Gems & Jewellery

Winter 2025 / Volume 34 / No. 4

INTRODUCING THE 2025 PHOTOGRAPHER OF THE YEAR

INVESTIGATING THE HISTORY OF THE JEWELLERY QUARTER

REVIEWING ROBERT WELDON'S PHOTOGRAPHIC CAREER

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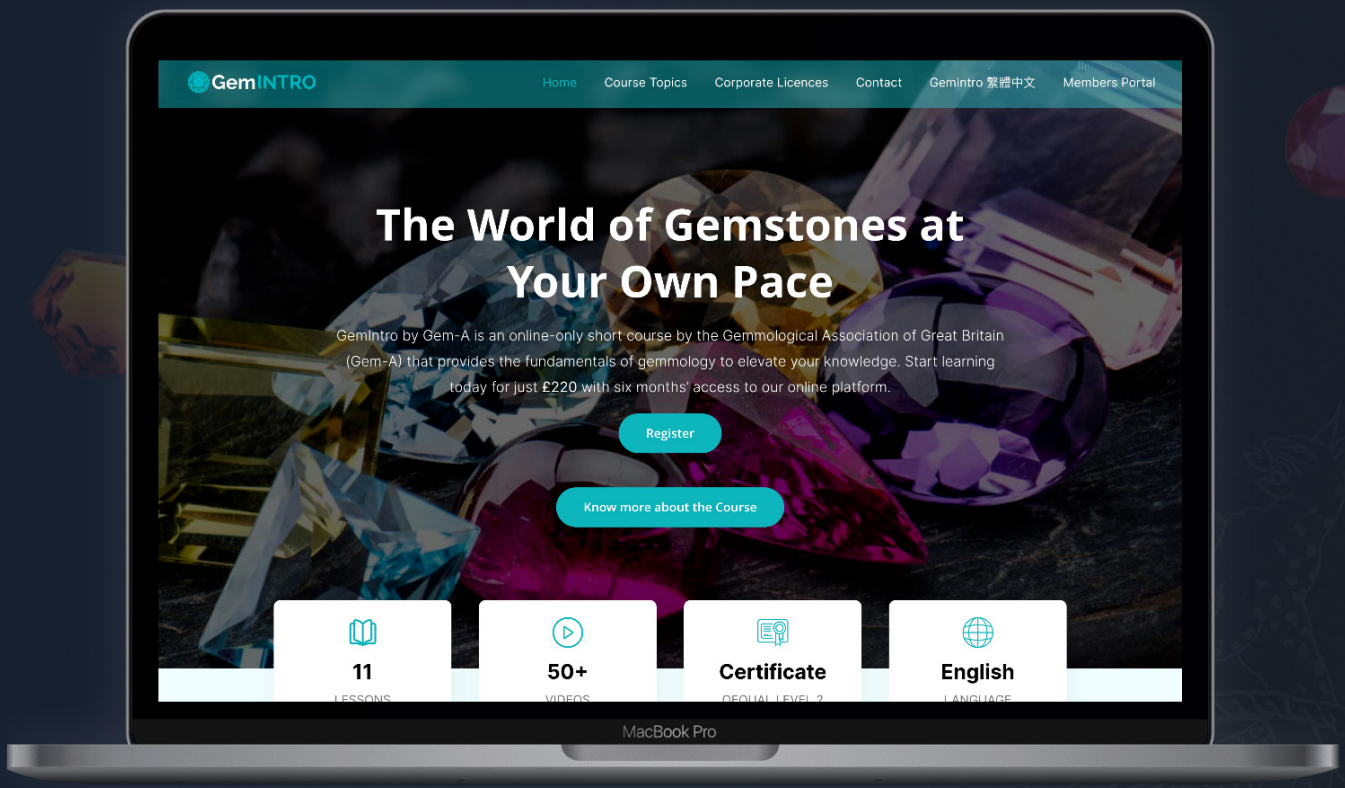

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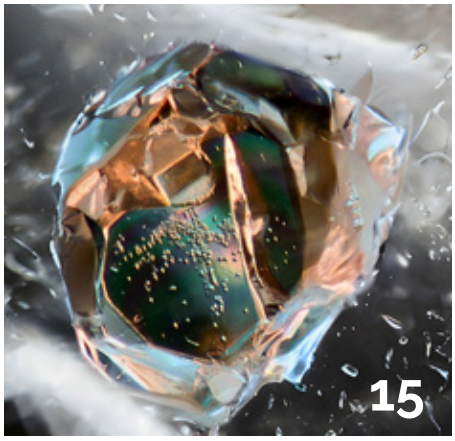
Gems&Jewellery
WINTER 2025

WINNERS: 2025 PHOTOGRAPHER OF THE YEAR

A closer look at the photomicrographs that enthralled us in our annual competition.

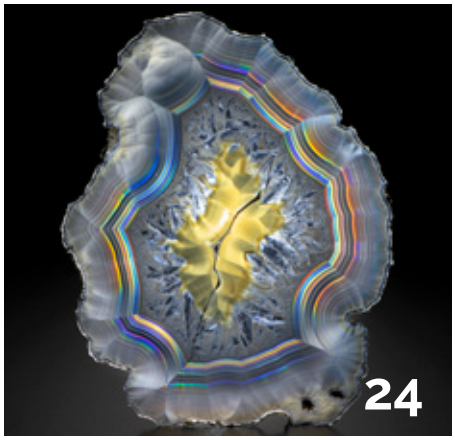


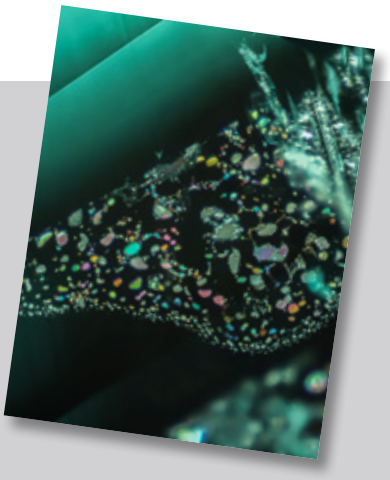
HISTORY OF THE JEWELLERY QUARTER: PART 1

In the first of a two-part series, Craig O'Donnell FGA examines the foundation of what is now the largest concentration of jewellery businesses in Europe.

ROBERT WELDON'S PHOTOGRAPHIC CAREER

The world-renowned gem photographer recalls how he got his start in the field, and looks back at ten of his most influential images.





Cover Picture

The image of thin-film-like inclusions in a Russian emerald, by Keith Chow, took first prize in the 2025 Photographer of the Year competition. Please see pp. 10–17 for more details.

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Gem-A (The Gemmological Association of Great Britain)

21 Ely Place, London EC1N 6TD
t: +44 (0)20 7404 3334
f: +44 (0)20 7404 8843
e: editor@gem-a.com
w: www.gem-a.com

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Editor-in-Chief:
Jennifer-Lynn Archuleta

Contributing Editor: Olga González

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Editorial and Advertising

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Gems & Jewellery

Winter 2025 Edition Featured Contributors

1. Gabriel Kleinberg

An FGA and DGA with distinction, Gabriel Kleinberg is an experienced educator in the field of gemmology. Committed to passing on his knowledge and expertise, he is dedicated to shaping the next generation of gemmologists. A member of the Federation of European Education in Gemmology, Mr Kleinberg teaches the Gem-A Diploma Level course, with a particular focus on practical testing. He also specialises in photomicrography, capturing detailed photographs of gemstones and their inclusions that have been featured in this publication, used in course materials and social media.

2. Craig O'Donnell

Craig O'Donnell BA FGA is head valuer at the Birmingham Assay Office, where he has worked as a jewellery valuer for the last twenty-five years. For the past ten years he has also been curator of the offices' extensive silver collection. His responsibilities include training the next generation of professional jewellery valuers, as well as giving talks and practical workshops on valuing, antique jewellery and silver-related topics, and taking on expert witness work. He has a passion for the Arts and Crafts Movement and has a personal library of over 3,500 books on jewellery, gemmology and silverware. Mr O'Donnell has proudly served as the chairman of the Gem-A Midlands Branch for the last four years.

3. Aaron Palke

Dr Aaron Palke started his career in gemmology as a postdoctoral research associate at the Gemological Institute of America (GIA) in Carlsbad, California, after earning his PhD in geology from Stanford University. During this time, Dr Palke investigated the geological history of rubies and sapphires by studying minute inclusions in these precious gems. In his position as Senior Manager of Research, Colored Stones at GIA, he helps lead research efforts in order to provide more reliable country-of-origin determinations and treatment identification for rubies, sapphires, emeralds and other coloured gems.

4. Christine Puleo Reis

Christine Puleo Reis is a New Yorker currently living in Rio de Janeiro, Brazil. Her career has always focused on Latin America, following studies in anthropology at Dartmouth College and journalism at Columbia University in New York. She holds an AJP and a Graduate Diamonds diploma from GIA. Prior to moving to Brazil, she worked with Kentshire Galleries, the antique jewellery shop located at the top of Bergdorf Goodman in New York City. She enjoys writing about the diversity of Brazil's gem production and unique jewellery styles and periods, such as Brazilian Creole and Brazilian modernist jewellery, and is currently coordinating several Brazil-U.S. gem and jewellery projects.

5. Robert Weldon

Robert Weldon is one of the world's most renowned gem photographers; his photographs and articles have been featured in numerous gemmological, jewellery and consumer publications. Since receiving his Graduate Gemologist diploma from GIA in 1987, Mr Weldon has worked at *JCK Magazine* as coloured gemstone editor, *Professional Jeweler* as senior writer and at GIA in Carlsbad, California in several positions. He retired from GIA in 2024 as the director of the Richard T. Liddicoat Gemological Library and Information Center. Mr Weldon is also the 2020 recipient of the Accredited Gemologists Association's (AGA) Antonio C. Bonanno Award for Excellence in Gemology.

Special thanks to Nicole Ahline FGA, Jeff Hapeman, Sammantha Maclachlan FGA DGA and Liviano Soprani.

From the CEO

Opinion and comment from CEO Cath Hill

We at Gem-A Headquarters are delighted to welcome in 2026 with our Members, Students and Staff!

The end of 2025 was ushered in by our Conference, held this year on 1–2 November at our new venue, the Leonardo Royal Hotel St Paul's. The weekend was a triumph, with diverse and fascinating speakers and well-attended field trips and workshops. I want to extend my thanks not only to everyone who joined us, but to everyone who worked so hard to make the day so successful. I especially want to thank Brendan Laurs FGA and Richard Drucker FGA for all they did to make this year's event a success.

I want to extend my congratulations to everyone who received their Foundation Certifications, Diplomas in Gemmology and Diamond Diplomas on Monday, 3 November; over 390 Students passed their respective examinations. I also want to share my appreciation for everyone who came to celebrate our graduates. Thank you as well to Joanna Hardy FGA, chair of the Gem-A board of trustees, for her keynote address, during which she shared her experiences in the trade as an auctioneer, diamond grader, fine jewellery specialist and published author.

Though we have just finished celebrating our most recent graduates, we have already launched the 2026 courses for our online distance learning (ODL) Students. Our onsite learners will enter our classrooms in February. Please join me in wishing them the best with their studies.

I had the great pleasure of attending the 27th Sympoisum of the Federation for European Education in Gemmology (FEEG). This year's event, held in Vicenza, Italy, was organised by the Italian Gemmological Institute in partnership with Vicenzaoro. The conference was followed by the graduation ceremony; it was wonderful to see some of our students receive their FEEG qualifications. In February, I will be visiting Tucson, Arizona, to attend the annual Gem Showcase for the first time! I am looking forward to this experience, and to meeting some of you during my time in Arizona.

