilling phase.

I arrived in Nuuk, Greenland, on 7 August from Iceland. Nuuk, with its colourful wooden houses and its 16,000 people, looks like a small fishing town, but it is actually the capital of that autonomous territory of Denmark. It is the starting point of all my visits and the logistic hub for Greenland Ruby, as nearly everything used at the mine (except for the delicious fish and seafood we eat) must be imported. On 8 August I sailed five hours south along the scenic west coast of Greenland to reach the mine, which is in a fjord near Ruby Island. Upon arriving at the mine, I was gifted with the beautiful and promising sight of a rainbow over the helicopter that was waiting near



The author, Vincent Pardieu, studying an area where some ruby-rich rocks were extracted using a diamond saw during previous exploration programmes run by True North. Photo by Leonard Cornuz.

Most gemmologists are not trained to understand gems from the production side, which means thinking about a rough gemstone for its potential: What can be done with that piece of rough ruby? How can I maximise its market potential value?



Leonard Cornuz explores the ruby-rich mountains around Aappaluttoq. One of the positive aspects with geological exploration in Greenland is that, as soil and vegetation are rare, in summertime when there is no snow many rock outcrops are exposed and can be studied.

the Aappaluttoq mining camp. But the reality of the expedition was a bit less romantic. Instead of lovely faeries dancing around our head, as might be expected from such rustic and beautiful surroundings, we were welcomed to the mountains of Greenland by hundreds of mosquitoes and flies. Within a few days we became used to working with mosquito nets over our heads, as is the norm for people working at the mine during summer.

For the next 10 days we explored most of the known ruby-bearing areas around Aappaluttoq, Siggartartulik and Kigutilik. We were also lucky enough to witness some good production inside the main pit at Aappaluttoq, where we could clearly see how ruby crystals were

associated with the surrounding rocks. The exploration programme continued until the end of September, as after that snow returns to the area and working outside of the main pit at Aappaluttoq is not possible. However, ruby mining will continue inside the Aappaluttoq pit during the whole winter period, as the miners find it easier to work there when temperatures remain below zero degrees. At such temperatures, miners no longer worry about water infiltration or mud, as all water turns to ice.

Rubies collected during the 2021 summer exploration programme will be taken to Thailand. There, they will undergo heat treatment to find out about the real potential of the material from these newly explored areas.

THE FUTURE

Rubies from Greenland, like most rubies from other hard-rock deposits (e.g., Afghanistan, Tajikistan, Myanmar, Tanzania and Vietnam) are often found with fractures. These fractures exist naturally in rubies and are a consequence of the intense geologic events they were subjected to since their formation – about three billion years ago in the case of Greenland – and of the mining process (which involves blasting, crushing and/or hammering of the ruby-rich rocks). Because of these fractures, unheated rubies from such deposits tend to break during either the



Ruby production from Aappaluttoq, alongside a Danish two-kroner coin for scale.



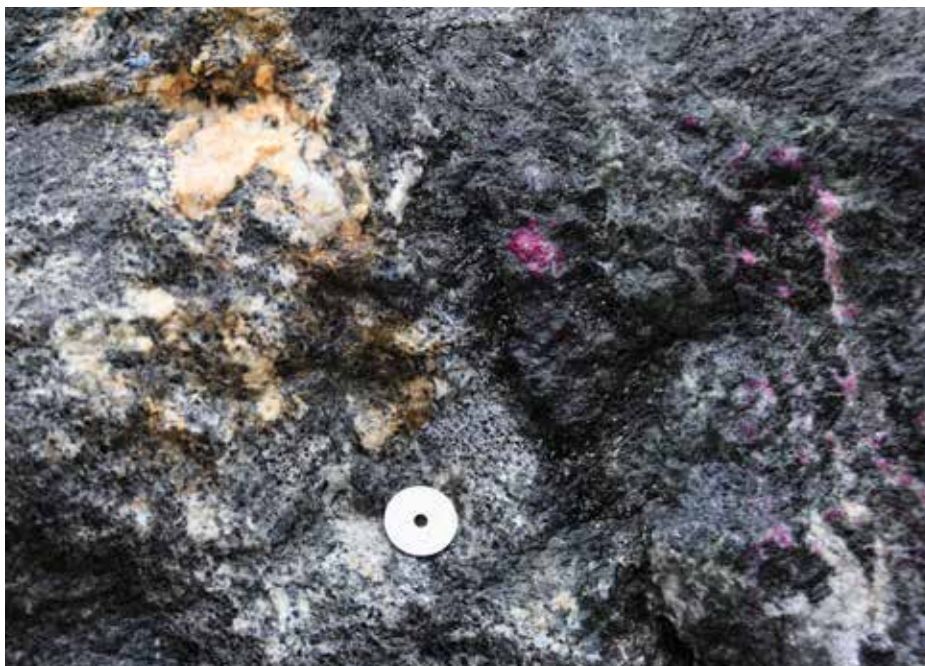
Pink-to-deep-red rubies in matrix seen at the Aappaluttoq ruby mine in Greenland. The rubies are here associated with white feldspar, bronze mica and dark amphibole.

cutting or the jewellery-setting process. To solve the fracture issue, the material benefits from heating with borax as a flux additive. The use of borax as a fracture filling was developed at the end of the 1980s in Thailand. Once heated, the cooling stage heals the existing fractures. The overall heat treatment, done under oxidising conditions, also removes some milkiness and bluish areas of the rubies, and improves their overall transparency and colour. This treatment was previously used with great success on Burmese rubies, and played a role in Mong Hsu, Myanmar, becoming the world's leading ruby deposit from the early 1990s until roughly 2007. There are hopes that this method of fracture healing will be successful in rubies from Greenland. If so, Greenland Ruby will be able to supply the trade with gemstones that are large and durable enough to be

turned into cabochons and beads, as well as attractive faceted gems.

The production from Greenland helps to meet the growing demand for responsibly mined gemstones, as the mining activity is done under extremely strict Danish social and environmental regulations. Beyond these regulations – which are probably the most challenging I ever witnessed in travelling the world to visit coloured gemstone mining sites in the whole world – Greenland Ruby also initiated the Pink Polar Bear Foundation. The corporate social responsibility programme focuses on supporting international polar research in all disciplines, with the goal of protecting the inhabitants (humans, animals, and vegetation) of Greenland, who are affected by climate change and its accompanying cultural shifts. A percentage of the proceeds from each gemstone Greenland Ruby sells is contributed to the Foundation; the company encourages their partners to make the same contribution.

To control how rubies from Greenland come to market, and to be able to provide a certificate of authenticity in association with the Greenlandic government, Greenland Ruby does not sell rough material. Instead, the production is available as responsibly mined faceted gems, cabochons or beads though selling offices located in Paris and New York. And just before



A ruby-rich area at the Aappaluttoq mine. The rubies are seen on the right side of the photo associated with dark mica and greenish amphibole next to an area with whitish feldspar, sapphirine and molybdenite. This geological setting suggests that the formation of the rubies here is strongly associated with a metasomatism, meaning that the arrival of external fluids had an important role in the formation of rubies.

the start of the COVID-19 pandemic, Danish jeweller Hartmann's began using rubies from Greenland in a very successful collection.

For my part, as of October 2021 I am preparing for a new mission to Greenland later in the month. I will help Greenland Ruby to train the staff at its new sorting

house in Nuuk, then I will continue my work studying of the ruby-bearing cores that were extracted during the summer 2021 programme. This project will probably keep me busy for the next two or three visits to Greenland, and members of my social media accounts will be kept up-to-date on my travels. ■



A selection of faceted pink-to-deep-red rubies, cabochons, beads and rough ruby specimens showing the colour range of the production from the Aappaluttoq ruby mine. If pink stones are more commonly found, from time to time the mine also produces very attractive deep-red transparent stones.

All photos by Vincent Pardieu and courtesy of Greenland Ruby unless otherwise indicated.



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INSTRUMENTS



An Introduction to MOKUME-GANE

A metalsmithing technique once used for decorating samurai swords has transitioned to jewellery. Jaime Labro and Jonathan Muiy FGA look at the history of *mokume-gane* and observe how the nineteenth-century method has found a niche that may only expand in the coming years.

Mokume-gane (木目金) is a 400-year-old Japanese metalwork technique found increasingly in jewellery since the 1970s. However, the technique is not commonly seen in jewellery with gemstones. Because of some limitations due to the nature of the technique, unique mokume-gane creations that use coloured stones and diamonds have some limitations. For a mokume-gane gold-and-diamond ring, a long path is necessary to get the raw material ready before the creation of the ring can even start.

This article reviews the history and manufacturing process that lies behind the complex and time-honoured art of mokume-gane and reflects on its current status within the gem and jewellery trade.

HISTORY

Mokume-gane was created by Denbei Shoami (1651-1728) in the last decades of the seventeenth century in Akita Prefecture in Japan. It is an intricate form of Japanese metalworking art that was used mostly for the decoration

of samurai swords. Since the Shinto religion respected the martial arts and the use of the samurai sword, the sword became both the pinnacle of the craftsman's artistry and a representation of the craftsman's pedigree. In this way, the samurai of the feudal period were able to express their wealth, power and status in society. Mokume-gane was mostly used to decorate the *kozuka* (a small utility knife fitting into a pocket on the *saya*, or scabbard) and the *tsuba*, which is a Japanese sword guard that is typically decorated. Most of the older mokume-gane objects that are extant are *tsuba*.

Who was Denbei Shoami?

The inventor of the mokume-gane technique, Denbei, was a historically important craftsman who produced excellent examples of swords and sword fittings in steel with carving and inlay. He who was given permission to use the name *Shoami*, indicating an elevation of status, from the Shoami School, which started in Kyoto in the late 1500s. He was

also supported by the Satake clan, which was then *daimyo* (feudal lords) in the Akita area.

At first, Shoami named his technique *guri-bori*, because the pattern created on the first piece — a non-ferrous *tsuba* — was like *guri*, a *tsuishi* technique in lacquer work (*urushi*) that originated in ancient China. In *tsuishi*, patterns are achieved by carving into thick layers of different-coloured lacquer; the line patterns created are referred to as *guri*.

From sword making, Denbei Shoami found that non-ferrous laminates could be joined together to create patterns similar to those found in lacquer work. He later named this pattern mokume-gane, translated from the *kanji* as 'wood eye grain'. His oldest work in mokume-gane was used in a *kozuka* using gold, silver, *shakudo* (a Japanese alloy of copper and gold, usually presenting with a blue patina) and copper. This technique was also called *itame-gane* or *yosefuki*. There is no doubt that he was influenced by the swordsmith's craft and adapted those principles of forge welding to begin →



The cuff bracelet by mokume-gane jewellery artist George Sawyer uses 18K yellow, 14K red and 14K grey gold, sterling silver with patina and 18K yellow-gold edges. Photo courtesy of George Sawyer.



Traditional tools belonging to samurai that are decorated using the mokume-gane technique. Above is a kozuka, or utility knife, while below is a tsuba, or sword guard. Photos courtesy of the Metropolitan Museum of Art.

mokume-gane. His legacy was continued by a succession of metalsmiths who kept the technique alive, but none of them has been as well-known as Denbei Shoami.

It is not clear if the original intention was to achieve what we know today as mokume-gane, or whether he just tried to imitate the urushi lacquer technique. Urushi combines layers in different colours (normally red and black) that are carved to display those colors. What we do know is that early in its history, mokume-gane was referred to as guri-bori.

Evolution and Current Status

After the Haito Edict of 1876, it was forbidden for most people to carry swords in public. As Japan continued to open to the Western world over the subsequent decades, the craftsmen had to make different objects to keep making a living.

During the second part of the twentieth century, people like Norio Tamagawa, Gyokumei Shindo and a few others preserved the mokume-gane technique and become true masters of the art. The most common objects they created using mokume-gane were handmade bowls or vessels, known in Japanese as *shibori*.



Author Jaume Labro (left) with Master Norio Tamagawa. Photo courtesy of Jaume Labro.

In the 1970s, jewellery artists Eugene and Hiroko Pijanowski learned the mokume-gane technique from Norio Tamagawa and introduced it to the Western world in different workshops and conferences, mostly in the United States. Most of their pieces were based on the mokume-gane pattern; coloured stones and diamonds were rarely present.

Since then, the basic technique has not changed much, but there has been a revolution in equipment and progress has been made towards understanding the technique itself in a more scientific way.

TECHNIQUE AND PROCESS

While the entire mokume-gane process is beyond the scope of this article, some aspects must be explained to understand how the technique is applied to jewellery.

Bonding Different Metals

There are different processes to bond different layers of metal. Commonly known as liquid-state diffusion and solid-state diffusion, the process to bond two different metal alloys together is complex.

For two or more metallic atoms to form a bond, it is necessary for them to be in close contact and totally uncontaminated. Strips of metal are used for this purpose. Once the layers are totally flat and free of contaminants, applying pressure will keep them as close as possible to each other. Then they are exposed to a specific temperature for a set period. The metal with the lowest melting point will determine the temperature. This is the most important factor in the bonding process. The perfect

combination creates a bond and the 'sandwich' of different layers, or 'billet', is created.

The metals are heated until the interfaces become molten, usually by forming a eutectic layer. 'Eutectic' describes the lowest melting point of the alloy of the different metals. To create a bond, 10 degrees Celsius under the lowest melting point of the alloys to be bonded is a safe temperature, and the results should be satisfactory. There is no exact formula to create the bond because sometimes, lower temperatures but longer time can create the same results.

Metals Used in Mokume-Gane Jewellery

Not all metals can combine with each other; some are simply incompatible. Some, like stainless steel, iron and titanium, are difficult to bond. Silver, which offers a wide variety of potential combinations, is the most common metal used in mokume-gane. While copper alloys are perfect for objects, vessels or any decorative piece not in contact with the skin, they are to be avoided in jewellery due to their lack of durability. The jewellery piece will self-destruct due to the galvanic corrosion. Many new designers do start to experiment with these metals because they are cheap and easy to bond, making them a perfect choice to practice before switching to precious metals.

Pendant created by author Jaume Labro using the mokume-gane method. Labro crafted this piece with 18K white gold and silver, along with a 0.67 ct blue sapphire and 0.23 tcw diamonds by Jaume Labro. Photo by Jaume Labro.



Patterning

The pattern possibilities inherent in mokume-gane are unlimited, and each artist with enough experience has his/her own characteristic style. When considering the pattern of an object, it is very important to consider the metal lost during carving — for instance, starting with 30 grams of metal is likely to yield a 15 g object — as well as the

final thickness of the piece. Each pattern is one-of-a-kind, and that is part of what makes the technique itself unique as well. Depending on the strategy, the billet specifically can be created by using more layers or different thicknesses for each individual layer. Patterning is the richest, most complex part of mokume-gane. Only experience can improve the results as there is no specific method for creating patterns.

Classic Patterning. There are different 'classic' pattern methods like punching, repousse, milling, twisting (if sliced from the centre in a totally parallel fashion it shows a star formation), chiselling, rolling and printing or burring. This last type uses either a positive or negative carved figure or arrangement.

Normally the depth of each cut into the billet (e.g. chiselling, blurring, milling) will not exceed 25%. Making sure there are no sharp corners is very important to avoid any fractures later in the process. Mathematics can be used in the patterning; formulas used during the manufacturing process can help to increase the precision of each pattern.

New Patterning. Systems that allow for new patterning, such as three-dimensional (3D) and computer numerical control (CNC) machining, are showing up with more consistency. They have been used in the past, albeit not very successfully and without having any →



Jaume Labro made these jewellery pieces, using the mokume-gane technique, in 2012. Left: Ring made of 0.27 tcw diamonds, 18K white, rose, green and yellow gold, palladium 500 and silver. Above: Mokume-gane necklace made of 18K white and 22K yellow gold and silver, in a palladium 950 chain. The centrepiece of the necklace comprises 0.92 tcw diamonds. Photos by Jaume Labro.

substantial impact on the mokume-gane field. Within the last 5-8 years, major improvements in 3D technology could suggest a potential for mokume-gane to reach new dimensions in patterning and design in the future.

The metal lost, and how much of that lost metal can be recovered, will be the challenges faced by 3D and CNC machining, as that reduction has a direct impact on the total cost of the piece of jewellery. Whether the end-client is open to paying premium prices for mokume-gane jewellery that is unlike anything else on the market remains to be seen.

Finishing

The different metals within the same jewellery piece have different hardnesses, and the softer metal normally tends to wear away more than the harder metal. As a result, most mokume-gane pieces are not 100% flatly polished.

Normally, matte, satin or soft finishes are the best because the pattern is more obvious. An abrasive pad is perfect to achieve this finish, or the piece can be sand blasted. For even more pattern contrast, etching is necessary; this will

also help to keep the pattern obvious through daily wear. Otherwise, new scratches will eventually make the pattern difficult to see. The etching process is therefore necessary to emphasize and preserve the pattern. Different chemicals are used for etching depending on the metals comprising the object.

MOKUME-GANE IN JEWELLERY

Mokume-gane jewellery began to appear during the 1970s. It was a new way of using an old method, one outside the classic tsuba and handmade bowls of the past. The number of craftsmen who have become involved in mokume-gane have been increasing, making it not only evolve technically but creatively. Though as a technique mokume-gane is almost 400 years old, the present could be considered the 'golden age' of mokume-gane around the world. Many new designers are bringing the best of their creativity to the art form and experimenting more and more with gemstones and diamonds in their pieces.

Mokume-gane is perfect for bridal jewellery, since each piece is handmade and therefore unique. The metal bonding

This pendant uses 18K white, rose and yellow gold, palladium 500 and silver, and features a 2.19 ct aquamarine. Photo by Jaume Labro.



can perfectly represent the marriage of two people. Since wedding rings are, relatively speaking, not difficult to create, most designers use the technique in this manner. Mokume-gane engagement rings are more complex to realise, but their number is increasing.

Fine jewellery also has mokume-gane pieces, but its presence is rarer due to the time needed to create the piece. In addition, since the amount of material lost in the process and the skills required to create these pieces are high, the number of artists having a full collection with coloured gemstones and diamonds would be very small. Some artists have a few fine jewellery pieces, but very few, if any, have a full range of pendants, rings, brooches, necklaces and earrings. Price can also be a deterrent, since the time and resources invested makes each piece much more expensive than a counterpart made using a casting.

Because of the nature of mokume-gane, a certain surface size is necessary to appreciate the pattern. In a 2.0-mm piece of jewellery, the pattern would be too small and subtle, and too difficult to see with the naked eye, to be appreciated. Once a piece reaches a width of 2.5-3.0 mm, a pattern can start to be seen and appreciated. Most of the designs of the past have been a combination of a certain size mokume-gane pattern and some accent gemstones or diamonds.



One of the authors, Jaume Labro, forging a metal billet of mokume-gane. Photo courtesy of Jaume Labro.



GEMSTONES AND MOKUME-GANE

Because the common thinking of the artists is that mokume-gane is beautiful enough to stand alone, adding gemstones has been seen as unnecessary, only contributing distraction and confusion to a piece rather than beauty. There are few creative designers experimenting in the technique because of the difficulty inherent in executing it properly.

In terms of design, and how to integrate diamonds and coloured stones other than as accents, there is not yet much development outside classic rings. The easiest direction taken has mainly avoided using main or centrepiece stones, opting for classic and regular shapes without much creativity



The boulder opal ring made by Jaume Labro is shown from four positions to show the colours of the gemstone and the patterns resulting in the metals from the mokume-gane technique. The metals used are 18K white, rose and yellow gold, palladium 500 and silver. The ring is set with 0.24 tcw diamonds and a 0.51 ct Australian black opal. Photos by Jaume Labro.

other than to use a metal pattern as a substitute for an opal or jade. It appears that the artists are limited by the technique itself and are intimidated by the challenges of combining the patterns with large stones in a harmonious design. The relative newness of the idea of using mokume-gane in jewellery accounts for the fact that such pieces are rarely found at auction or in top museums. So far,

museums have only displayed bowls and ancient tsubas, but no jewellery.

Mokume-gane has been produced by more craftsmen than by designers; some combination or collaboration could bring a breath of fresh air into the jewellery field. It would be a delight to see associations, schools and other entities educate their audiences about the complexity and beauty of this ancient technique.

There has been excellent work from a handful of people, especially from United States and Europe. These include George Sawyer and James Binnion (United States) and Hansruedi Spillman (Switzerland). In other countries, even Japan, where the technique comes from, the sharing of knowledge is much more restricted. But thanks to these people, strides during the last 10 years have been much larger than in any previous period. →

There is potential for design and creativity to explore, and the fine jewellery market will see many more mokume-gane pieces thanks to its potential to offer one-of-a-kind pieces.

Integrating larger, higher-value coloured stones and diamonds with mokume-gane, together with more creative design and good craftsmanship, could move the technique to a higher level so that it is recognised as a true art form within the field of handcrafted, high-end jewellery.

SALES FOR MOKUME-GANE JEWELLERY

Most of the small mokume-gane studios combine wholesale product in multi-brand retail shops with online sales. The market has been changing a lot since about 1985, with an increase of players in recent years thanks to their wide reach on the internet. Prices have decreased somewhat mainly due to competition and, to a certain extent, the economic slowdown. Since most creators concentrate on weddings, the market may become saturated in a few years.

Some mid-sized companies have also started production, using mainly the star and twist patterns, and with the minimum amount of personalisation. These rings are made using lathe machines to sell based on quantity. This form of production does not make the rings inferior in terms of quality, but at the level of craftsmanship and

Modern-day mokume-gane artists are just beginning to show the jewellery trade the potential of this technique.

pattern beauty. Yet these companies help consumers who would ordinarily struggle to afford a mokume-gane ring, because the price is lower than that charged for the rings made by small studios that exercise more attention to detail. To keep themselves competitive and to minimise the loss or reduction of orders, studios may start to create wedding bands in palladium 500 and silver and palladium.