And with that, it is time to introduce the Winter issue of *G&J*! The winner of the 2025 Photographer of the Year competition has been chosen. Please join me in congratulating Keith Chow, who took first prize with his photomicrograph of thin film-like fluid inclusions in a Russian emerald. This photo appears on the cover of the issue. You can read about his entry, as well as our runners-up and the winner of this year's People's Choice Award, on pp. 10–17. We are grateful to this year's judges – Sammantha Maclachlan FGA DGA, Jeff Hapeman and Liviano Soprani – for their work on this year's contest.

Birmingham is well-known for its Jewellery Quarter, which has Europe's largest concentration of trade-related businesses. Thanks to its many workshops and jewellery-affiliated organisations, it has been referred to as 'the Workshop of the World' and 'the City of a Thousand Trades'. Its relevance to the industry dates back to the mid-eighteenth century, with the establishment of the city's Assay Office. In the first article in a two-part series, Craig O'Donnell BA FGA explores the founding and expansion of the Jewellery Quarter through the turn of the twentieth century.

Robert Weldon is one of the pre-eminent names in gem photography. Though he ended his career as a gemmological photographer and the head of GIA's Richard T. Liddicoat Gemological Library and Information Center in Carlsbad, California, he did not start out with a professional interest in gemstones or jewellery. In a retrospective of his chosen profession – during which he captured some of the most important pieces of our time – he looks back on his entry into the world of gemmology, and shows our readers ten of the most impactful trade-related photos he took over his five decades in the field.

Other content includes a look at the London Diamond Bourse, the UK's only diamond-trading floor; a recounting of *Knox: Order and Beauty* at the Manx Museum in Douglas, on the Isle of Man; and a review of Silvia Furmanovich's new book, which is accompanied by an interview with the acclaimed Brazilian jeweller.

> In February, I will be visiting Tucson to attend the annual Gem Showcase for the first time; I look forward to meeting some of you there!

We hope you enjoy this issue of *Gems&Jewellery* as much as we enjoy bringing it to you. ■

Gem-A News

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

PETRA DIAMONDS UNEARTHS 41.82-CARAT BLUE DIAMOND

Jersey-based mining group Petra Diamonds Limited announced in January 2026 that it has recovered a 41.82 carat type IIb blue diamond. The specimen, which is of seemingly exceptional quality in both colour and clarity, was produced from the Cullinan mine in South Africa. Since its discovery in 1902, the Cullinan mine has yielded many of the Earth's most desirable and iconic diamonds, including the eponymous gem gifted to King Edward VII in 1907. The mine, which has the third-largest reserve of diamonds in the world, is renowned for its high-quality type IIa, and its rare and highly valuable type IIb blue, material. A 39.34 carat blue diamond and a 342.92 carat white diamond were extracted from the mine, in April 2021 and August 2021, respectively.

Petra Diamonds announced in January 2026 that this 41..82 carat type IIb blue diamond was unearthed from the Cullinan mine. Photo courtesy of Petra Diamonds.

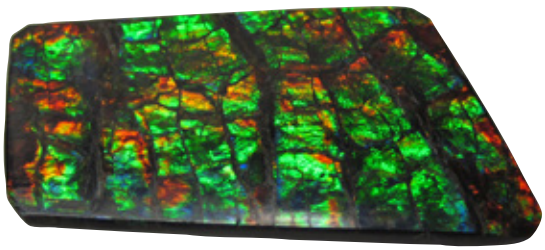
Petra Diamonds is analysing and selecting the preferred method of the sale of this stone, with the results and decisions to be announced in due course.

STUDY EXPLAINS THE SOURCE OF STRUCTURAL COLOURS IN AMMOLITE

A spectral analysis of the colours of ammolites, the fossilised shells of ammonites, has shown that they differ from the colouration of other types of shells. A Japanese research team, led by Naoki Hizukuri of Keio University, used electron microscopy and computer simulations to find the cause of colour in the organic material.

The nacre layer in ammonites, as in other shells, is formed by plate-shaped aragonite crystals; however, the size of these crystals is very homogeneous, as are the gaps between them — these are about four nanometres wide, a size equal to one-billionth of a metre. As a result of their analyses, the Keio University team argued that the laminated structure that is created by this size and spacing reflects different wavelengths of light. This results in a wide and changeable colour spectrum. In ammolites, the organic material is replaced by air, which makes the colours appear even brighter.

The research team published their findings in October 2025 in *Scientific Reports*.



Ammolite from the mine in the St. Mary River Valley, southern Alberta, Canada. Photo by James St. John/ Wikimedia Commons.

QUEEN ELIZABETH SCHOLARSHIP TRUST OPEN FOR APPLICATIONS

The Queen Elizabeth Scholarship Trust (QEST) is accepting applications for the funding of education and training of craftspeople and associated workers. QEST offers three grants for training, education and skills development. This funding is earmarked to support makers and conservators at various career stages, allowing the pipeline of talented craft professionals in the UK to grow and flourish. Scholarships of up to £18,000, Emerging Maker Grants of up to £10,000, and up to £12,000 towards an apprentice's salary are currently available. Applications for funding are accepted twice a year; the deadline for Spring is 5:00 p.m. on Wednesday, 18 February. The Autumn round will be open from 15 July to 19 August.

QEST was founded in 1990 by the Royal Warrant Holders Association to celebrate the Association's 150th anniversary, as well as the 90th birthday of HM Queen Elizabeth, The Queen Mother. It is dedicated to sustaining the cultural heritage of Britain through the training and education of craftspeople though education, apprenticeships and direct training with a master craftsperson. In addition to the aforementioned funds, QEST has introduced a Crafting Tomorrow programme, which offers young makers opportunities to develop skills, meet professional craftspeople and explore careers in craft and making.

Since its creation, QEST has awarded £7.5 million to almost 900 people in 130 craft disciplines. The not-for-profit accepts donations and offers sponsorships in order to further their work. HM The King became a patron of QEST in 2017 (as The Prince of Wales); the Marquess of Salisbury and the Earl of Snowdon are vice-patrons.

Certain courses offered by Gem-A would be covered by QEST funding. For more information, got to *www.qest.org.uk*.

THE ROYAL WARRANT HOLDERS ASSOCIATION QEST Queen Elizabeth Scholarship Trust CHARITY

SUPPORTING EXCELLENCE IN BRITISH CRAFTSMANSHIP

PUBLIC CONSULTATION HELD BY BRITISH HALLMARKING COUNCIL

In late 2025, the British Hallmarking Council (BHC) launched a UK-wide industry consultation to gain insight on how hallmarking operates in the current trade and where the Hallmarking Act 1973 might benefit from amendment, clarification or modernisation. This consultation follows the government's decision to abolish the BHC, announced in October 2025. The opinions gathered from UK-based industry members – including designers, silversmiths, bullion dealers and antiques specialists, among others – will help inform the BHC's recommendations on regulatory reform to the Department for Business and Trade (DBT). The consultation period ended 22 December.

Areas where the BHC looked for insight included, but are not limited to, practical experiences with current hallmarking processes; efficacy of current regulations; how hallmarking interacts with online sales, cross-border trade and modern production methods; opinions on how the system could be made more efficient; and improved and increased accessibility for businesses of all sizes. A spokesperson for the BHC stated, "This consultation is an important opportunity for the trade to share their experiences of how hallmarking works day-to-day. We want to ensure that the insights and ideas of those who work with precious metals are reflected when recommendations are submitted to Government later this year."

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

BRENDAN LAURS TO RECEIVE THE BONANNO AWARD

Brendan Laurs** FGA, **editor-in-chief of** The Journal of Gemmology, **is the 2025 recipient of the Antonio C. Bonanno Award for Excellence in Gemology. Photo by Robert Weldon.

The Accredited Gemologists Association (AGA) has announced that Brendan Laurs FGA will be the 2025 recipient of the Antonio C. Bonanno Award for Excellence in Gemology. He will receive the award at the organisation's gala dinner-dance on 4 February 2026 in Tucson, Arizona.

Mr Laurs has served as the editor-in-chief of *The Journal of Gemmology* since 2013; in this position, he has played as significant role in organizing Gem-A's annual Conferences. Prior to joining the Association, Mr Laurs was the editor of *Gems & Gemology*, the peer-reviewed journal of the Gemological Institute of America (GIA) from 1997 to 2012. Mr Laurs is internationally recognised for his expertise in the formation of coloured-gemstone deposits. His work has included extensive research into localities in Asia and Africa, among other sites. He also briefly served as an exploration geologist for Kennecott Exploration Co., working with rare gemstones such as benitoite and red beryl.

Established by the AGA in 2000, the Antonio C. Bonanno Award was created to recognize those who have made significant contributions to gemmological research, education, innovation and ethical practices in the field of gemmology. The recipient, who is selected by a majority vote of the AGA membership, receives global recognition, a specially commissioned plaque and medallion and an honorarium funded by AGA members. Past and present Gem-A Members who have received the Bonanno Award include Alan Hodgkinson FGA (2000), Alan Jobbins FGA (2005), Richard Drucker FGA (2006), Richard Hughes FGA (2010) and Dr Çiğdem Lüle FGA DGA (2016).

THANKS TO OUR CORPORATE SPONSORS

Our Corporate Members support Gem-A's goals and initiatives, sponsoring events such as the annual Conference. We would like to express our appreciation for the organisations listed below.

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A Hard Day's Output

Dr Aaron Palke recounts a visit to a mine on the famous Mogok Stone Tract.

The Gemological Institute of America (GIA) created their Field Gemology programme in 2008 in order to support research on the geographic origin determination of coloured gemstones. Over the past seventeen years, field gemmologists have taken 101 expeditions in 20 countries on six continents. During the course of their work, they have not only gathered more than 29,000 verified samples for the Institute's research collection; they have also documented the conditions and culture of the deposits and local communities. This work has had a significant impact: it has allowed GIA's research scientists to study and characterise coloured gemstones from known origins, while also helping to ascertain or rule out the origins of gemstones that were not obtained from their sources. The work of the Field Gemology department has also improved the origin-determination services offered by GIA's laboratories and it has supported a number of research and education projects. GIA's field gemmologists travel to new and existing gem deposits, and their reporting on the production they yield, has also allowed this information to become more accessible to a public with an ever-growing interest in the provenance and people behind the materials in their jewellery.

This photo depicts a scene from a field gemmology expedition to the legendary Mogok Stone Tract in Myanmar (Burma). During this trip, the team collected rubies, sapphires, spinels and other gems to be used by GIA researchers to unravel the mysteries of these materials. This photo was taken at a mine in West Mogok, near Sakhan Gyi. Robert Weldon – a world-renowned gem photographer (see pp. 24-27) who was at that time the director of the Richard T. Liddicoat Gemological Library and Information Center – looks on while local miners go through the day's production. This photo was taken late in the afternoon afternoon, after a long day spent mining gems.

Most of the deposits being worked in Mogok are secondary deposits. This means that intense weathering and other geological forces have broken down the original rocks in which the gems formed. Heavy gem minerals like corundum (ruby and sapphire) and spinel are dense enough to get concentrated in what are called gem gravels. These secondary deposits are worked by moving these gem gravels, either hydraulically or with heavy machinery, into a mining jig. In the jigs, the gravel is further sorted by density through the action of mechanical agitation in the presence of moving water – which removes lighter material such as quartz, feldspar and clay – leaving behind dense gemstones. A gem miner's day is filled with physically demanding work, from manning hydraulic hoses, running heavy machinery, to maintaining pumps, engines and other mechanical equipment. At the end of their mining shift, workers empty the screens on their jigs and bring the material to a sorting table. Here, the workers carefully sift through the gravel concentrate looking for the precious gems that are sprinkled throughout. The fruits of their labour are seen in the centre piles, which are composed of ruby, sapphire, spinel and other gems. ■

While on a GIA field expedition to Mogok, Myanmar (Burma), Robert Weldon watches as miners sort gem materials from the gravels collected that day. Photo by Aaron Palke/© GIA.

Keith Chow took first prize with his photomicrograph of thin film-like fluid inclusions in a Russian emerald. The focus-stacked image was captured with a Leica S9D and Canon EOS RP under darkfield and fibre-optic illumination, with polarisers applied. Photo by Keith Chow, field of view 3.5 mm.

Unveiling the Winners of our Photographer of the Year Competition

A closer look at the photomicrographs that enthralled us in our annual competition.

The votes are in, and our winner has been chosen!

We at *Gems&Jewellery* always look forward to the end of the year, because it means that the Photographer of the Year competition is here! The contest allows Gem-A Members, and our followers on social media, to see the amazing work of gemmological photographers from around the world.

This year, we challenged our participants to send us their best photomicrographs from the past year; we wanted to see the inclusions, features and inner worlds that captured their interest and their imaginations. We also required disclosure of equipment, lighting, processing and editing used to create the final photograph. As in past years, the competition was open to the general public. In a welcome surprise, many of the 100+ photos were sent in by first-time entrants!

Once the deadline for entries had passed, the photographs – from which any information identifying the photographers had been removed – were reviewed by qualified gemmologists and photographers for technical accuracy, originality and aesthetic qualities. The final ten photos were presented as an anonymous longlist to our panel of three judges, who are all renowned photomicrographers, for ranked-choice voting. This resulted in our first-prize winner and two runners-up.

We are grateful to this year's judges: Sammantha Maclachlan FGA DGA, Liviano Soprani and Jeff Hapeman. We also thank everyone who took the time to participate in the 2025 Photographer of the Year competition.

FIRST PRIZE

Top honours in the 2025 competition go to Keith Chow, who photographed thin, film-like inclusions in a Russian emerald. The focus-stacked image used darkfield and fibre-optic illumination, with polarisers applied. "Thin film-like fluid inclusions are characteristic of Russian emeralds and are frequently observed along specific crystallographic orientations," he explained. "When viewed along the *c*-axis with appropriate illumination, these films produce intense interference colours, creating a rainbow-like optical effect that reflects their variable thickness and compositional interfaces."

Of the photograph, Liviano Soprani stated, "Keith Chow documents a typical inclusion found in Russian emeralds, consisting of a thin-fluid film trapped along fracture or growth planes. He demonstrates exceptional control of focus stacking, carefully calibrating

> "Amongst the host of images submitted for this year's contest, the winning image stood out on both technical and aesthetic grounds — a perfect balance of scientific and artistic value."

the depth of field to keep the surface of the film perfectly sharp while gradually blurring the peripheral areas, thereby enhancing the three-dimensional character of the inclusion system. Illumination, achieved through darkfield lighting combined with a fibre-optic incident light source and crossed-polarising filters, emphasises the interference colours produced by the differential reflection of light on the two surfaces of the fluid film — a phase with density and refractive index differing from that of the host beryl matrix. The image, subjected only to minimal digital processing limited to colour balance, contrast and sharpness adjustments, maintains a high degree of visual fidelity and represents a significant contribution to the photomicrographic documentation of principal inclusion systems in emeralds of Russian origin."

Sammantha Maclachlan FGA DGA also weighed in on the first-place winner. "Keith Chow's image of thin-film inclusions in a Russian emerald is particularly striking. When viewed under crossed-polarising filters, the interference colours truly come alive, revealing vivid and beautifully saturated rainbow hues that immediately draw the viewer's eye. The careful composition further strengthens the image, creating a balanced and visually engaging result that is both gemmologically informative and aesthetically pleasing."

In summary, Jeff Hapeman stated, "Inclusions in gemstones can tell us a great deal about the gem and even give us clues about both how and where the gem was formed — but they also can captivate us with their beauty. Amongst the host of images submitted for this year's contest, the winning image stood out on both technical and aesthetic grounds — a perfect balance of scientific and artistic value."

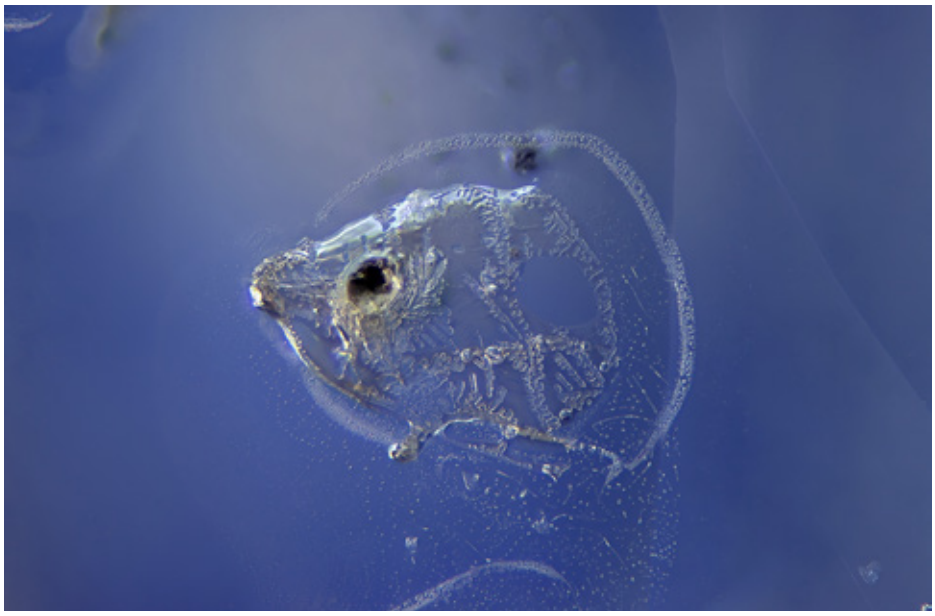
Keith Chow is a gemmologist with nearly ten years of experience in the gem and jewellery trade. He began his studies with Gem-A in 2017 and has practised gemmology at the Gübelin Gem Lab for more than five years. He previously worked at their Hong Kong laboratory, and continues his service to the international trade at the Gübelin Gem Lab in New York.

"I was truly honoured to hear the news of my win," Mr Chow told *G&J*. "Photographing gemstone inclusions has always been a journey of patience, curiosity and trial and error, and this recognition feels like a meaningful affirmation of that path. Every observation, every moment spent learning and exchanging ideas with the gemmological community, has been a source of inspiration and growth. For me, gemmology is not just a science, but a pursuit guided by passion and wonder. It is incredibly rewarding to know that my work may encourage others to look more closely and appreciate the hidden beauty within gemstones."

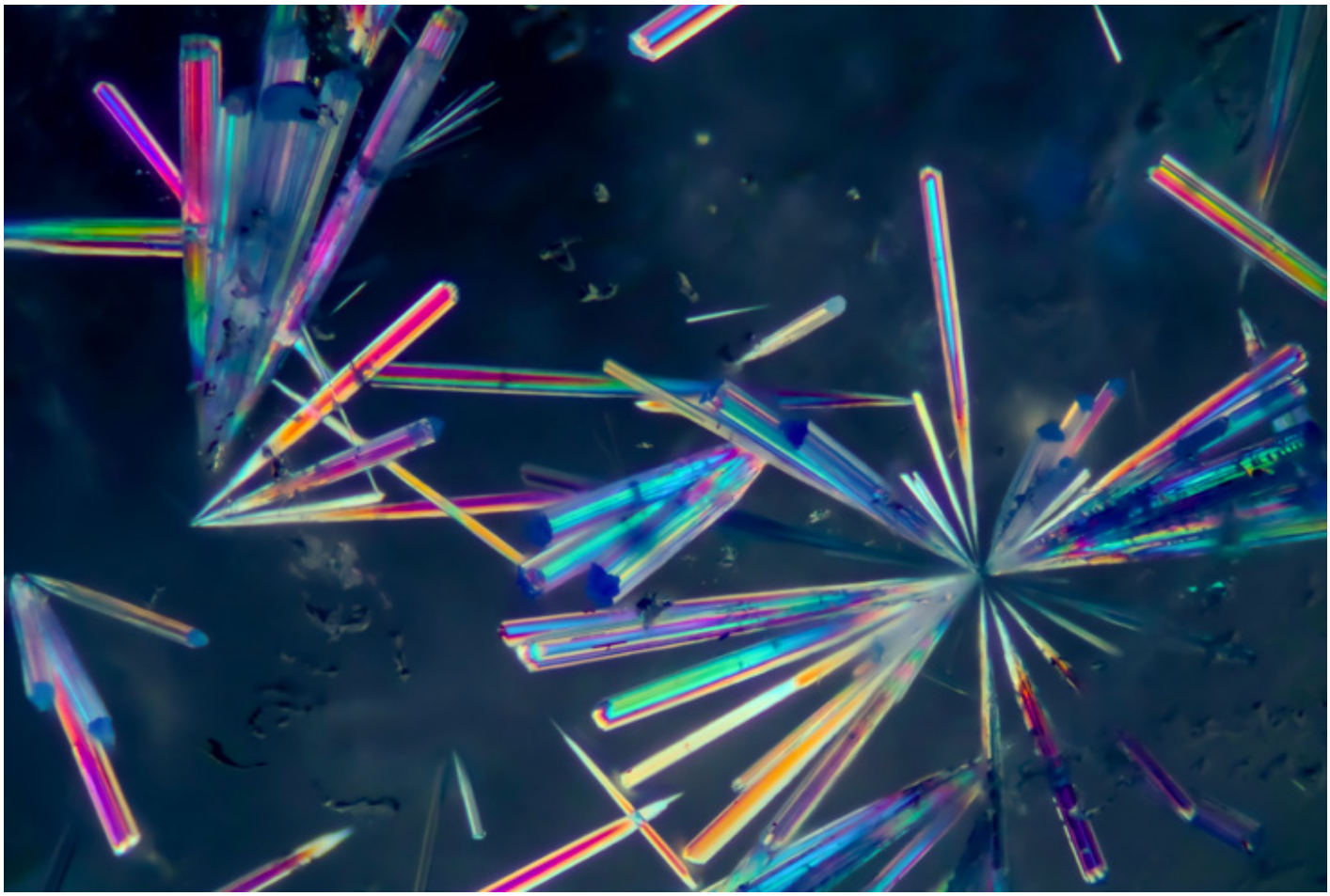
As the winner of this year's competition, Mr Chow will be gifted a £300 voucher to spend at Gem-A Instruments, along with a free Gem-A Membership for one year.

RUNNERS-UP

Francesco Protopapas took second place with 'The Little Fish', a photomicrograph of a fully melted crystal in a beryllium-treated natural sapphire. In his submission, he explained, "A friend of mine, just back from Thailand, showed me a parcel of beryllium-treated sapphires he had bought in a market in Chanthaburi. A small bluish one caught my attention — I immediately noticed some inclusions under the table. I got to work photographing the many



Our first-runner up, 'The Little Fish', depicts a fully melted crystal in a beryllium-treated natural sapphire. This image was created from a stack of 183 photomicrographs. In creating this photomicrograph, Mr Protopapas used a Canon EOS R7, Amscope 10x + extension tubes, Affinity Photo and Topaz Sharpen AI. InPainting was used to remove some crystals. Sewing machine LED lights AC-110-240v 50/60Hz 1W were used for illumination, and white plastic cups acted as diffusers. Photo by Francesco Protopapas; field of view 1.2 mm.