As mokume-gane becomes better known among consumers, they will



A wedding ring of 18K white and yellow gold and silver (right), made by Jaume Labro using mokume-gane, with a close-up of the finished pattern (above). Photo by Jaume Labro.

be able to distinguish between the semi-machined and the totally handcrafted versions thanks to obvious differences in design, price and audience. But for small studios, a marketing strategy will be necessary to ensure that clients can understand the differences between them.

The fine jewellery market is growing slowly because it is more challenging, and the online market is not an ideal selling platform for pieces valued at several thousands of dollars, but there are already a few brands building some interesting business models in this way.

CONCLUSION

Even though mokume-gane is a centuries-old Japanese technique, it is still in an embryonic stage as a jewellery-making style. During the last decade, there have been improvements on the technique itself, and more goldsmiths

are becoming interested in it. There is potential for design and creativity to explore, and the fine jewellery market will see many more mokume-gane pieces thanks to its potential to offer one-of-a-kind pieces. Modern-day mokume-gane artists are just beginning to show the jewellery trade the potential of this technique. ■

References available upon request from the editor.



MOST COMMON ALLOYS USED IN JEWELLERY

- 14K White and Rose Gold and Sterling Silver
- 14K White, Yellow and Rose Gold and Sterling Silver
- 18K White Gold and Sterling Silver
- 18K White Gold and Yellow Gold
- 18K White Gold and Rose Gold
- 18K White Gold, Rose Gold and Sterling Silver
- 18K White Gold, Yellow Gold, Rose Gold and Sterling Silver
- 18K White Gold, Platinum 900 and Sterling Silver

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The HARDROCK SUMMIT 2021

innovates with B2B2C model

A new industry show debuted in Denver, Colorado, in September 2021. Olga González FGA DGA explores how the HardRock Summit demonstrated several shifts away from the traditional trade show standards.

Everyone appreciates a breath of fresh air, and after a year of cancelled and postponed shows, the gem and jewellery industry is in a state of metamorphosis. In this strikingly altered environment, designers, retailers and dealers have either adapted or dissolved. The companies that have experienced growth are digitally savvy, and have updated their marketing assets, messaging and way of doing business. In the same vein, expectations of trade shows have shifted, and so has the model: The HardRock Summit has entered the scene.

The inaugural Summit ran from 16-21 September 2021 in Denver, Colorado. "Evolution" was hosted in the Colorado Convention Center in downtown Denver, and featured fine gems, minerals, fossils and meteorites. Sharing the venue with the Denver Gem and Mineral Show, which has run since 1967, HardRock brought a next-level calibre of exceptional minerals and fossils to the region, introducing goods to the trade and public simultaneously. "Sparkle and Joy," also part of the HardRock Summit, was held at the nearby Sheraton Denver Downtown Hotel. Displaying fine jewellery, gemstones and *objets d'art*, it gave the public access to independent designers and appointments for creating custom pieces. Promoting transparency, The HardRock Summit filled a show

gap, offering consumers access to the ultimate in trade luxury through a thoughtfully curated mineral, fossil, gem and jewellery showcase.

Christoph Keilmann, co-founder of HardRock Summit and organiser of The Munich Show and Gemworld Munich, stated that "In recent times, brands have become increasingly visible to

'end-consumers' through their own communications channels, even if they are wholesale-only and do not sell directly to consumers. I predict a new trade-fair model of business-to-business-to-consumer (B2B2C), targeted at both industry professionals and the public, will become more common in the fine jewellery and gemstone market. As a



The owl and the pussy-cat sailed into Denver and stole hearts! An award-winning design by Canadian artist Llyn Strelau, the 1867 poem by Edward Lear comes alive through Strelau's using gold, platinum, pearls and an ocean of Arizona chrysocolla. The boat, 'pea green' in the poem, is accented in tiny tsavorite garnets and the pig is carved of rose quartz. The owl's wings articulate and the pussy-cat's eyes are actual chrysoberyl cat's eyes. Photo courtesy of AGTA.



Darryl Alexander created the AGTA Spectrum-winning Got Paint? for Somewhere in the Rainbow. The piece comprises petrified wood, sterling, agate, chalcedony, turquoise, alabaster, quartz, carnelian and an array of other wonderful mineral and gem materials. Photo courtesy of Daryl Alexander.

natural progression to the traditional trade-only model, in this B2B2C concept, we not only invite trade professionals and retailers, but we *also* invite collectors and enthusiasts, as well as encourage exhibiting brands and attending jewellers to bring their VIP clients to the event to experience the brands first-hand. As a result, manufacturers can educate the public through real-life interactions. Addressing professionals and consumers alike generates transparency, trust and

interest in jewellery and gemstones. The Munich Show and Gemworld have executed this model for many years in Munich, Germany, and it has been wonderful to successfully debut this concept during the all-new HardRock Summit in Denver, Colorado."

At "Evolution," CT Minerals created a buzz, introducing the first physical asset specimen collection coupled with a digital asset collection represented in augmented reality/virtual reality (AR/

VR), as well as scientific photography and natural artworks. "In the opening moments of the show, museums and collectors could see the applications of enriching their own current physical displays with digital displays and interactive data beyond their current understanding of the internet and iPads," explained Brian Butza of CT Minerals. "The attributes of a specimen's physical nature, coupled with vitality through scientific and exploratory measures, are now portrayed as a composure beyond our original understanding of the physical asset we once held in hand, bringing it to a new set of values never seen before. Every aspect of the digital asset is explorable. Data is now the most valuable asset on our planet." The display was a delight, engaging visitors, and captivating kids — encouraging a fascination of minerals, and hopefully inspiring future collectors.

In the nearby Denver Gem and Mineral Show, Enchanted Minerals shared a new chalcedony find. Founder and owner Phillip Simonds noted, "These specimens of chalcedony from the Green Fire Prospect in Cochise County, Arizona,



Real Gems displayed these earrings in 18K white gold with two oval-cut opals (5.88 tcw), two hexagon-shaped sapphires, six brilliant-cut sapphires, two fancy-cut sapphires and eight pear-shaped sapphires (4.92 tcw). The earrings were also set with four pear-shaped emeralds, four oval-cut emeralds and two fancy-cut emeralds (3.51 tcw), and 2.07 tcw diamonds (10 pear shaped and 50 brilliant cut). Photo courtesy of Real Gems.

"I predict a new trade-fair model of business-to-business-to-consumer, targeted at both industry professionals and the public, will become more common in the fine jewellery and gemstone market."



*These multicoloured sapphire earrings uses 18K gold, 13.21 tcw of natural corundum and 0.44 tcw white diamonds.
Photo courtesy of Kimberly Collins Gems.*

display daylight colours ranging from white to pink to pale blue, and exhibit a vivid green under short-wave UV light. The forms of the specimens range from buttons to bowls to flying-saucer-shaped bi-cones that reflect the negative shape of the lithophysae they were deposited within. Though specimens of fluorescent chalcedony are not rare in the mineral

world, it has been some years since a new locality featuring the cup shapes were found. I have not seen the flying-saucer shapes before."

Unique gems and jewellery delighted at the "Sparkle and Joy" show. Gems of Note wowed with their fancy-colour diamond jewellery, along with a notable ring mounted with a 31-ct untreated

emerald from Chivor, Colombia. Equatorial Imports displayed dazzling red beryl jewellery, including a necklace, statement earrings, a ring and two spectacular bracelets; a red beryl trapiche was also on view. Always a crowd favourite, the Somewhere in the Rainbow collection displayed cases of art objects, including Darryl Alexander's



*Among the treasures found at Gems of Note was this ring with a 31-ct untreated emerald from Chivor, Colombia, flanked by 5.33 tcw diamonds and mounted in platinum.
Photo by Olga González, courtesy of Gems of Note.*

"We both strongly believe that businesses should not hide from a crisis, but rather seize the opportunity to invest during difficult times."

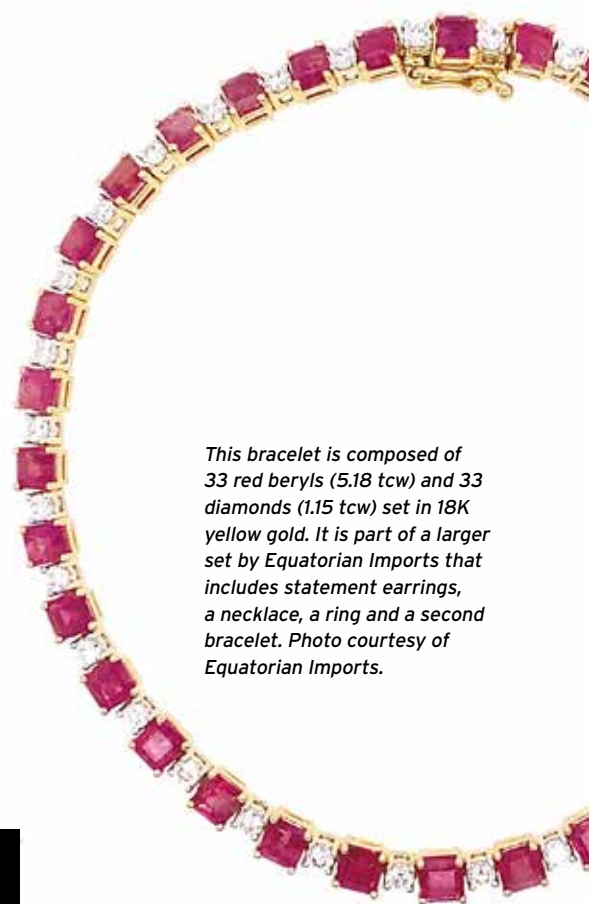
Got Paint? and a piece by Llyn Strelau that was inspired by the nineteenth-century poem "The Owl and the Pussy-cat". Shelly Sargent, curator of *Somewhere in the Rainbow*, remarked, "I feel we have moved beyond adapting to this new season in our lives. Instead, I feel that we are moving in a direction of more empathy, better understanding, appreciating health and care for others. In this growth, we are able again to start colourfully engaging in the beauty and business that makes our industry unique and rare. It is good to see prosperity in our trade and the beauty shine through again. Denver showed us that our trade is resilient and ready to magically move forward in successful ways, together!" Other fun finds at 'Sparkle and Joy' included spectacular African Paraiba tourmaline from Wild and Petsch, exceptional cameos from Stephan Gems, and an array of gorgeous pins and pendants by Brenda Smith.

Wolter Mehring, co-founder of HardRock Summit and organiser of Tucson's Pueblo Gem & Mineral Show, says, "Having enjoyed a long friendship with Christoph for the past two decades, we took the opportunity to join forces and realise a vision of creating a brand-new market platform for fine minerals, fossils, meteorites, fine gemstones and jewellery in Denver, Colorado. We both strongly believe that businesses should not hide from a crisis, but rather seize the opportunity to invest during difficult times. We anticipate that our event will further merge and unite the fine specimens industry with the jewellery and gem worlds."



The flower pin shown here, which has a hidden bail in the back that allows it to be worn as a pendant, was hand-fabricated in 18K yellow gold and features a cultured freshwater pearl and petals made from an opal hand-carved in Idar-Oberstein, Germany. It is outlined in 0.62 tcw round-brilliant diamonds. Photo courtesy of Brenda Smith.