This image of dumortierite crystals in quartz was taken with a Leica S9D and Canon EOS RP under darkfield and fibre-optic illumination, paired with crossed polarisers. This image was focus stacked, with colour refinement performed in Lightroom. "Dumortierite, a borosilicate mineral commonly occurring as blue fibrous aggregates within quartzite, typically exhibits a uniform blue appearance under standard illumination. When examined under crossed polarisers, however, the inclusion displays distinct and vivid interference colours, revealing its anisotropic optical behaviour." Photo by Keith Chow, field of view 3.5 mm.

inclusions inside. One inclusion in particular stood out: a crystal melted by the extreme heat used in the treatment. The material that had flowed into a fracture had taken on almost tree-like shapes. Within that blue setting, the inclusion looked almost like a tiny fish swimming in the water. It took many attempts to get the perfect shot, but I finally did, created from a stack of 183 images."

About 'The Little Fish', Sammantha Maclachlan said, "This image is a wonderful example of how crystals within sapphires respond to high-temperature heat treatment, while also incorporating a delightful touch of humour. The 'little fish' is immediately recognisable and appears to be swimming effortlessly through a rich blue sea inside the sapphire, adding both charm and visual interest to an image that is as engaging as it is informative." Jeff Hapeman noted, "When looking at inclusions in the microscope, one never knows what you will find—but the most delightful inclusions are often the ones that remind of us something else. In this case, Francesco Protopapas discovered and expertly photographed an inclusion that immediately calls to mind a tropical fish swimming in clear blue waters. The discovery of the inclusion was just the start; he perfectly framed the inclusion and by carefully stacking a series of images with a shallow depth of field, he brought that vision of a fish to life for all of us to enjoy."

Finally, Liviano Soprani stated that "From both an aesthetic and scientific perspective, the composition is well-balanced. Particularly noteworthy is Mr Protopapas's lighting choice: a modified LED source originating from a sewing machine, equipped with a diffusing filter. This seemingly simple solution reveals a profound understanding of material optical properties and the creative potential of unconventional light sources, providing the image with soft, evenly distributed illumination."

From an early age, Francesco Protopapas developed a deep affinity for minerals and geology. At the same time, he developed a strong interest for photomicrography. From these passions, the Facebook group 'Inclusiopedia' was created—an open space where anyone can share their images and engage in discussion with other professionals and experts in the field. Mr Protopapas currently works as a precious-stone appraiser for a major company, applying his technical expertise and experience to the evaluation and analysis of gemstones and jewellery.

"I am truly honoured by this recognition, especially because the world of inclusive photography is extremely subjective," Mr Protopapas

said after learning of his placement. "There are countless ways to approach it, and everyone builds their own different setups. This ultimately leads to photographs that are immediately recognisable as belonging to the person who took them. Knowing that I have found a combination that works is a great satisfaction. Of course, this does not mean one should stop—on the contrary, every milestone, whether small or large, is a new starting point."

Our first-prize winner, Keith Chow, also took third place in our competition, with his image of dumortierite crystals in quartzite under darkfield and fibre-optic illumination, paired with crossed polarisers. This image was focus stacked, with colour refinement in Lightroom. He explained that "when examined under crossed polarisers, the inclusion displays distinct and vivid interference colours, revealing its anisotropic optical behaviour."

Liviano Soprani indicated that "This image presents an unusual perspective of elongated dumortierite crystal aggregates included within quartz. Unlike the conventional approach, which highlights the mineral's characteristic light-blue colour, the author employed a combination of crossed-polarising filters, darkfield illumination and fibre-optic lighting to enhance the interference colours generated by the differing crystallographic orientations. The result is an image of striking visual and compositional impact, in which the distribution of hues and modulation of light intensity impart an almost-painterly quality. The clarity and vibrancy of the interference colours indicate meticulous specimen positioning and precise control over the illumination conditions within the microscope."

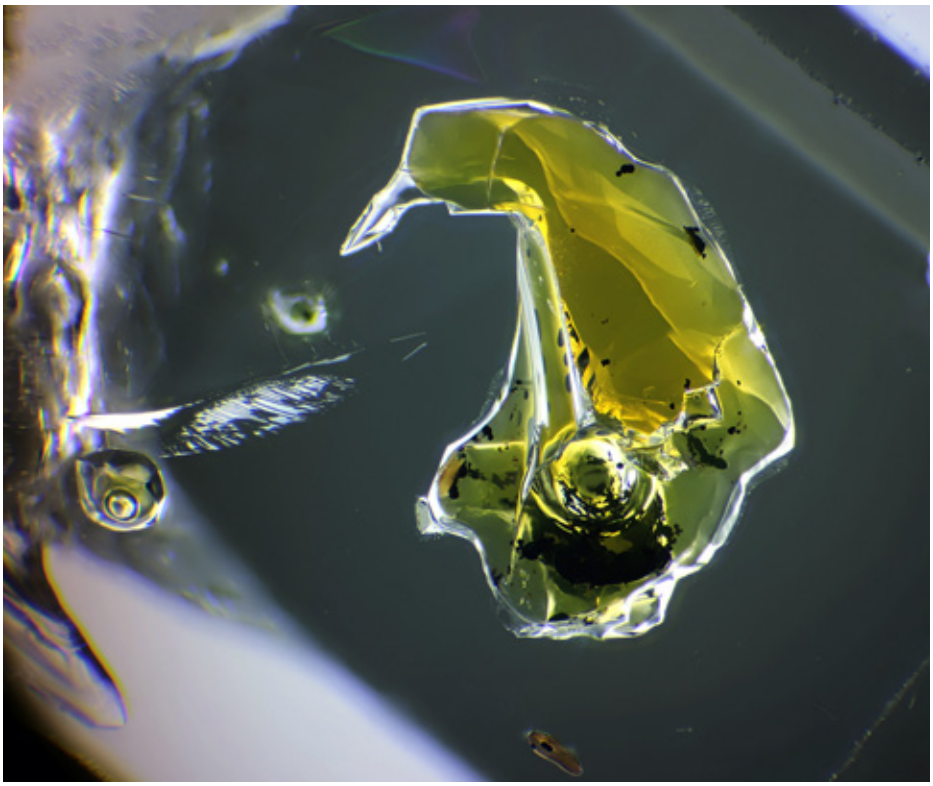
Sammantha Maclachlan and Jeff Hapeman also had praise for this photograph. According to Ms Maclachlan, "This image makes effective use of crossed-polarising filters for a truly spectacular result. The dumortierite crystals are revealed in vivid detail, bursting with colour and energy, and they strongly evoke the appearance of fireworks exploding against a dark night sky. The combination of technique and subject matter transforms the inclusion scene into something both visually dramatic and artistically engaging, making the image particularly memorable." And in Mr Hapeman's words, "In another demonstration of science and art coming together, Keith Chow used crossed-polarised filters to demonstrate the anisotropic optical character of the dumortierite crystal inclusions. This technique not only tells the gemmologist something about the crystals, but also never ceases to amaze with a dazzling array of colours created through optical interference."

Mr Chow was pleased that this photomicrograph placed in our competition. "When I first encountered this quartzite rich in dumortierite, I was immediately drawn to the abundance of fine blue, rod-like inclusions within. Curiosity led me to explore the specimen from different angles and under varying lighting conditions, simply to see how these inclusions might respond. It was only after introducing a polariser that the interference colours began to appear, inspiring me to add a second polariser to enhance the effect and create the image. This kind of exploration is always rewarding, reminding me that some of the most compelling aspects of gemstones are revealed through patience, curiosity and a willingness to look a little deeper. I hope this may encourage others to explore the world of gemstones in their own ways and discover its many possibilities."

As runners up, Mr Protopapas and Mr Chow will each receive a £50 voucher to Gem-A Instruments, for use in purchasing gemmological equipment, tools and books.

REMAINING SHORTLIST

Taking the fourth-place position was a photomicrograph of negative crystals in a quartz from Pakistan, with an oil and gas bubble that moves when the specimen is tilted. Photographer Dmitry Petrochenkov noted that this scene resembles penguin, and Sammantha Maclachlan agreed. "This fun image features an irregularly shaped cavity within quartz that genuinely resembles →



In 'The Penguin', negative crystals, with an oil and gas bubble that moves when tilted, are seen in a quartz from Pakistan. An Olimpus SZ6045 microscope was used, with side-led lighting. The scene was captured with a Canon EOS 600D; stacking made using Helicon Focus 7. The image editing (white balance, crop) was performed using Adobe Photoshop 2024. Photo by Dmitry Petrochenkov, field of view 4 mm.

In capturing this image of a 11.82 ct boulder opal with ironstone matrix (with oblique fibre-optic illumination), Randy Lightfoot used a Sony A6600 mated to one of the ocular ports of a Leica S7E; he then used HelicoFocus to stack the twenty-seven frames. The final stacked photo was edited in the Adobe Lightroom iPhone app. The only parameters that were adjusted were exposure, contrast, highlights, noise reduction, clarity and dehazing. Colour was not influenced and there was no cropping or scaling. Dust particles were also cleaned up during the editing process. Camera manual settings were adjusted to an ISO of 500 and a shutter speed of 1/3. Photo by Randy Lightfoot, field of view ~2.50 mm.

a little penguin. The likeness is immediately recognisable and adds a sense of charm and humour to the subject. The image is also nicely composed, with the cavity well-positioned in the frame, allowing the viewer to appreciate both the playful form and the clarity of the quartz."

Jeff Hapeman summarised, "Whimsy strikes again with this unique 'penguin in a gem'! However this image isn't just fun — it also has a great gemmological story to tell. The inclusion is filled with petroleum that was trapped as the quartz crystal grew, complete with a bubble of an unknown gas — possibly methane or a similar gaseous hydrocarbon."

Randy Lightfoot's image of a 11.82 ct boulder opal with ironstone matrix (locality unknown), reminiscent of a tableau from a cave, caught our judges' attention and subsequently made this year's shortlist. In Mr Lightfoot's words, "This 11.82 ct boulder opal presents us with its mystifying 'cave system' when illuminated by oblique fibre-optic light."

According to Sammantha Maclachlan, "Randy Lightfoot's image beautifully captures the play-of-colour so often found in this material, with vibrant flashes that draw the eye and invite closer inspection. The use of stacking is particularly effective, allowing us to peer deep into the opal and appreciate the layered complexity and internal structure that give the stone its unique visual character." Further, Jeff Hapeman noticed that "Randy's image is unique for showing something rarely observed in opals—a clear three-dimensional view of the depth and structure of the play-of-colour, created by ordered arrays of silica spheres. This is enabled by the ironstone matrix of this opal and the way Randy used oblique lighting to create a clear visual impression of the depth in the opal. All of this was brought together by his careful stacking of a series of images, creating the illusion of peering into a cave filled with multicoloured light."