The HardRock Summit connects a trifecta never connected before on such large scale within the high-end market. Magnificent minerals, gems and jewellery now share a space in September, and access is shared between trade and consumer. The supply chain achieves greater transparency, and the industry gains a platform to elevate business and best practices. It is a true win-win. ■



This bracelet is composed of 33 red beryls (5.18 tcw) and 33 diamonds (1.15 tcw) set in 18K yellow gold. It is part of a larger set by Equatorian Imports that includes statement earrings, a necklace, a ring and a second bracelet. Photo courtesy of Equatorian Imports.



While fluorescent chalcedony is known among members of the trade, the flying-saucer shapes of the specimens from the newly discovered Arizona locality (a 2.5 oz. sample is shown on the left in daylight and under short-wave UV light on the right) are an unusual find. Photos courtesy of Enchanted Minerals.

A Gateway to a Glittering, Sparkling Career

Liz Bailey MA FGA DGA CPAA turned her passion for design and jewellery into a career in the auction world as a jewellery specialist, and more recently helped to reinstate the North West branch of Gem-A.

For as long as I can remember, I have had an obsession with decorative arts. I love unearthing the histories behind objects and sharing the stories we can learn from them. I have loved trawling antique fairs for unique finds since I was a child, and I certainly didn't need to be asked twice if I wanted to visit a museum or National Trust property! I was captivated by antique items, vintage design and the social history of the objects we cherish, and I still am to this day.

I studied English Literature at the University of Leeds and during my final year, secured work experience at a local auction house. I helped with sales in between studying for my undergraduate degree; the buzz, thrill and excitement of the saleroom hooked me. I knew from that point that I wanted to specialise in a subject that would allow me to pursue a career in the auction world. Once I graduated, I was offered a full-time job as a saleroom assistant. I stayed with the company for a couple of years, and then moved to Birmingham's Jewellery Quarter to work at a leading regional auctioneer, with a view to specialising in jewellery. I joined the auctioneers as an administrator in the jewellery department. From there, I was encouraged by colleagues to complete a gemmological diploma. Gem-A was recommended help my progression in the industry with further hands-on cataloguing and valuing of the amazing array of items which passed through the doors.

I began my gemmological journey by studying at the Birmingham School of Jewellery, completing the foundation course

through evening classes after work. During this time, I also completed a Master's degree in Antiques through the University of Central Lancashire. I learned broadly about design movements and collections practice before homing in during the final year with a dissertation on Georgian sentimental jewellery. Juggling the two disciplines alongside a full-time job at a busy auctioneer was demanding; however, this combination of education and hands-on experience alongside established specialists in the heart of the Jewellery Quarter was invaluable. It helped me to develop an overarching understanding and appreciation of jewellery craftsmanship, design and history. It further spurred me on to complete the Gemmology and

In 2020 the Gem-A North West branch, which had been inactive for about a decade, re-opened, thanks to the work of Liz Bailey and a number of other gemmologists.

Diamond Diplomas via online learning within a couple of years.

Acquiring these vital qualifications enabled me to progress as a jewellery specialist and auctioneer. They gave me a greater confidence to speak to clients with clarity, relaying complex details about items in a way that was accessible. The depth of knowledge meant I was able to test and identify gemstones accurately. The level of precision the diplomas taught me is vital for exacting research, valuations, descriptions and the presentation of jewellery sold through auction.

In 2019 I was offered my current position of head of jewellery department at Wilson55, based in Cheshire. As part of this role, I am responsible for all jewellery and watches that are valued, processed and sold within our specialist sales. I oversee everything, from the initial client consultation to the research and cataloguing of items, selling the items up on the rostrum, as well as the client aftercare and marketing. This role is incredibly diverse, and every day is

different. Curating your own specialist sales through to fruition on sale day thrills and motivates me daily.

Although the pandemic has changed and accelerated certain ways in which we operate, the auction world has managed to pivot and adapt brilliantly. For example, we have experienced an exponential increase and demand for our existing online hosted auctions and live internet bidding, meaning that the thorough and accurate presentation of lots is more crucial than ever.

Having relocated for this role, I was keen to find and connect with other gemmologists in the area. Inspired by the wonderful 'hub' which I felt during my





Liz Bailey has been the head of the jewellery department at Wilson55 Auctioneers & Valuers since 2019. Photo courtesy of Liz Bailey.

time in the Jewellery Quarter, and the brilliant work of friends in the Midlands Gem-A Branch, I wanted to join a network of like-minded professionals so that I could continue to refresh and grow my knowledge of the subject. At the Gem-A London Conference of 2019, I was fortunate enough to be introduced to other gemmology professionals based in this region of the UK. It was during a breaktime talk that the idea to reinstate Gem-A North West was born. After assembling a 'committee' of local gemmologists, and receiving approval from Gem-A's London headquarters, the North West regional branch was reinstated after a hiatus of about ten years.

During the last 18 months, albeit in challenging circumstances, Gem-A North West has hosted several vibrant committee meetings and Zoom talks featuring guest speakers, with plans for further demonstrations and trips in the future. We have gone from a committee of four or five Members to having over one hundred registrants on our branch mailing list! It has been a delight to meet local gemmologists and see our committee grow; it is now made up of valuers,

retailers, auctioneers, retired industry professionals and enthusiasts. The branch has formed a fantastic support for new and established gemmologists in the area as well as welcoming new Students. We all benefit from the knowledge and kindness of the entire group, including established and highly experienced Members.

Special thanks to our wonderful speakers over the last 18 months:



A 4.03 ct diamond ring, sold at Wilson55 for £18,000 (£21,960 inclusive of Buyer's Premium). Photo courtesy of Wilson55.

The depth of knowledge and level of precision the diplomas taught me is vital for exacting research, valuations, descriptions and the presentation of jewellery sold through auction.

Rui Galopim de Carvalho, Lola Rafieva, Kerry Gregory, Sammantha Maclachlan, Shirley Mitchell, Rebecca Tucker, Charlie Bexfield, Kim Rix, Maggie Campbell Pedersen and Miranda Wells, who have all helped to put the North West branch back on the map with their fantastic online talks. I'm delighted to announce that, starting in November, we will be getting back to face-to-face events as well as online talks. We have an exciting calendar lined up, which will really set the scene and move the group forward into the new year.

The wonderful community and kindness of FGA and DGA Members continues to amaze me and makes this an inspirational and forward-looking industry in which to work. ■

To find out more about Gem-A North West and their calendar of events, follow their social media: LinkedIn at Gem-A North West, Facebook @GemANorthWest.

Email gemanorthwest@gmail.com to be added to their mailing list.

To learn more about Wilson55 and their specialist fine jewellery and watch sales, visit www.wilson55.com.

CHANGUÉ KANDOR

Jade of New Caledonia and Kanak Culture

Traditional sources of jadeite and nephrite are well established, but a lesser-known source in the Pacific Rim has a fascinating history.

In the 1960s, as my grandfather was working his potato crop in New Caledonia, he found a large piece of hard green stone, believed to be an ancient jade blade fashioned by the Pacific Island's indigeneous Kanak people. Before this story was passed on to me, I would not have thought New Caledonia to be home to any gemstone; indeed, it is better known for producing a large amount of the world's nickel. Yet a little investigation revealed that the Kanak had a long-established

jade culture. Indeed, *changué kandor* – which means 'green stone' in the Oceanic language of Xârâcùù – was a strong symbol of chieftainship, as well as a choice material for tools, currency and adornment.

WHAT IS JADE?

Derived from the Spanish *piedra de ijada*, or 'kidney stone', from the stone's reputed property to cure kidney diseases (Leander et al., 2014), the word 'jade' describes two rock species: jadeite and nephrite.



Selection of nephrite and serpentine found in New Caledonia. Photo courtesy of the author.



Jade blade found by the author's grandfather. Photo courtesy of the author.

A member of the pyroxene group, jadeite is a distinct species of sodium aluminium silicate that may contain varying amounts of other pyroxene materials, such as diopside, and forms an isomorphous series with kosmochlor and omphacite (Leander et al., 2014). Pure jadeite is white, and when presenting a degree of translucency is called 'water jade'; the presence of iron or chromium will cause different shades of green; and manganese (or an iron charge transfer) produces the purple material known as 'lavender jade' (Walker, 2010).

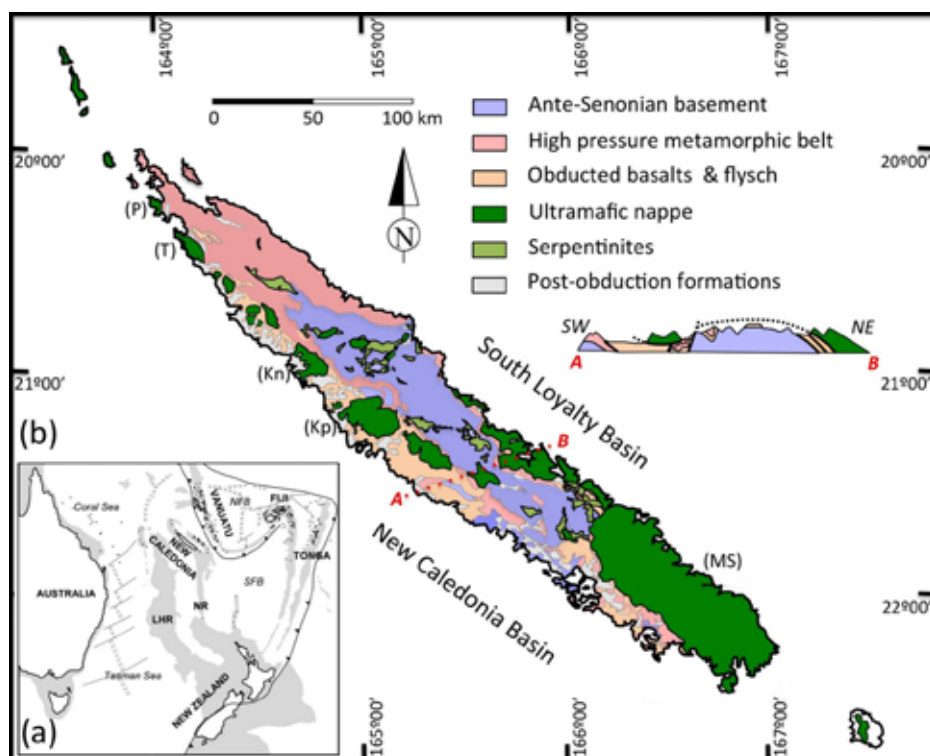
Nephrite, on the other hand, is constituted of amphibole calcite, and is a variety of the tremolite – actinolite series. Its complex composition influences its appearance and colour, from white 'mutton fat' and grey indicating a majority of tremolite (a calcium magnesium hydroxyl silicate), to 'spinach green' and greyish green when leaning towards actinolite, in which iron replaces magnesium and gives the material its characteristic colour. Green nephrite also typically shows opaque dark spots due to oxides and graphite. It sometimes takes on a brown-to-orange colour, which is caused by iron oxide staining. Lastly, 'tomb jade' is an archaeological greyish-to-yellowish-white material, in which the colour alteration is caused by ammonia leaching during prolonged contact with a decaying body (Walker, 2010).

Both materials present a distinctive toughness, which comes from their polycrystalline nature, and that sets them apart from other gemstones and contributes to their value and appreciation. Jadeite presents a recrystallized granoblastic structure that translates as fibrous-to-granular texture, visible on polished pieces as an 'orange-peel' effect. In such material, fractures propagate along grain cleavage planes rather than their boundaries (Harlow et al., 2014). As each grain is randomly oriented, cleavage planes are misaligned, effectively reducing the spread of breakage. In nephrite, crystals present a very elongated, fibrous shape, and assemble into a felted, interlocking structure. As in jadeite, fractures do not propagate along crystal boundaries, and cleavage planes and grain cross-section obstruct breakage (Harlow et al., 2014), thus making nephrite the toughest rock available in nature – about three times tougher than ceramic, and tougher than steel (Geoscience Australia). This property made nephrite a choice material in many cultures, including the indigenous people of New Caledonia.

GEOLOGY

Geological Formation of Jade

Jadeite and nephrite are found as massive boulders or pebbles in stream valleys, along current or ancient convergent plate margins that involve oceanic lithosphere. From a geological perspective, the Pacific Rim presents ideal conditions, as a compressive/converging context allows subduction to take place, creating adequate heat and contact between oceanic and continental crusts (King). Both nephrite and jadeite thus share metamorphic origins, although jadeite requires higher pressure than nephrite to form, which geographically distinguishes their deposits. Since the discovery of major jadeite deposits in modern-day Myanmar (Burma) in the eighteenth century, most gem-quality material comes from the Jade Mine Tract in the northern part of the country, as well as associated secondary sources. Jade has also been produced from Japan, California and Switzerland. Archaeological evidence of an important jadeite culture in Mesoamerica was confirmed when deposits were rediscovered in 1974 in Guatemala (Walker, 2010). The Motagua



Simplified geological map of New Caledonia, alongside a present-day tectonic configuration of the SW Pacific showing the distribution of major tectonic features (inset). Map from Pirard et al. (2013).

Valley now constitutes an important source of New World jade. More common than jadeite, nephrite can be found in a number of locations around the world. Although most gem-quality material is now supplied by Canada, Russia and

China, other commercial and archaeological deposits are found in Australia and New Zealand, Taiwan, the United States and various countries in Europe (Walker, 2010).

Nephrite and jadeite thus occur at convergent margins, in a process called metasomatism, a type of metamorphism in which fluids trigger the transformation process. An ultramafic protolith (a non-metamorphosed igneous rock with low silica/high magnesium and iron content) is enriched with other chemical elements by external hydrous fluids (Harlow and Sorensen, 2001), similar to seawater. In the case of nephrite, the elements involved are calcium and silicon (Harlow et al., 2014). For both types of jade, the ultramafic body is composed of a serpentine or serpentinised peridotite belt or conglomerate (Harlow et al., 2014). Ophiolites, which are fragments of oceanic crusts that have been uplifted and placed on top of continental crust in a process called obduction, often provide such serpentine massifs. Both materials form under high pressure/low temperature (HP/LT) conditions, but, as mentioned above, jadeite requires greater pressure of up to 1.3 GPa, while nephrite forms at an average of 200 - 500 MPa. Jadeite formation is rare,



A Kanak hache ostensive, a ceremonial axe. Photo courtesy of the Brooklyn Museum.



Great chief Samuel Vendegou holding a ceremonial axe. Photo by Allan Hughan, © Archives de la Nouvelle-Calédonie, album du docteur Mialaret, 175 Fi 8, 1876.

and much remains to be learnt about it. Similarly, the crystallisation sequence of nephrite from various deposits does not always coincide with the geological history of its host rock (Harlow et al., 2014), and more research is needed to gain a better understanding of its geological origins.

Geology of New Caledonia

A French overseas territory located in the southwest of the Pacific Ocean, New Caledonia is composed of remains of Gondwana that detached from Australia about 80 Ma (Sand et al., 2017) and presents geological features related to a subduction-obduction context. The result of convergent tectonics and the obduction of an ophiolite complex, it is one of the major *HP/LT* metamorphic belts in the world (Maurizot et al., 2020). Its ophiolite complex occurs as a large peridotite nappe, a distinctive geological formation that also happens to be one of the largest ultramafic terranes on the planet (Maurizot et al., 2020). As most jade deposits are characterised by the presence of serpentine or serpentinized peridotite, subducting tectonics and *HP/LT* metamorphism, New Caledonia thus offers an ideal location for its formation, and nephrite has been found and used on the island by the local population for several centuries.

Prior to the colonial period, jade was most likely found as river pebbles or extracted from thin veins, such as those recently found in and around the Tiwaka River, in the north-east of the main island. Field observations reveal that the thin nephrite veins are usually enclosed in serpentinite; they present dense, contorted textures, with sometimes botryoidal forms. Inclusions

of Cr spinel, grossular garnet, and smaller proportions of other minerals such as diopside (typical of ultramafic formations found on the main island), match features of archaeological pieces (Sand et al., 2017).

JADE CULTURE IN NEW CALEDONIA

The incredible toughness and beauty of jade have led many cultures throughout the world to hold it in high esteem and turn it into weapons, tools and jewellery. This was especially the case in societies where the use of metal was unknown and were therefore dominated by a stone culture. The Kanak people, who only started using metal after the arrival of Europeans in the late eighteenth century, were no exception. In 1864, during a visit to the island of Ouen, French engineer Jules Garnier recorded the presence of stones that were 'slightly translucent, of a very pure white, in the middle of which ran veins of a beautiful soft green'. His local contact told him that this was the stone his people used to make tools, when they had 'no axes or knives made of metal' (Sand et al., 2017). The green stone required intensive labour, and blades made from it were consequently the most prized possession of a chief: 'for them we bought peace, we made allies, we carved great pirogues, it was like gold for [Europeans.]' (Sand et al., 2017). Two types of artefacts are now strongly linked with the



Modern piece of New Caledonia jade. Photo courtesy of the author.

PROPERTIES OF JADE AND SIMILAR MATERIALS

Material	SG	RI	Hardness	Other Distinguishing Features
Jadeite	3.33	1.66	7	'Orange peel' granular texture
Nephrite	3.3	1.62	6.5	Fibrous texture
Hydrogrossular Garnet	3.48	1.73	6.5	Black magnetite crystals
Prehnrite	3.87	1.63	6	Pale yellowish green
Bowenite	2.6	1.55	5.5	White cloudy patches
Adventurine Quartz	2.66	1.55	7	Mica platelets, adventurescence
Chalcedony	2.60	1.54	7	Vitreous lustre
Amazonite	2.56	1.53	6	Blue-green and white
Californite (Idiocrase)	3.4	1.72	5.5	
Fluorite	3.18	1.43	4	Greasy lustre, octahedral cleavage
Devitrified Glass (Imori Stone)	2.65	1.51	6	Fern-like structure
Serpentine	2.6	1.56	2.5 – 4	Greasy/waxy lustre, mottled colour

Adapted from Anderson (1980).

traditional use of jade in New Caledonia: the *hache ostensoire* (ceremonial axe) and beaded necklaces used as currency. Recent studies have shown that nephrite was not the only green stone used for these artefacts.

First mentioned during explorer Antoine Bruni d'Entrecasteaux's expedition of 1793, the axe was called *nbouet* in the local dialect, which, according to European explorers, meant 'instrument with which to cut human victims' (Douglas, 2018). Other names such as *bwar* (Douglas, 2018), simply meaning stick or club, or *gi o kono*, meaning 'green head-breaker' (Métais, 1952), reinforce the idea of a tool or weapon. In an early account, it was described as comprising of a 'piece of perfectly polished serpentine, not very thick, worked into a circle or oval, and sharp edged' (Douglas, 2018). The stone blade was pierced with several holes, and attached to the wooden handle by rattans, which were tied along the handle by cords of fur from the flying fox (a local bat species), which holds a high symbolic value in Kanak culture. The axe ended on a hemispherical base, also decorated with flying fox fur and shells.

The exact use of the axe (and in fact, most of the jade history in New Caledonia) still puzzles academics, as written records of the Kanak customs and traditions

only started in the nineteenth century, by which time the axe and jade were seldom used in their traditional form (Sand et al., 2017). It seems likely that nephrite was used in weapons and tools due to its toughness. But the material also held a high spiritual value, representing 'life that doesn't cease' (Chevalier, 1996). The *hache ostensoire* was used in several important ceremonies, such as funeral rites and rain rituals, and was an extremely precious symbol of leadership and of the 'word' of the clan's chief (Métais, 1952; Godin, 2013). The history of these axes is also complicated by the fact that a great number were produced in response to the growing demand for Oceanic art and curios, which started in 1793. Indeed, most pieces now found in museum collections seem too weak to have been used as a tool or weapon (Métais, 1952), and many present evidence of the use of

metal tools in the fashioning and drilling of the stone. This would indicate a production post-dating European arrival, and that these pieces were meant for trade rather than serving any true traditional purpose (Sand et al., 2017).

Following Garnier's observations, the island of Ouen was for a long time believed to be the sole source of jade in New Caledonia, with a single, one-way trade route departing from it and running around the archipelago (Sand et al., 2017). Green stones were known to be found on Ouen and were traded within and out of New Caledonia until at least the 1960s; in fact, a family member has shared with me stories from his childhood of going to Ouen with his father to collect 'jade' and bringing it back by boat to Nouméa, the capital city, for export to Asia. Observation of museum pieces and field exploration

It seems likely that nephrite was used in weapons and tools due to its toughness, but it also held a high spiritual value, representing 'life that doesn't cease'.



*A Kanak caawe, or jade necklace.
Photo by Éric Dell Erba,
© Collection du Musée de
Nouvelle-Calédonie.*

have revealed that other sources existed, and that different minerals were sometimes used instead of jade. In-depth examination of 'jade' blades in museum collections have revealed the five following distinct mineralogical types:

- Bright-green and translucent nephrite, similar to New Zealand pounamu
- Dark greenish blue semi-nephrite with folded structure
- Opaque semi-nephrite of a pale greenish grey
- Olive-green nephrite with greyish or brownish spots
- Whitish nephrite-diopside (brownish or yellowish when oxidised), with small 'bright-green' veins (Sand et al., 2017)

'Oceanic jade' was also mentioned by A. Damour in 1865, and research has found that nephrite – diopside was probably what he was referencing. This material usually presents a higher refractive index (RI) and specific gravity (SG) than true nephrite, and is found on some blades (Sand et al., 2017). Ouenite, a light-green crystalline rock with fibrous grains that is only found on Ouen (Chevalier, 1996) is also often incorrectly labeled as 'jade'. Studies of necklaces,

which served as adornment for the female members of the chief's family as well as currency, show that the beads were often made of small fragments of ouenite, although fragments of true nephrite were occasionally used (Sand et al., 2017).