PEOPLE'S CHOICE AWARD

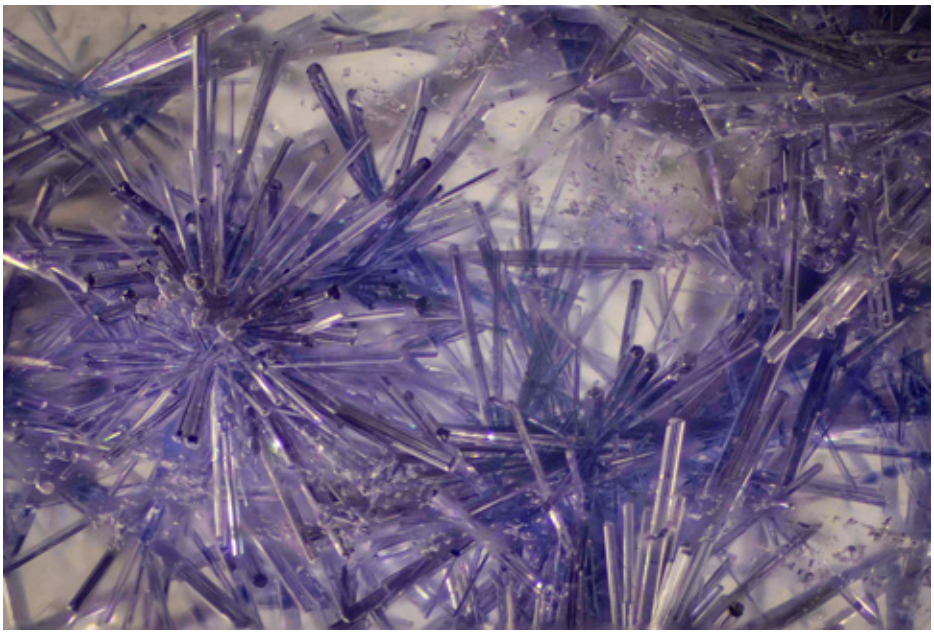
The People's Choice Award winner was chosen by the general public; it was the photo that received the most votes on Gem-A's Facebook page. The honour goes to Giovanni Pace, for his image of a pyrite inclusion resembling a nugget of gold within a 14.35 ct Brazilian hyaline quartz cabochon. To compose the image, Mr Pace used a stack of eighteen photographs at 90× magnification (1.60 mm field of view) with darkfield illumination with fibre-optics and polarised light. A light-blue filter was positioned between the darkfield light source and the specimen to enhance the microscopic details and was subsequently removed with Photoshop.

Giovanni Pace is a gemmologist whose lifelong passion for precious gemstones is rooted in the time he spent as a child in his mother's jewellery shop. He studied classical goldsmithing techniques in the Italian cities of Florence and Naples. He formalised his gemmological expertise at the International Gemological Institute (IGI) in Antwerp, Belgium, where he obtained his Graduate Gemmologist (GG) certification in 2018. He has been an accredited member of the American Gemological Association (AGA) since 2024. Throughout his career, Mr Pace has specialised in advanced instrumental methodologies, including Fournier-transform infrared (FTIR) and Raman spectroscopy, photomicrography and gemstone characterisation for treatment and origin determination. He owns his own jewellery business, where he applies this expertise daily, selecting and documenting each stone with professional rigour.

Mr Pace told us that "I am truly honoured to have won the People's Choice Award in the 2025 Photographer of the Year competition. Receiving this recognition from the gem community means a great deal to me. I believe that photomicrography is one of the most powerful means of communication for revealing the hidden beauty within gemstones. Winning the People's Choice for this photograph of a pyrite inclusion within clear quartz is deeply meaningful to me, as it validates my conviction that gemmology is one of the rare disciplines where science, art and beauty converge perfectly."

As the winner of the People's Choice Award, Mr Pace will receive a £50 voucher to Gem-A Instruments. ■

Giovanni Pace won this year's People's Choice Award for his image of a pyrite inclusion within a 14.35-carat cabochon of hyaline quartz from Bahia State, Brazil. The photomicrograph was obtained from a stack of eighteen photographs at 90× magnification (1.60 mm field of view), acquired with darkfield illumination with fibre-optics and polarised light. To enhance the microscopic details, a light-blue filter was positioned between the darkfield light source and the specimen; it was subsequently removed through digital-image processing with Photoshop. The photomicrographs were taken with a Canon EOS M50 mirrorless camera 24 MP 18-55mm IS STM. The microscope used is a Bausch & Lomb model, with a darkfield GIA GEM Mark VII; the Fiber-Lite fibre-optic illuminator is from Dolan-Jenner Industries. Photo by Giovanni Pace.

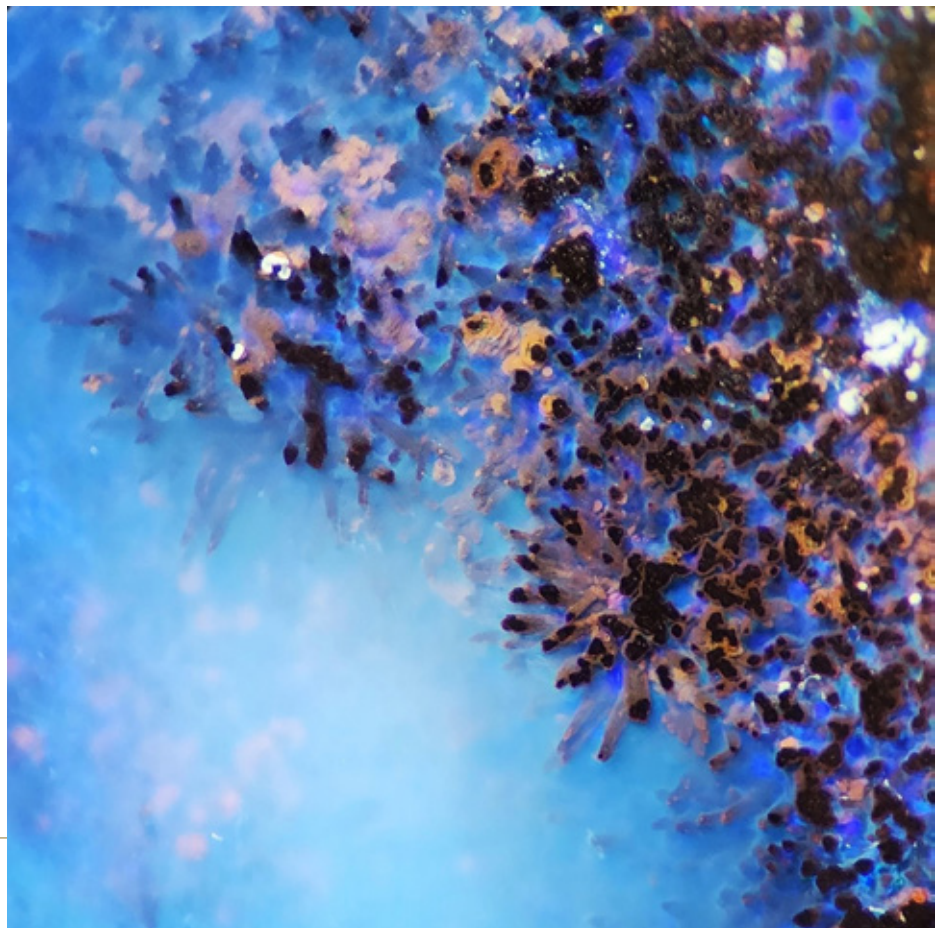


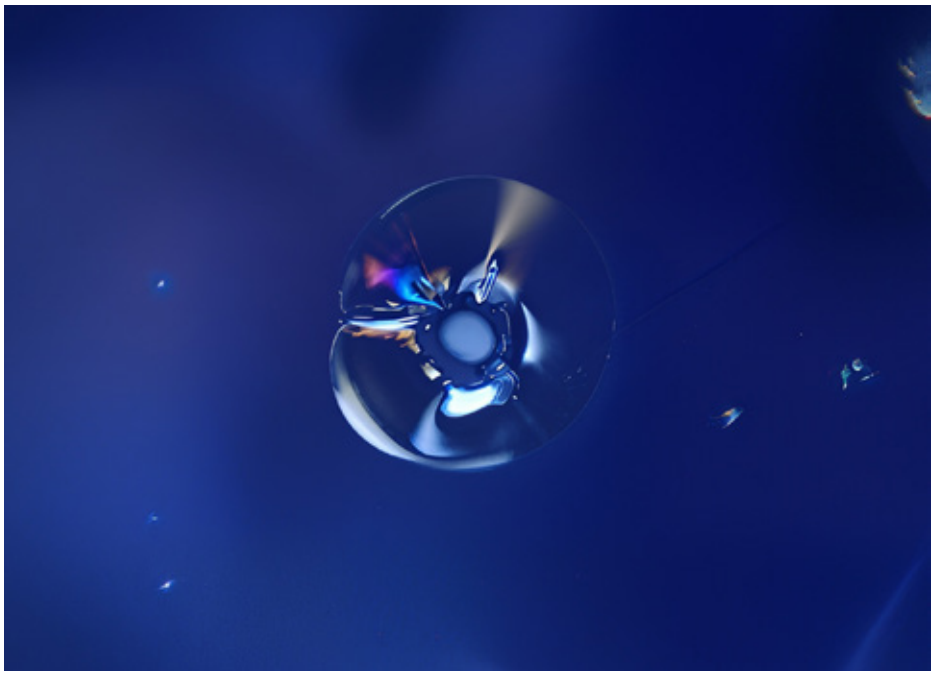
LONGLIST GALLERY

In 'Frozen Fireworks', dense clusters of vivid blue-violet dumortierite needles burst across the interior of this quartz crystal (locality unknown), forming star-like arrangements that appear almost explosive. Thirteen images were stacked in Photoshop to bring the inclusion field into focus, followed by minor dust spot removal, minimal adjustments to levels and a subtle vignette. Brightfield with fibre-optic illumination was used. The photographic microscope, a 4K camera on a binocular microscope, was designed by Valentin Fejoz. Photo by Rosie Young FGA, field of view 4.1 mm.

These hematite platelets are enclosed within an included quartz from Brazil. Their elongated shape, parallel arrangement and vivid red colour make them appear as if they are descending from the sky, like dozens of flashes of red sprites that can be briefly observed at the heart of a thunderstorm. The photograph, the result of stacking twenty-three photos, was taken with a Motic SMZ-171 trinocular microscope and a Sony Alpha 7R III, with transmitted and oblique lighting. Photo by Marine Bouvier, field of view of 7.5 mm.

In Isabelle Corvin's 'Iron Daisies', dendritic 'flowers' play and seem to float on the surface of a boulder opal. The contrast of the iron colours of the dendrites with the cool-blue background of the boulder opal creates a playful and artistic look through the microscope. The image is cropped, and contrast was adjusted digitally. The photomicrograph was taken on a Samsung Galaxy S22 Ultra phone with a GIA Gemolite NXT microscope; a reflective overhead light source was used. Photo by Isabelle Corvin, field of view 3.0 mm.

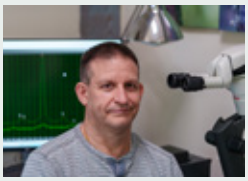




'Halos of Heat: The Hidden Geometry Within Sapphire' shows discoid fractures with associated tension halos surrounding altered inclusions. These features form due to the thermal expansion and contraction of natural crystal inclusions during heat treatment. The rounded, whitish 'cotton' or 'snowball' inclusions represent burned or altered mineral inclusions — typically former crystals that have reacted under high-temperature conditions. During heat treatment, the host sapphire and the included crystal cool at different rates, causing localised stress and resulting in the discoid fracture formation. These inclusions confirm the sapphire's natural origin and provide strong evidence of heat treatment. A 50× gemmological microscope was used with diffused light. Photo by Sameer Din Faqir, field of view 1.0 mm.

PHOTOGRAPHER OF THE YEAR 2025 JUDGES

Jeff Hapeman



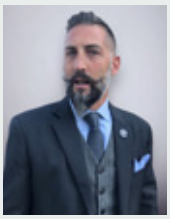
Jeff Hapeman is an award-winning photographer whose work spans both the natural world and gemmological sciences. He is also the founder of Earth's Treasury, a natural gemstone and custom jewellery company. Mr Hapeman's gem and jewellery photography has been published in numerous books and magazines, including *Gems & Gemology*; his nature and science photography has been featured by NASA and the NBC television network. Through his business, Mr Hapeman is able to combine his expertise in gemstones with a keen photographic eye, capturing photomicrographic images that reveal the artistic beauty of gemstones in intricate detail.

Sammantha Maclachlan FGA DGA

Sammantha Maclachlan is an award-winning independent jewellery valuer and senior accredited gemmologist based in Glasgow, UK. In addition to her role as vice-chair of the National Association of Jewellers' Institute of Registered Valuers, she is a dedicated tutor and mentor supporting the next generation of valuers.

A passionate photomicrographer, Ms Maclachlan has a particular fascination with inclusions found in quartz and sapphire. Her skill behind the lens has earned her two second-place awards in Gem-A's Photographer of the Year competition. She has delivered presentations and workshops that share her expertise in photomicrography for respected organisations including Gem-A, the National Association of Jewellers (NAJ), the National Association of Jewelry Appraisers (NAJA) and the Scottish Gemmological Association (SGA). She has a regular photomicrography feature in the *Roskin Gem News Report*; a page on the report's website is dedicated to her work.

Liviano Soprani



The first-prize winner in the 2024 Photographer of the Year competition, Liviano Soprani has been a professional gemmologist since 1996. For nearly thirty years he has worked in the fields of gemmology and appraisal, dedicating special attention to the analysis of gemstone inclusions. Mr Soprani serves as an expert appraiser for the Ravenna Court and as an appraiser in jewellery and gemmology. He obtained the Graduate Gemologist diploma from IGI Antwerp in 2024.

Mr Soprani started taking photomicrographs in 2012, at first with affordable microscopy cameras that were readily available online. He moved on to more advanced and expensive models, eventually reaching the realm of professional full-frame cameras. This transition required education and participation in photography courses to learn the correct use of cameras with advanced features. In recent years, he has consistently published photomicrographs for the pure pleasure of sharing and scientific dissemination. Mr Soprani has held specialised photomicrography courses in Italy and participated as a speaker at several conferences in the gemmological and academic fields. Additionally, he was the curator of the first photomicrography exhibition ever held in Italy, at the University of Naples Federico II during the Seventh National Conference on Gemology.

A HISTORY OF THE BIRMINGHAM JEWELLERY QUARTER

PART I

In the first of a two-part series, Craig O'Donnell FGA examines the foundation of what is now the largest concentration of jewellery businesses in Europe.

Birmingham and its Jewellery Quarter has evolved over the last 280 years. It has been described as 'the Workshop of the World' and 'The Toyshop of Europe' as well as 'the City of a Thousand Trades'. I was under the impression that the name 'Jewellery Quarter' was a recent invention to entice tourists (much like the 'London Jewellery Quarter' has been used to describe Hatton Garden!). However, deeper research revealed that the description goes back at least 150 years. The earliest description in print I have been able to find is from 1866; the author, J.S. Wright, notes that 'It is curious how the trade has located itself in one part of town – the St. Paul's district – which has become the 'jewellers' quarter', the boundaries being almost as clearly defined as the Ghetto (or Jews quarter) [sic] 1902–1903 in Rome and many continental cities… and yet 25 years since was almost entirely occupied by small gardens' (Timmons, 1866). The fact that Wright puts the name 'jewellers' quarter' in inverted commas suggests that this term may have been in common use at the time.

THE ORIGINS OF THE JEWELLERY QUARTER

The Founding of the Birmingham Assay Office. The driving force behind the silver and allied trades in the mid-eighteenth century was Matthew Boulton (1728–1809), the son of a buckle/button maker (also named Matthew). The senior Boulton's workshop was based on the corner between Slaney Street and Snowhill. Upon the deaths of his father and his wife, Mary, both in 1759, the younger Boulton used his inheritance to build a factory in nearby Soho. He was an entrepreneur in the modern sense of the word, and divided his time between his silver works (in partnership with John Fothergill), Sheffield plate and button and buckle making. Boulton also set up a coin mint and was involved (in partnership with James Watt) with the design, manufacture and distribution of steam engines that would power the Industrial Revolution.

It was his connection with the Assay Office which would prove to be his largest contribution to the Jewellery Quarter. In his words, "I am desirous of becoming a great silversmith… but won't take up that branch in the large way intended unless there is a marking hall in Birmingham." In order

This waist clasp, made from silver and turquoise, was designed by Oliver Baker and manufactured by W. H. Haseler Ltd for Liberty & Co. (1902–1903). Gift of Mrs Anne Hull Grundy (1983). Photo courtesy of Birmingham Museums Trust, licensed under CC.

to adhere to the hallmarking laws of the period, Boulton had to get his items tested and hallmarked prior to sale. This meant sending them to the nearest assay office, which at this time was nearly eighty miles north in Chester. He complained via correspondence to his Parliamentary connection, Lord Shelbourne, on several points. Firstly, some of his pieces were damaged in the hallmarking process and subsequent packing; he was also concerned about the danger of highway robbery on the journey to and from the Chester assay. Finally, there was the risk of his designs being copied at a time when – aside from being cheaper than one's competitors – the only way to make a mark among clientele was through the novelty of design.

These apprehensions led to Boulton petitioning Parliament for an assay office in Birmingham. During this time, Sheffield cutlers had a similar desire, as demand was increasing for silver knife handles and flatware services. This led to representatives of both Birmingham and Sheffield traveling to London to discuss the matter with Parliament. They met in the Crown and Anchor public house in the Strand, which is why these two symbols became the assay marks of Sheffield (crown, subsequently changing to the York rose) and Birmingham (the anchor). There is no evidence on how they decided which town was assigned their marks; a story involving a coin toss was invented by Assay Master Arthur Westwood in his 1936 book *The Assay Office at Birmingham, Part 1: Its Foundation*.

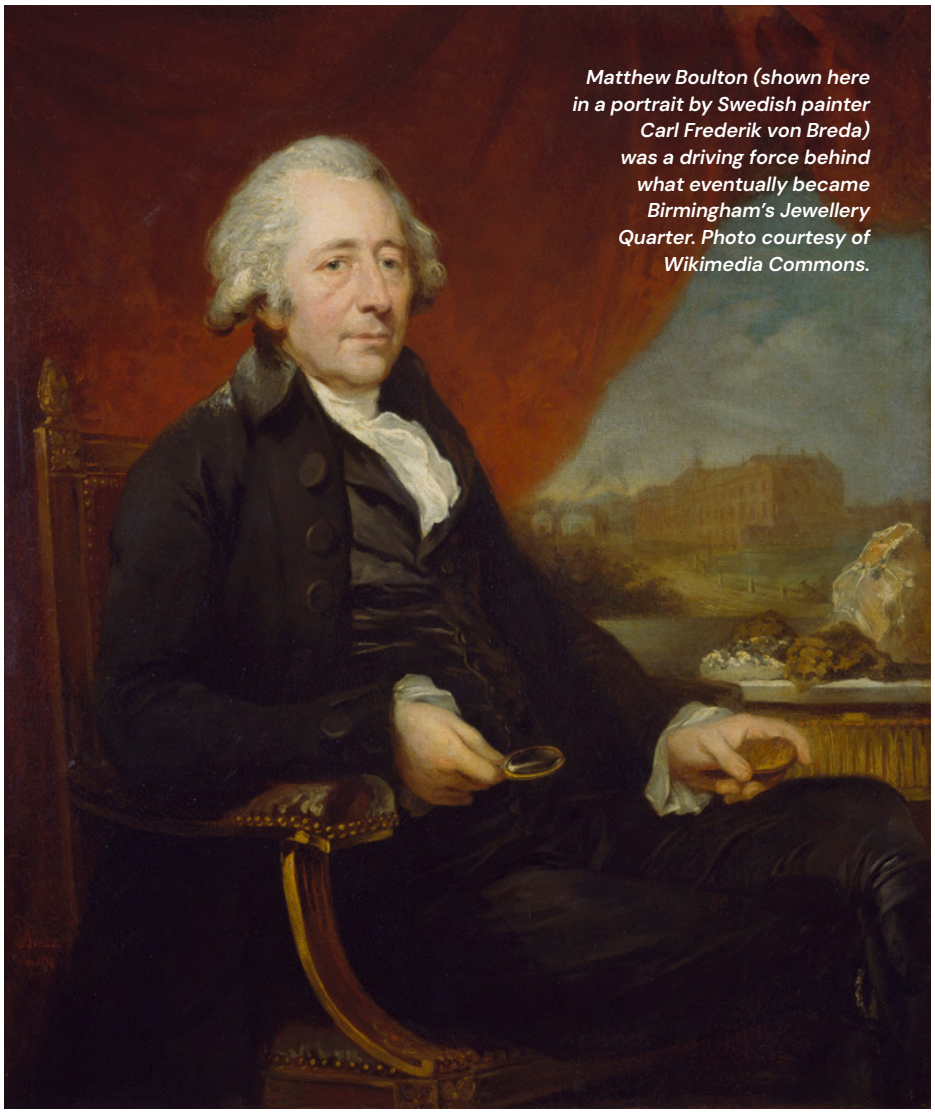
The main opposition to Birmingham gaining an assay office was the Worshipful Company of Goldsmiths in London, who had long held a monopoly as to who they deemed worthy of being a silver- and goldsmith. They believed that granting Birmingham and Sheffield assay offices would result in widespread fraud. Parliament took these concerns seriously and sent inspectors throughout Britain to prove or refute this claim. Their findings showed that there was more evidence of precious-metal fraud in and around the London area than anywhere else in the country (Westwood, 1936).

The Birmingham Assay Office opened its doors on 31 August 1773. Initially the office occupied two rooms above the Kings Head pub in New Street; it was only open one day a week and employed four people. Matthew Boulton was the first (and only) customer on this day; he had obviously been saving his items for the opening, as he brought in over 120 silver items. But even Boulton would have been amazed at the growth of the Jewellery Quarter in the following century. Based on the Assay Office figures, the amount of silver hallmarked in 1773 was 16,983 oz (528.17 kg); gold wasn't hallmarked in Birmingham until 1824. By 1903, 3,791,474 oz (117,914 kg) silver and 358,437 oz (11,147 kg) gold was handled by the Birmingham Assay Office. (Tann, 1993)

The Expansion of the Trades.

The original concentration of silversmiths and toymakers was in and around St Paul's Square. St Paul's Church had been built and paid for by Charles →

> It was Matthew Boulton's connection with the Assay Office which would prove to be his largest contribution to the Jewellery Quarter.



Matthew Boulton (shown here in a portrait by Swedish painter Carl Frederik von Breda) was a driving force behind what eventually became Birmingham's Jewellery Quarter. Photo courtesy of Wikimedia Commons.

A list of button makers, taken from* Bissett's Magnificent Directory of 1808. *The list displays the main tools of the Birmingham toymakers, notably the fly-press (left) and the drop stamp (right). Photo courtesy of the Birmingham Assay Office Library.

The availability of the Birmingham Assay Office did not lead to an increase in silversmiths. However, it did lead to an increase in toymakers, who now had the ability to make their toys out of silver. As they expanded, more silversmiths were trained to work in these firms; this in turn led them to set up their own businesses in the Quarter and form partnerships with others. Silversmith businesses eventually expanded, and names that are now familiar registered as makers with the Assay Office. These include Samuel Pemberton, Joseph Willmore and John Taylor, a button-and-gilt-toy manufacturer who by 1755 was employing five hundred people (Mason, 1998). This last concern was second only to Matthew Boulton's in size.