Nowadays a variety of simulants are sometimes used in place of true jadeite or nephrite, either to deceive or simply to offer more affordable alternatives. In the case of the New Caledonia

ceremonial axe, we can see a clear evolution in materials used in blade production starting at the beginning of the nineteenth century. The first axes gifted in 1793 to Europeans, probably to establish a relationship with the newcomers in the way that chiefs would exchange gifts to maintain societal order in the archipelago (Godin, 2013), created a taste for Oceanic curios. As the axe shifted from being a symbolic item found within a solely domestic context to an object of international trade, other materials – such as serpentine, which is locally called *nakæta* (Boulay, 1990), and is quicker to extract and fashion – were also used (Sand et al., 2017).

CONCLUSION

The study of artefacts such as beaded necklaces and haches ostensives, unique to New Caledonia and indeed revindicated as a symbol of the 'cultural and relational unity of Kanak societies' (Sand et al., 2017), offers an insight into the importance held by jade in Kanak culture. From essential tool to material infused with great spiritual power, it has through the centuries allowed people to carve boats, fight their enemies and worship their gods and ancestors (Boulay, 1990). A symbol of life, jade also represents, when used on ceremonial axes, the word of the chief and will of the clan. Colonialisation has impacted the local use and trade of jade; nonetheless, it hasn't erased the deep-rooted history and significance of its use by the Kanak people. ■

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

MEET AURORE MATHYS

The author of our Autumn 2021 Student Project reflects on what brought her to Gem-A.

Since I was a kid, I have had a fondness for collecting rocks and crystals, and as I got older, this developed into a passionate curiosity for gemstones and jewellery. With a degree in art history, I transitioned to the jewellery industry as a pawnbroker assistant in 2018. Two years later, I took the next step and enrolled at Gem-A. The Foundation and Diploma have both developed my appreciation and knowledge of the science behind gemstones.

For my final project, I explored the geology of jade and connected it to my family heritage. I currently work as an appraiser with Prestige Pawnbrokers, where I get to combine all these facets of gemmology and art history. I continue to explore the cultural and historical significance of jewellery through my Instagram account, @historysjewels.





The 128.51 ct cushion-cut Tiffany Yellow, produced from South Africa's Kimberley mine in 1878, one of the largest mined yellow diamonds. Photo by DiamondGalaxy/Shutterstock.

Looking Back to Move Forward: Old Diamonds and Contemporary Ethics

A new advertising campaign, intended to be historic and memorable, ended up being controversial and subject to criticism. Beth West FGA DGA EG explores the social issues related to diamond mining and how the narrative around provenance continues to evolve.

It had the potential to be powerful: A potent mix of music icons, edgy art and an enormous diamond. But 'About Love', the recent ad campaign from Tiffany & Co. featuring Beyoncé and Jay-Z, has received far more bad press than praise – bad press that has inadvertently exposed the messy history of ethics in the diamond industry to a broader public. The campaign features Beyoncé wearing the iconic Tiffany Yellow, a magnificent 128.51 ct canary-yellow diamond that was bought by the jewellers in 1879 and cut under the supervision of renowned gemmologist George F. Kunz. Tiffany proudly proclaimed that Beyoncé is the

first Black woman (and only the fourth woman overall, after Mrs. E. Sheldon Whitehouse, Audrey Hepburn and Lady Gaga) to wear it. The criticism that followed: The diamond is believed to have been produced via slave labour and has been labelled a 'blood diamond' by those who do not truly understand the meaning of the term.

The reasoning behind censure of this diamond is justified. It was dug from the Kimberley mines in the early years of South Africa's diamond rush, when British politician and mining mogul Cecil Rhodes – viewed in retrospect by some modern historians as an imperialist and white supremacist – was taking control of

the claims. These diamonds were mined by Black Africans, who had been forced into labour after having their lands and rights stripped away. The story of these mines is history at its ugliest.

But criticism of this campaign extends beyond this one yellow diamond. Tiffany's advertisement is going to swing a spotlight onto all diamonds sourced before and during the African diamond rush period of the late nineteenth and early twentieth centuries. Immediately preceding discoveries in South Africa and South-West Africa, the principal source of diamond was Brazil, then under Portuguese rule. The colonists brought African slaves to work the Brazilian



mines after killing off a fair number of the indigenous people; over the century or so that the diamond mines were at their most abundant, millions of lives were lost.

This places the antique jewellery industry in a very awkward position. Over the last few years, the sector has been happily promoting the 'recycled' and sustainable banner as the modern diamond jewellery industry faced the ethics spotlight. Now, thanks to the media attention that a high-profile celebrity such as Beyoncé generates, the antique market is going to have to justify the story behind any Victorian old-mine-cut diamond pendant before they make a sale.

But this bejewelled can of worms extends even deeper, with critics of the campaign calling the Tiffany Yellow a 'blood diamond'. This ugly sobriquet was not coined until the 1990s, during the civil wars in Sierra Leone, when rebel groups used the money garnered from the sale of illicitly sourced diamonds to fund the fighting that left over 50,000 people dead. The term 'conflict diamonds', which is more commonly used in the industry, was also coined during this time.

The diamond industry quickly acknowledged that something needed to be done. In 2000, during a session of the UN General Assembly, diamond-producing states suggested a strategy to eliminate the trade of these 'conflict diamonds'. The Kimberley Process Certification Scheme (KPCS), designed so that no



De Beers' Code of Origin programme assigns a code, inscribed on the diamond's table facet, that allows the consumer to review the gemstone's history. Photo courtesy of De Beers.

participating country could trade their rough diamonds without an accompanying certificate guaranteeing that the material was 'conflict free', was established three years later. And it worked: As of 2021, the KP claims that 99.8% of natural diamond rough has been sold without funding any bloody uprisings.

Yet there is an immense drawback to the scheme. The definition of a 'conflict diamond' is very limited. It is only concerned with the trade of uncut, or rough, material, and it only refers to those diamonds sold by rebel groups to fund wars against legitimate governments. But what if the problem stems from the government itself? This was the case in 2008, two years after an alluvial deposit of diamonds was found in the Marange area of Zimbabwe, south of Mutare. Then-president Robert Mugabe's

Zimbabwe African National Union-Patriotic Front took control, initially proclaiming that they were 'diamonds for the people', and then violently removing any artisanal miners working the field, killing hundreds of people. The KP found itself somewhat powerless. A ban on trade with Zimbabwe was imposed, then lifted in 2011. The Marange diamond fields remains one riddled with problems.

For the past decade, many countries that participate in the KPCS have been trying to extend the definition to accommodate other human rights abuses that are tucked into the diamond pipeline. The closing statement by the Kimberley Process Civil Society Coalition, an organisation that acts as an observer of the KP on behalf of civil society, at the 2021 KP Interessional Meeting highlighted the problems that currently exist in diamond-mining communities around the world. Issues specific to the African continent include mercenaries forcibly controlling diamond mining areas in the Central African Republic; the abuse of power by security personnel in Tanzania's Williamson mine; the destruction of land in Angola's Lunda Norte province, despite opposition from those living there; water pollution in Lesotho's mines, as well as Angola's Catoca mine; displacement of communities by miners prospecting in Sierra Leone; and the sully of parcels from multiple legitimate sources with illicit diamonds. They also singled out countries that remain opposed to the redefinition of 'conflict diamonds'. This battle is ongoing, and consumers need to be aware that the Kimberley Process Certificate is, although a good starting point, not enough to address all the ethical problems that arise along a diamond's path to market.

By calling the Tiffany gem a 'blood diamond', critics have married diamond mining's dark beginnings to a problem that has only technically existed for 20-odd years and is still, in degrees, being faced. This could leave any conscientious buyer considering the purchase of a natural diamond at a loss if they want an 'ethically sourced' stone.

It is easy to condemn the industry; however, there is also an awful lot to praise. Many diamond producers have measured themselves against strict, auditable standards for decades to ensure that their mining operations



Today's mining interests show willingness to track rough material, such as the diamond above, through the polishing phase and find other methods of traceability and transparency. Photo courtesy of De Beers.

The diamond industry is so vital to Botswana's industry that a female diamond sorter is shown on the banknote for 100 pula (roughly £6.50). Photo by Prachaya Roekdeethaweesab/Shutterstock.



protect and support the environment and the people in the countries where they operate. Prompted by the concerns of current consumers, these producers have now put in place a number of initiatives that enable their diamonds to be tracked from their mines through the supply chain, and identified in the polished form. For example, Lucara Diamond Corporation has coupled with Sarine Technology to map their rough material so it can be traced from production through to polishing. Once cut, CanadaMark diamonds from the Ekati, Diavik and Gahcho Kue mines are individually numbered on the girdle.

De Beers, as part of their Building Forever goals – protect the natural world, accelerate equal opportunity, partner with thriving communities and lead ethical practice – is introducing their Code of Origin inscription. This tiny motif, 1/5000th the thickness of a human hair and invisible to the human eye, is inscribed onto the diamond's table facet and provides assurance that the stone has been discovered and processed in accordance with De Beers' stringent Best Practice Principles. The inscription is evidence that the diamond's journey has not caused harm to human or planet; in fact, it has significantly helped them along the way through the company's corporate social responsibility work.

In the right hands, and with the right amount of money, diamond mining can support and develop the communities in which it is found and worked. Botswana is a fine example of this capability.

Since diamonds were discovered there by De Beers in the late 1960s, the country has risen from one of the poorest in the world to among the most prosperous within the African continent – seeing exponential improvements in infrastructure, healthcare and education, as well as individual wealth – with the average income jumping from \$80 to nearing \$8000 in the ensuing years.

Now, thanks to the media attention that a high-profile celebrity such as Beyoncé generates, the antique market is going to have to justify the story behind any Victorian old-mine-cut diamond pendant before they make a sale.

Along with these efforts stands the work of the Responsible Jewellery Council (RJC), operative since 2009. Certified members of this organisation, from miners to retailers, are audited against the council's strict Code of Practice, so anyone buying items from RJC members can be reassured of the product's integrity. To date, there are more than 1,300 members of the RJC.

In line with all the above, the World Diamond Council (WDC) has upgraded and expanded its System of Warranties. This is a declaration on all invoices and memos by sellers of diamond products that, until recently, only confirmed the diamonds complied with the KPCS

and were 'conflict free'. Now, as acknowledgement that the KPCS requires a revised definition of 'conflict diamond', a written commitment that products adhere to the WDC guidelines is included. The WDC guidelines, in turn, support universally accepted principles of human and labour rights, anti-corruption and anti-money laundering. All of these strategies demonstrate that the industry is moving in the right direction. There is still a great deal of work to be done, indisputably, but by asking the right questions and researching their purchases, the conscientious consumer can buy a diamond that has done far more good than harm.

Yet what of all those diamonds that were in circulation before our modern-day initiatives? What about the antique diamond jewellery trade, a space previously considered neutral territory? Perhaps we need to consider the diamond's story beyond its beginnings. We must acknowledge that it may not have been ethically sourced, and we cannot undo that, but how did its narrative evolve?

Take the Tiffany Yellow, for instance. That diamond has graced the necks of only four women – from an American

socialite who is recognised primarily as the wife of a diplomat, to a powerful Black woman who needs no introduction beyond her first name. That diamond has marked a passing of eras, witnessing a progression towards female empowerment and ultimately a fairer world.