A pair of shoe buckles that are hallmarked sterling silver, from Birmingham, 1779–80, with the maker's mark of Willmore and Alston. The shoe buckles are an example of the Birmingham toymaker's output. In the first five years of the company's existence, 25% of the silver marked in Birmingham, by weight, were Willmore and Alston buckles. Photo courtesy of the Birmingham Assay Office (AO 250).

Colmore for £1,000 in 1779. This seeming act of altruism would be more than repaid, as the Colmore family owned much of the adjoining land, which was then released for building purposes and became the site of the present-day Jewellery Quarter. The church was always known as the 'jewellers church' because of its proximity to so many jewellers and silversmiths' workshops. Matthew Boulton and James Watt both had reserved pews in the church, and many of the silversmiths and 'toymakers' were buried in the grounds, though their headstones have since been removed. In this usage, 'toys' are not children's playthings; rather, toys were small metal objects for personal use and adornment, such as buttons, buckles and small boxes. These toymakers would eventually become the 'jewellers' we would know today.

These businesses were based in small workshops, producing pieces for the trade, and their work and home addresses were one and the same. Some firms produced entire items, while others were specific to one part of the trade, such as engravers, die-stampers and refiners. Still others concentrated on one aspect of the trade (e.g., Charles Freeth who solely made gun furniture/mountings).

Representatives from Birmingham and Sheffield met in the Crown and Anchor public house; these two symbols became the assay marks of Sheffield (the crown) and Birmingham (the anchor).

The Society of Architects Badge of Office, ca. 1899–1900. The piece is hallmarked sterling silver (part gilt) and bearing the maker's mark of Hardman Powell. The piece displays an array of technical skills stamping, casting, enamelling and niello work in a High Victorian style. Part of the author's collection.

The proximity of these workers in the Jewellery Quarter meant all their requirements were within a two-mile radius at a time when even the postal service did not exist. They were set up as firms, which often confuses people because the names of the firms were the names of their founders. For example, Samuel Pemberton was in his sixties when he formed the company that boasted his name, which was then continued by his son, Thomas and his nephew, Samuel.

The romantic view of the silversmith as an artisan working alone in his workshop in candlelight, making silver items from start to finish, neglects the actual division of labour. A worker would be responsible for a particular part of manufacture. Consider a mid-nineteenth century snuff box by Nathaniel Mills (largely regarded as one of the finest box makers ever). Up to ten different people could be involved in its manufacture, all proficient in their own aspects of the trade. The box sections would be made by one silversmith and the hinge by another; the engraver would decorate it and the polisher would finish it. If a person concentrated on one aspect of manufacture, they tended to get very good and very quick at it, thus ensuring greater quantities could be produced whilst ensuring a consistent quality.

This pair of ewers, comprising blue john (fluorspar) and ormolu, were created by Boulton & Fothergill ca. 1762–1765. Photo courtesy of Birmingham Museums Trust, licensed under CC.

The late eighteenth century saw the introduction of 'factors'. These were 'go-betweens' of manufacturers and retailers. They would purchase gemstones (including diamonds) from dealers, source the mounts, get the pieces set and hallmarked and then sell them at a profit to retailers. These factors subsequently became the importers at times when foreign production could undercut Birmingham-produced silverware and jewellery.

By the middle of the nineteenth century, jewellery and silversmithing had grown into a highly important industry in Birmingham, as can be seen in the *W. H. Dix Directory of 1858*. This lists 349 jewellers and goldsmiths, 76 button makers, 63 silversmiths and only 23 toy dealers. Toymakers are not even listed as a trade category, underlining that the toymakers of yesteryear became the silversmiths and jewellers as fashions changed through time. Additionally, the mid-century's discoveries of precious-metal deposits (including the California gold rush of 1848 and the Comstock Lode in 1859) meant that these metals were more readily available, leading to increased demand.

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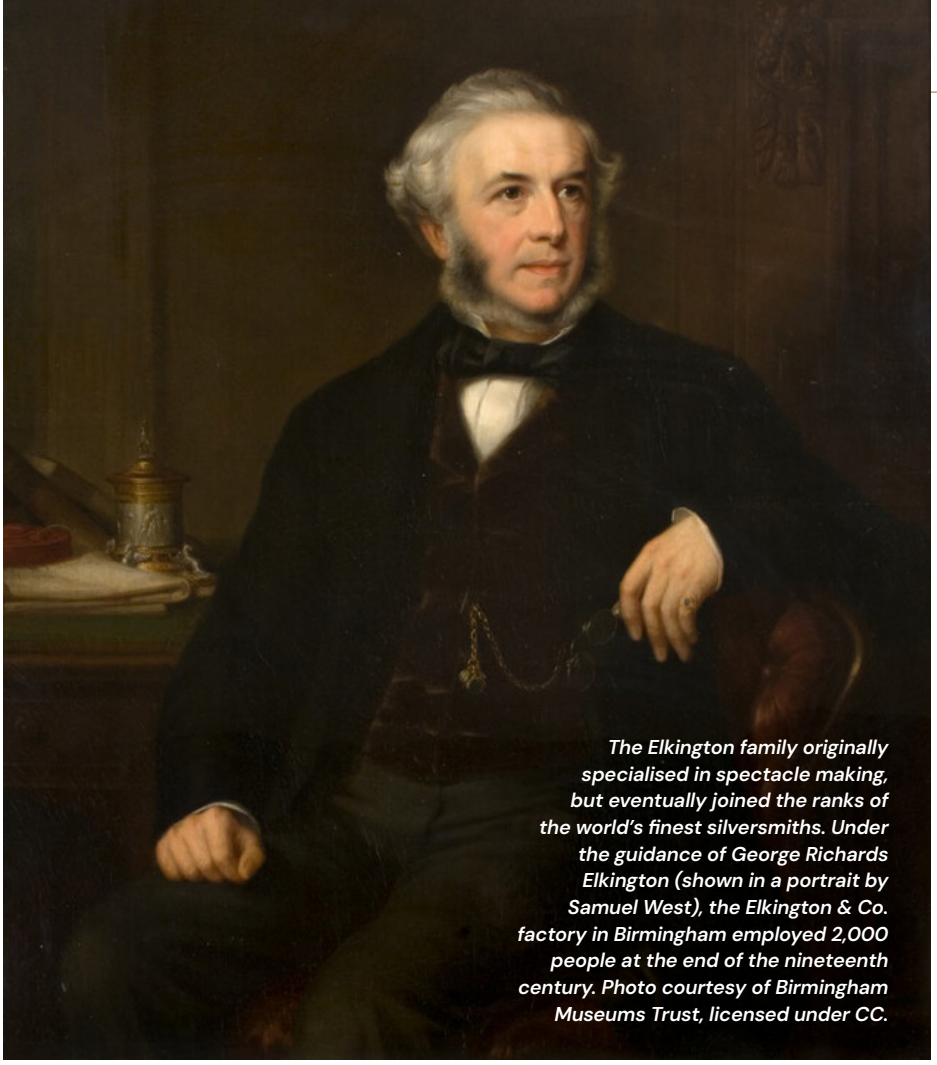


The Elkington family originally specialised in spectacle making, but eventually joined the ranks of the world's finest silversmiths. Under the guidance of George Richards Elkington (shown in a portrait by Samuel West), the Elkington & Co. factory in Birmingham employed 2,000 people at the end of the nineteenth century. Photo courtesy of Birmingham Museums Trust, licensed under CC.

While the Jewellery Quarter was mainly made up of small workshops, not all the firms were small concerns. Some, like Elkington and Co. grew to become huge factories. The Elkingtons started in the Jewellery Quarter as spectacle makers, but under the management of George Richards Elkington, they flourished. In addition to building the company as one of the largest and finest silversmiths in the world, they also perfected and patented the technique of electroplating base metals, because they held the patents for the electroplating process. Anyone else who was interested in electroplating had to pay Elkington and Co. This amounted to an extremely lucrative venture at a time when the public was clamouring for silverware, but would accept the far cheaper alternative that electroplate offered. This eradicated the earlier Sheffield plate, which was more costly to produce. At a time when most of the production in the Quarter was created by workshops employing anywhere from two to fifteen workers, Elkington's factory in Newhall Street was massive; at its height in 1890 it employed 2,000 people (Chinn and Dick, 2016).

New Types of Production.
Elkington's had an interest in historicism, and partnered with some of the newly founded museums to produce electrotype copies of historically important metal items. This can be seen every year at Wimbledon when the ladies' trophy is handed out: The Venus Rosewater Dish is an electroformed silver copy of a pewter charger that was designed by Francois Briort in 1585 and is currently housed in the Louvre. Both the Men's and Women's Singles trophies were purchased from Elkington and Co. in the 1880s; this is a testament to the high regard Elkington's had achieved by this time. In addition, it was a new field for the Jewellery Quarter to monopolise: that of sporting awards, trophies and fob medals. Increased prosperity throughout the country led to increased leisure time, and jewellers were producing brooches and other pieces displaying bicycles, tennis rackets, golf clubs and other equipment to indicate the wearers' sporting interests.

Hand-in-hand with the sporting awards came an increase in the number of civic regalia as cities were created and council areas defined. Mayors

Left: The engraving (date unknown) shows the Elkington & Co. factory on Newhall Street in Birmingham. Right: This trade card from 1860 advertises the silverwork of Elkington & Co. Photos courtesy of Birmingham Museums Trust, licensed under CC.

> By the middle of the nineteenth century, jewellery and silversmithing had grown into a highly important industry in Birmingham.

and civic leaders of different areas began competing with each other for more and more impressive chains and badges of office, and companies in the Jewellery Quarter such as Fattorini, T.&J. Bragg and Vaughtons quite happily filled these needs. These pieces showcased the firms' design skills; they were also fine examples of the diesinkers' and enamellists' art forms.

The Impact of the Arts and Crafts Movement. Although the likes of Elkington's and Hardman were displaying their knowledge of art and using internationally renowned designers, the vast majority of the Quarter's jewellers and silversmiths were relying on tired pastiches of what they thought the public wanted. This included George III tea sets and lightweight, over-ornamented brooches with little design quality. The subsequent desire for design reform led to the founding in 1890 of the Municipal School for Jewellers and Silversmiths. Their premises was a closed jewellery factory on Vittoria Street. By the early years of the twentieth century, the school was training between 352 to 500 pupils per year. The first headmaster was Robert Catterson-Smith, but in 1903 he became headmaster of the Margaret Street Art School. His successor was Arthur Gaskin who, along with his wife Georgie, made the finest Arts and Crafts jewellery.

The Arts and Crafts Movement was a direct rebellion against the aforementioned division of labour. It insisted that the crafts should be viewed as art, pieces should be handmade from start to finish and the designer and maker should be one and the same. Catterson-Smith, Gaskin and Gaskin's successor, W.T. Blackband, were all ardent followers of the movement; thus, these were the principles taught at the Municipal School for Jewellers and Silversmiths. The school soon became a breeding ground for jewellers such as Bernard Cuzner and Bernard Instone (both of whom taught there), George Hunt, Dorrie Nossiter and Stanley Morris. Due to the quality of teaching, the school's students dominated the national prizes given out for Arts and Crafts jewellery and silversmithing throughout the early twentieth century.