Let Beyoncé's wearing of the Tiffany Yellow mark a positive moment in its rich history. And may its story become increasingly beautiful. Let us all start looking to the future. ■

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



Photo by
Billie Hughes.

DREAMING OF A BRIGHT CHRISTMAS

Gem-A's annual Photographer of the Year competition returns with a new festive theme and exciting prizes. Do you have what it takes to be crowned the winner? Discover how to enter here...

We are thrilled to announce that the Gem-A Photographer of the Year competition is back for 2021!

This year's competition promises to be our coolest yet, with a Christmas theme and fantastic prizes for one overall winner and two runners-up. What's more, we are once again happy to accept entries from anyone with an interest in gemmology and a passion for photography.

Whether you have taken part previously or are completely new to the competition, we welcome

all entries and are looking forward to receiving a vast and varied range of photographs from across the world.

This year, the Gem-A Photographer of the Year competition has opted for a wintry tone. We want to see fantastic photographs that display your own unique interpretation of this theme in gemstones, gemmology and the wider trade. Perhaps you have witnessed a spectacular scene while gemstone mining or trading on a recent trip abroad? Maybe you have photographed a

piece of jaw-dropping jewellery? Or you may want to share the hidden, intricate beauty of a particular gemstone through photomicrography?

Whatever highlights an unusual or insightful facet of our sector, we want to see it! We will be revealing this year's shortlisted entries in the form of an Advent calendar on our Instagram page. Your 'Like' can influence who wins this year's competition, so be sure to follow us on @GemAofGB.

If you need some inspiration, take a look at the stunning, icy entries across these two pages.

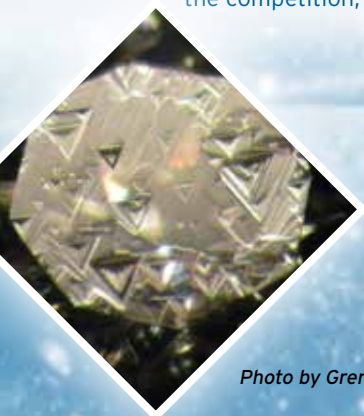


Photo by Grenville Millington.



Photo by Jon Mehdi.



Photo by David Weinberg.

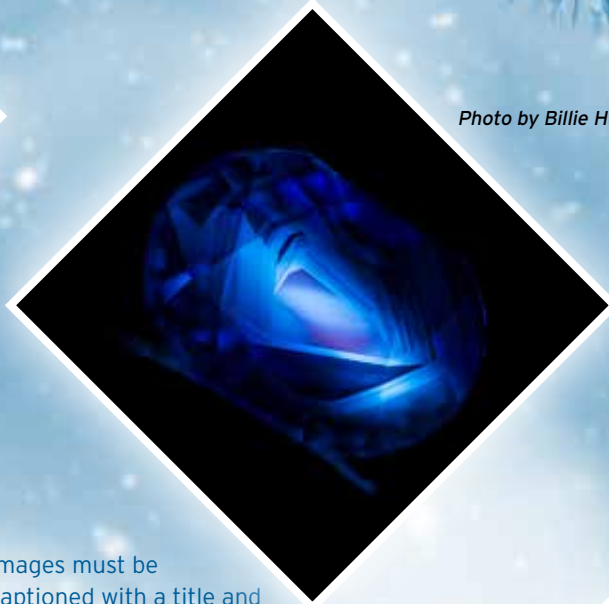


Photo by Billie Hughes.

WHY ENTER?

- Win the chance to have your photograph featured in *Gems&Jewellery* magazine. Winners may be featured on our cover or on our Last Impression or Big Picture feature pages.
- You can add the accolade of being named Gem-A's Photographer of the Year to your portfolio.
- Entry is free and open to all.

THE PRIZE

- All three winning entries will see their photographs published in *Gems&Jewellery* magazine.
- The overall winner will be gifted a **£300 voucher to spend at Gem-A Instruments** and **and one year's free Gem-A Membership**.
- Two runners up will win a **£50 Gem-A Instruments voucher**.

COMPETITION RULES

- A maximum of three photographs may be entered per person.
- Entries must be accompanied by your name and post-nominals (if applicable).

- Images must be captioned with a title and a description of no more than 150 words telling the story behind the photograph.
- All photographs entered into the Competition must have been taken within the last 18 months.
- The image must be your own work and must not belong to a third party.
- Photographs must be high resolution, with a minimum of 300 dpi and ideally a minimum of 1 mb in size.
- Please send files larger than 10 mb via Dropbox.com or WeTransfer.com (these media-transfer sites are free to use).
- By entering the Competition you accept 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.

For more information on the Competition rules, please contact editor@gem-a.com.

HOW TO ENTER

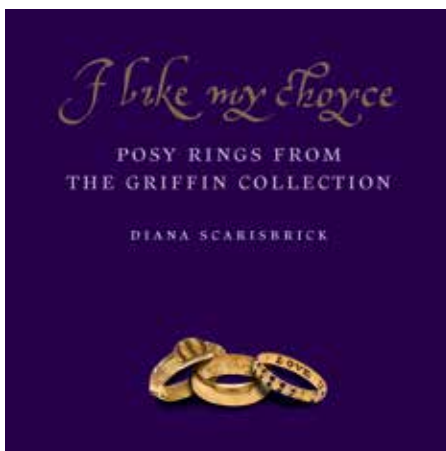
Email your entry to editor@gem-a.com. The Competition is open now and we will be accepting entries until 30 November 2021. The winner will be announced on Gem-A's Facebook page shortly after the Competition has closed. **Good luck!**

JUDGING PROCESS

- The shortlisted photographs will be uploaded to the Gem-A Facebook page, where the public can vote for their top five choices.
- A guest judge will then choose a winner and two runners-up from the final five photographs.

I Like My Choyce: Posy Rings from the Griffin Collection

Reviewed by Jennifer-Lynn Archuleta



I Like My Choyce:

Posy Rings from the Griffin Collection

By Diana Scarisbrick, hardcover, 224 pp., illustrated, publ. by Ad Illisvm, London, UK, 2021, £35.00.

In the summer of 2015, this reviewer went to see an exhibition of rings from the Griffin Collection at the Cloisters, a branch of New York City's Metropolitan Museum of Art. While not every ring on display featured an inscription – that is, not every ring was a 'posy' ring, which were popular from the early fifteenth through the mid-nineteenth centuries – most of those that did were touching in their simple expressions of love and fidelity. The posy ring, exhibitions of which can be found at the Ashmolean Museum in Oxford and the Victoria and Albert Museum in London, is essential to the Griffin Collection. In fact, the assemblage began after the private collector found the Middleham Ring – a gold band engraved with the word 'Sovereignty' and thought to have been a gift from Henry IV of England to Ralph Neville, Earl of

Westmoreland – and donated it to the Yorkshire Museum. After this gift, she decided to buy other rings to create this historical collection.

To my delight, I was able to revisit these stunning jewels in art historian Diana Scarisbrick's *I Like My Choyce: Posy Rings from the Griffin Collection*. The 135 rings catalogued by Scarisbrick are beautifully photographed and, where possible, provenance listed and sources for the phrases provided. With a specialisation in engraved gems and jewellery, Scarisbrick is uniquely positioned to write this volume.

The term 'posy' (also known as 'posey' or 'posie') is a derivative of 'poesy,' meaning 'poetry'. While the word references the actual inscription found on the ring itself, some of the earliest references to posy rings come to us through poetry and

literature, which also give us a view into views of relationships and marriage. Geoffrey Chaucer references them in both *Troilus and Criseyde* and 'The Knight's Tale' in *The Canterbury Tales*; in fact, the former may have the first written allusion to the posy ring. William Shakespeare mentions them in *The Merchant of Venice*, and he has no less than Hamlet and Ophelia discuss them when Hamlet notes that posies are brief 'as woman's love'.

According to Scarisbrick's introduction, the importance and intimacy of rings dates back to antiquity. Rings with words and symbols date back to the Roman era, with popular symbols including clasped hands (a symbol of the marriage contract) or a hand tweaking an ear, the latter being referencing the gesture for



Among the oldest posy rings of the Griffin Collection, this fourteenth-century signet ring is set with a sapphire cabochon that is itself engraved with the name of its tenth-century Egyptian owner, Abd as-Salam ibn Ahmad. This gives the entire jewel a rich history dating before the sapphire was actually mounted in the gold.



Using seven turquoises and seven rose-cut diamonds in a gold setting, the seventeenth-century ring shown here is engraved with the word 'Love' on the inside of the band.

'remember me'. Pliny the Elder wrote that Roman marriages were sealed by placing a band on the bride's finger. However, the ring did not become a permanent fixture in the wedding ceremony until centuries later. Its role was defined by 1585 by the author of *Laws of Ecclesiastical Policy*, Anglican priest Richard Hooker, when he wrote 'the Ring hath always been sued as an especial pledge of Faith and Fidelity...'

At the time Hooker was writing, many marriages were still seen as contracts. In this vein, Scarisbrick mentions extant rings that were clearly meant for child brides who were meant to seal alliances. It may be surprising to some readers, therefore, that many of the engravings expressed loving sentiments and delight in choice of spouse, such as "All I refuse and thee I chuse" and "I with your pretty sight/may breed with you much delight", between couples who were not, strictly speaking, love matches. Beyond that, rings also expressed the idea that marriage had been seen as a sacrament of the Church since the twelfth century.

Thus, these turns of phrase that were found in rings could also involve vows to maintain faith and Christian piety as well as marriage vows. Such promises included "Godly love will not remove" and "The god of peace our love increase."

The posy rings are inscribed in French, Italian, Latin and English and are from the fifteenth through the eighteenth centuries. The French-inscribed rings, which make up only about ten percent of the catalogue, dating roughly to the fifteenth century; only three come from a later period. These rings also frequently differ from their non-French counterparts by featuring the inscriptions on the outside of the band, which was common to earlier pieces. Rings with Latin and Italian writing, which are grouped together, continue for another two hundred years. While posy rings continued to be popular until Parliament passed the Wedding Rings Act in 1855, requiring all rings to be hallmarked, the English-inscribed rings catalogued here are dated no later than the eighteenth century.



This gold ring from the first half of the fifteenth century features a ridged hoop - inscribed in Lombardic letters on one side: +AVLTRE+ and on the other NE+ VEVL+ ('I wish for no other') - supporting the round bezel that has been shaped as the letter M (for the Virgin Mary).

It may be surprising to some readers that the engravings still expressed loving sentiments and choice... between couples who were not, strictly speaking, love matches.



Dating from the late sixteenth or early seventeenth century, the narrow exterior of this gold ring is found in the 'hearts' division of the English rings. It is engraved with birds, hearts, leaves and flowers and enamelled in red, white and green. Alongside a goldsmith's mark of 'D' in a vertical rectangular punch, the flat interior is inscribed "A hart more kind you cannot find".

The rings with English posies are further divided into subcategories based on the meaning of the inscriptions. Virtue constancy, with statements such as "No felicitye to constancye"; faith, meaning 'faithfulness'; and hearts, some with engravings of the symbol used to represent romantic love since the late Middle Ages. The other categories are contentment; love and happiness; declarations, including "Desire hath no rest"; choice (the title of this book comes from inscriptions found in this section);

goodwill, love and friendship (the phrase "A friends gift" is repeatedly found here); and religion. Even these last have a romantic twist, with posies such as "There is none to me like Christ & thee" and "Providence divine hath made thee mine" painting married love as a gift from God deserving of deep gratitude. Scarisbrick also establishes an 'others' section is set aside for those statements whose origins are obscure. She presents English poet and playwright Ben Jonson's theory that some of the posies were

Paintings of courtly love and courtship scenes, sketches of ring designs and manuscript illuminations all demonstrate ideas related to the domestic sphere.



A gold ring from the seventeenth century, with a substantial rounded exterior and a flat interior inscribed with "I like my choyce". The phrase, the namesake for the book, was a popular one for posy rings.

meant to have meaning only to the married couple, while others were simply composed to rhyme or match metre. An example of this category is the gold band which reads along the inside in two rows of all capital letters "ACCVRSSED BE THAT WICKED WIGHT/THAT SEEKE TO ROBB ME OF MY RIGHT."

The 135 rings in the catalogue are mostly gold, fitting for a collection named after a mythical creature known to hunt gold and guard treasure.

Only one of the rings is a silver band, inscribed with gilt 'Love Me Onli' on the inside. While most are plain bands – the inscriptions on the inside of the bands rendered them private – some are of intricate design; one resembles a belt, complete with buckle. Many of the rings show evidence of enamelling, though on quite a few this adornment has worn away. Decorative themes include nature scenes involving leaves and flowers, religious imagery including crosses and representations of the Virgin Mary, and abstract and geometric patterns.



Categorised with the rings lauding virtue, the convex outside of this gold ring was left plain, while the inside was engraved with the posy "A vertuous wiffe prolongeth life". The seventeenth-century ring is also engraved with a maker's mark ('P' in a circle, with a possible date stamp).

Three of the rings have mounted gemstones. One is a signet ring of Italian origin dating to the fourteenth century. It is set with a sapphire cabochon and engraved with a saying that translates to "For love thou wast made and for love I wear thee." According to Scarisbrick, it is unusual for an Italian gem-set signet ring to have survived to the present day, making this an object of particular interest. Another, inscribed with "In God & thee, my joy", is mounted with a rose-cut diamond in a silver collet.



The exterior band of the seventeenth-century gold ring seen here, part of the 'declarations' section, is decorated with stylised leaves and flowers formerly enamelled red and green. The flat interior is inscribed 'Desire hath no rest' along with a maker's mark 'E' in a shield-shaped punch.

Finally, a stunning seventeenth-century band, placed by Scarisbrick in the 'love and happiness' section, alternates seven rose-cut diamonds with seven turquoises. Its inscription on the band's interior reads simply 'Love'.

The background of marriage and the history of rings the author provides not only aids in the reader's understanding of posy rings but is genuinely fascinating. The illustrations Scarisbrick adds to the book, both in the introduction and as part of the catalogue, add a great deal of character and detail. Paintings of courtly love and courtship scenes, sketches of ring designs and manuscript illuminations all demonstrate ideas related to the domestic sphere. They complement the photographs, which are simply stunning. Each ring is

captured by by Richard Goodbody and Rachel Hanel, sometimes more than once to show details from each angle. When the inscription seems inspired by literature or other outside source, Scarisbrick gives the reader that reference. Scarisbrick's thorough approach to the topic, along with her expertise in this niche, make *I Like My Choyce* a delight to read.

Diana Scarisbrick is a well-established jewellery historian and author, and fans of her work will not be surprised by the excellence of this most recent publication. This book would appeal not only to jewellery buffs, but to those interested in the history of the Middle Ages or medieval art. *I Like My Choyce* is a lovely time capsule, allowing the reader a glimpse into these commemorations of love. ■



*The only silver ring listed in *I Like My Choyce*, the sixteenth-century ring is inscribed with "Love me onli" in gilt.*

Looking Back at the Third Issue of *Gems&Jewellery*

Over the course of 30 years, *Gems&Jewellery* has undergone many changes, from a black-and-white newsletter to a bona-fide full-colour magazine. While the medium may have evolved to include a sole publisher – until 2008 *G&J* was a joint effort between Gem-A and the Society for Jewellery Historians – regular sections, and contributors from around the world, the message has remained the same since 1991: Gem-A Members need to be informed about many aspects of the gem and jewellery trade.

Thanks to the scientific content found in the *Journal of Gemmology* and the trade-related material in *G&J* over the years, Gem-A Members have been

educated and entertained alike. Articles in the latter publication have included, but not been limited to, coverage of jewellery trends, retail news, new gem deposits and book and museum reviews.

Issue three opened with a brief history of Pforzheim, Germany, as a jewellery manufacturing hub before WWII, and a centre for preserving the history and culture of jewellery in the decades since. It also introduces Pforzheim Jewellery Museum, which was the origin of a traveling exhibition hosted by London's Goldsmiths Hall at the time of publication. The 260 pieces on display, taken to represent 5,000 years of European jewellery, ranged from classical antiquity to the late twentieth century.



The bracelet shown here, dating from the mid-nineteenth century and composed of gold, silver, diamond, ruby, sapphire, pearl and enamel, was among the objects.

Gem & Jewellery News also reviewed the terminology for the treatments and enhancements known to the trade at the time, and how they might be properly disclosed. The column 'Gleanings', which had looked at gold-related topics in the first two issues, examined how the form of measurement we know as the carat came to be. A new survey of all the gemstones and gem materials in Great Britain's public collections was announced, and volunteers to collect information for the survey were requested. A note acknowledged the discovery of orangish-red spinel from Tanzania in a consignment of faceted garnets from that country.

Of robustness was the Letters to the Editor section, taking up one-fourth of the 16-page newsletter and on topics that are still relevant to the industry three decades later. Letter writers wanted to talk about whether luxury customers should feel guilty about their purchases, if synthetic gemstones should be referred to as "fake" or "faux" gems and what 'treatment' means when it comes to emeralds. This section of *G&J* shows a definite trend: that our readers are always incredibly well informed. ■



A bracelet made by Jules Wièse, in collaboration with François-Désiré Froment-Meurice, in Paris (1850-55) was among the 260 items in the Pforzheim Jewellery Museum's travelling exhibition. Photo courtesy of the Pforzheim Jewellery Museum.

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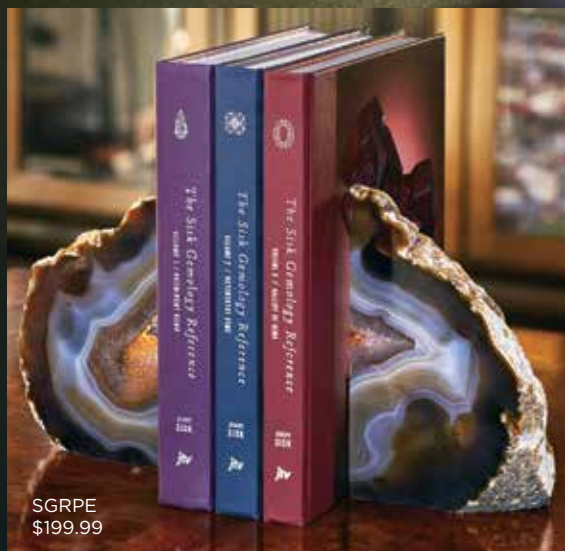
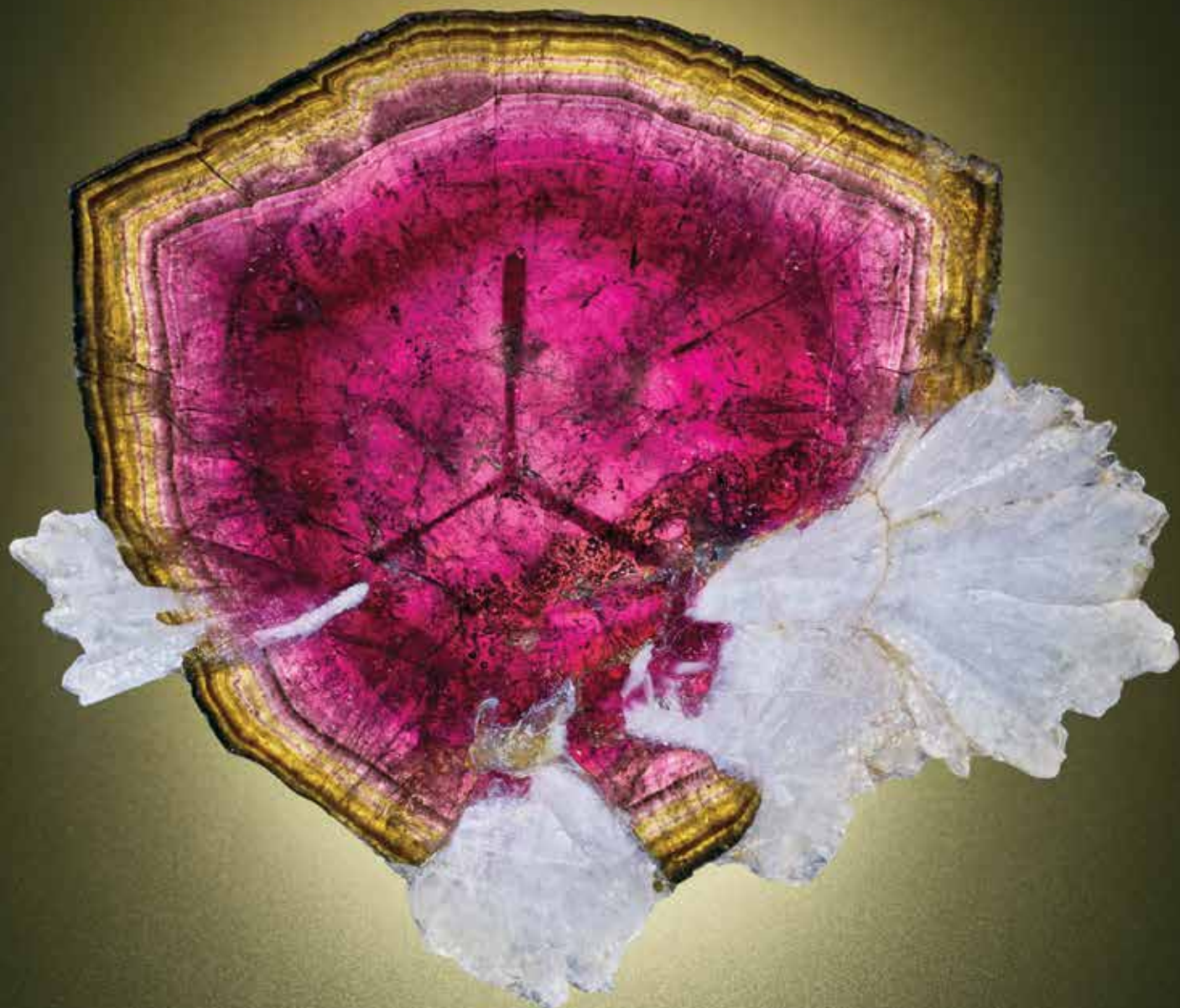
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