Many of Birmingham's jewellery and silversmith companies disliked the ethos taught in the jewellery school; they thought it too 'arty' and impractical for mass production. An exception to this stance was the silversmith and jeweller W.H. Haselers. The Haseler family could trace their Birmingham trade ancestry to William Haseler, who was a toymaker from 1775. Over the following two hundred years, they owned and occupied twenty-four different premises in the Jewellery Quarter (Binns, 2015). Their most successful incarnation was under the name W.H. Haseler (after William Hair Haseler). But it was William Hair Haseler's two sons, William Rabone and Frank, who formed a notable partnership with the retailer Liberty's of London to manufacture their silver, jewellery and pewter wares at the turn of the twentieth century. Liberty's wanted all their wares to be regarded as 'Liberty' pieces; thus, designers and manufacturers were anonymised. Over time, many designers have been identified — Archibald Knox being the most recognisable and prolific (see pp. 33-35) — but there remains a reticence to admit that these designs originated in Birmingham's Jewellery Quarter. Birmingham makers would quite happily supply pieces that bore the hallmarks of the retailers. For example, a silver vase made by A. Edward Jones will sell for more if marked with the Connell's maker's mark than the A.E.J maker's mark because it was sold through a London retailer. Sometimes the seller will describe a 'good London make' on a piece which has been made in Birmingham! ■

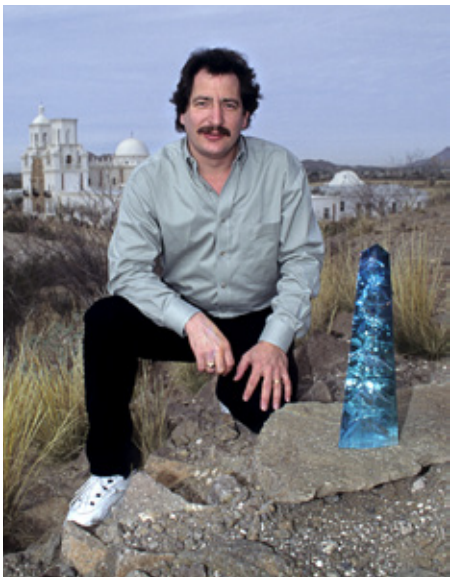
One of a pair of sauce tureens. This object is hallmarked sterling silver, Birmingham, 1776–77, with the maker's mark of Matthew Boulton and John Fothergill. The tureen, of superb design and manufacture, was originally commissioned for Elizabeth Montagu. Photo courtesy of the Birmingham Assay Office (AO 335).

Part II of the history of the Birmingham Jewellery Quarter will run in an upcoming issue of Gems&Jewellery.

A list of references may be obtained by contacting the Editor.

Robert Weldon's Journey Into Gemmological Photojournalism

The world-renowned gem photographer recalls how he got his start in the field, and looks back at ten of his most influential images.



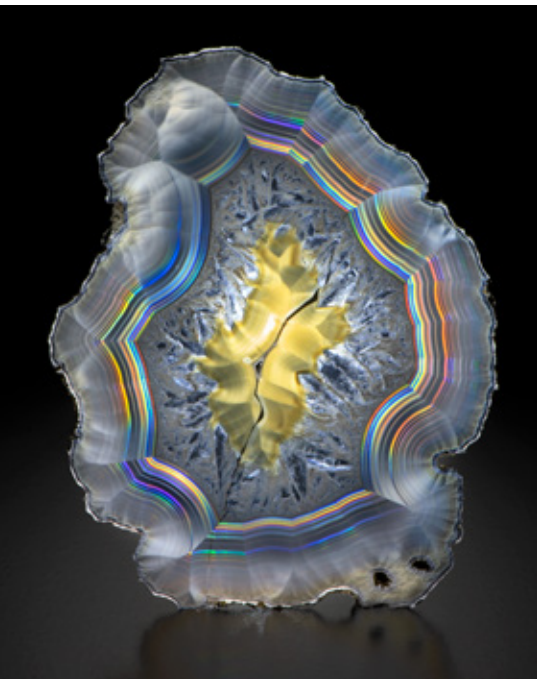
The 10,363-ct Dom Pedro Aquamarine – the world's largest fashioned aquamarine – was carved by the late Bernd Munsteiner (Atelier Munsteiner, Stipshausen, Germany). Mr Weldon was obsessed with the idea of contrasting the stunning blue, modern-carved obelisk's water motif with the background of the 1600s-era white San Xavier del Bac Misson in the desert of Tucson, Arizona. The Dom Pedro is shown here with Evan Caplan (ca. 1992). This gemstone is now housed at the Smithsonian Institution in Washington, DC (for more on the Munsteiner family, please see Summer 2024 G&J, *pp. 10–17).*

My path in photography began when I was twelve or thirteen, the day a friend of my mother's gifted me with a Kodak Instamatic. When I developed that first roll of film, I was captivated. The idea that a moment could be preserved and revisited weeks or years later felt miraculous. I devoured books on photography, learned about the optics of focus and depth of field and soon graduated to my first SLR.

My mother encouraged this 'habit' while worrying that it would consume my young life; troublingly for her, it did. But she purchased a macro lens for me that changed the way I saw the world. Through it, I discovered minute textures and details that were all but invisible to the eye. Being able to later project images of the interior of a flower on a screen or revisit the soft gills of a mushroom with a wandering ant, for example, was like entering another dimension. I was hooked.

At the time, gemmology held no interest for me, even though my mother was an enthusiastic gem collector. I studied business administration, but photography always stayed with me, much to my family's concern. Eventually, I became interested in gems and enrolled at the Gemological Institute of America (GIA) and became a Graduate Gemologist. There, in 1988–89, Dona Dirlam, who would become director of the Richard T. Liddicoat Library and Information Center, noticed my aptitude for photography. She asked if I would consider photographing gems and minerals. What started as one-day-a-week assignment quickly expanded to more days as people sought out my work.

No one taught me gem photography; I learned through experimentation — working with different diffusers, building a stage, playing with lights, studying other gem photographers' techniques and slowly mastering the challenges of film and still photography. That eventually progressed to 4x5-inch film photography and, finally, to digital imaging. I contributed heavily to GIA's slide collection and saw my images published in *Gems & Gemology* and other journals and books. I began to understand not only how to photograph gems, but what they required to be photographed well. This included →



Above: This iris agate, measuring 12.3 cm tall, is from Rio Grande do Sul, Brazil. It presented some challenges in setting up to photograph. As thin as a sheet of glass, it only exhibits its iridescent rainbow with pinpointed, transmitted light. Photo courtesy of Si and Ann Frazier.

Right: A rare Burmese amber, containing trapped twin scorpions with tails raised in ballet-like unison, is from the GIA Museum collection. Photo courtesy of GIA.

A once-in-a-lifetime gathering of superb emerald specimens was on exhibit at GIA and photographed together to help illustrate an article about the Chivor mine and Peter Rainier, in the Summer 2016 issue of Gems & Gemology. *The cross pendant and chain are part of the wreckage of the Nuestra Señora de Atocha, which sank in 1622 en route to Spain; courtesy of Eileen Weatherbee. From left to right: a 422 ct emerald crystal from Cosquez, courtesy of Roz and Gene Meieran; a collection of elongated crystals from an unknown mine, courtesy of Ron Ringsrud; and the 982 ct Angel of the Andes (far right), one of the largest emerald finds from Colombia's Chivor region, courtesy of Roz and Gene Meieran. Photo courtesy of GIA.*

This 'star-sapphire galaxy' was gathered to show the spectacular array of colours that fine star sapphires can display. The photo was taken in one shot, painstakingly arranging the gems on the stage to best show their colours and orient the asterism. A single, pinpointed light source accentuated the asterism while also reflecting in the surface of the cabochons. Collection courtesy of David Cohen and Rafco.

A mouse on a toadstool appears to be interrupted mid-meal. This carved Brazilian smoky quartz by Gerd Dreher of Idar-Oberstein, Germany, measures 10.20 x 8.30 x 6.40 cm. Photo courtesy of GIA.

positioning, balanced lighting, choosing backgrounds and direct and diffused lighting. This was in the days before Photoshop: what you shot on film was what you got. There was no way to 'improve' the images or push sliders to enhance the colour.

In 1990, I left GIA to become a journalist for *JCK Magazine*, combining writing, photography and travel. Later I joined *Professional Jeweler* (U.S.),

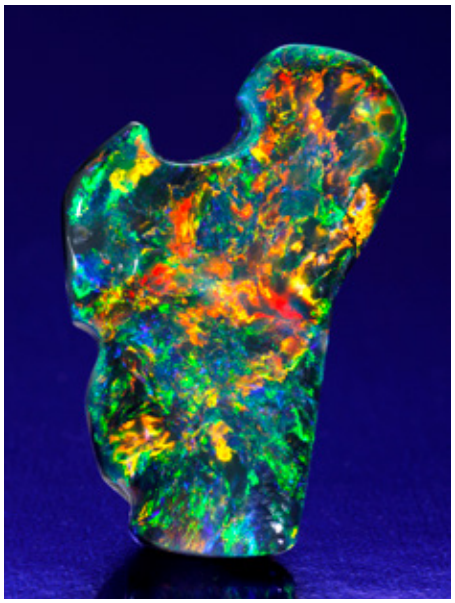
American master cutter Mark Gronlund cut this 160.24-carat aquamarine. Beyond its exceptional size and colour, the gem is notable for being unheated and for originating in Sri Lanka, an uncommon source for aquamarine. Photo courtesy of Mark Gronlund.

expanding my coverage to diamonds and gem localities around the world. Over two decades, I refined what I originally called gemmological photojournalism, for lack of a better name. I eventually returned to GIA for another long chapter under Dona Dirlam's leadership, eventually becoming the director of the Library myself. I ended up in the very place where I had started my gemmological career! I photographed at every Tucson Gem Showcase and contributed to research articles as well as the archival collections of images for GIA. Along the way, I documented extraordinary pieces: Gerd Dreher's Queen of Toads tourmaline, Susan Allen's intricate gem carvings, vivid agates, Burmese amber and later, masterpieces like the Hope Diamond, the Aurora Diamond Butterfly of Peace and mind-blowing works by Victor Tuzlukov. One early memory still makes me break out in a sweat: photographing a massive carved aquamarine by Bernd Munsteiner on a windy, rocky hill beside the ancient Mission San Xavier in Tucson, Arizona. Here was one of the world's rarest gems swaying precariously, even as Evan Caplan – the gem merchant representing this treasure – and I held our breath for the photo. Fortunately, neither the 10,363-carat world-famous gem nor our careers suffered. However, I do not encourage that approach. Ever!

Even in retirement, I continue to photograph and am now working on

> I began to understand not only how to photograph gems, but what they required to be photographed well, including positioning, balanced lighting, choosing backgrounds and direct and diffused lighting.

Mineral photography can be challenging. This is, in major part, because the photography involves showing the morphology of the crystal, displaying its transparency and colour and revealing any internal characteristics it may have. This is certainly the case in this surreal inclusion landscape. This scene was captured in a 245.12 ct sapphire crystal from Kataragama, Sri Lanka. Photo courtesy of Brent Lockhart.



Above: This opal from the Lightning Ridge area of Australia measures approximately 3.2 cm in length. Photo courtesy of the Lightning Ridge Company.

Below: The Hope Diamond is on permanent exhibit at the Smithsonian Institution. It was once temporarily removed from display so that scientists could ascertain whether it, and the Wittelsbach-Graff diamond, came from the same rough once traded by Jean-Baptiste Tavernier. Though it was found they did not come from the same rough, Mr Weldon did have a few minutes with his camera and this storied diamond. Photo courtesy of GIA.

a book for the notable Somewhere in the Rainbow collection, using images produced by my wife, Orasa, and me.

From a simple Instamatic to decades of gemmological photojournalism, the joy of photography has never faded for me. A single captured moment — especially in the world of gems — can last a lifetime, and fortunately, there are thousands of those captured moments. Here are but a few... ■

All images by Robert Weldon.

THE LONDON DIAMOND BOURSE IS THE NEW FACE OF TRADITION

Gabriel Kleinberg FGA DGA EG explores how the Hatton Garden-based diamond exchange is helping to secure the future of the trade.

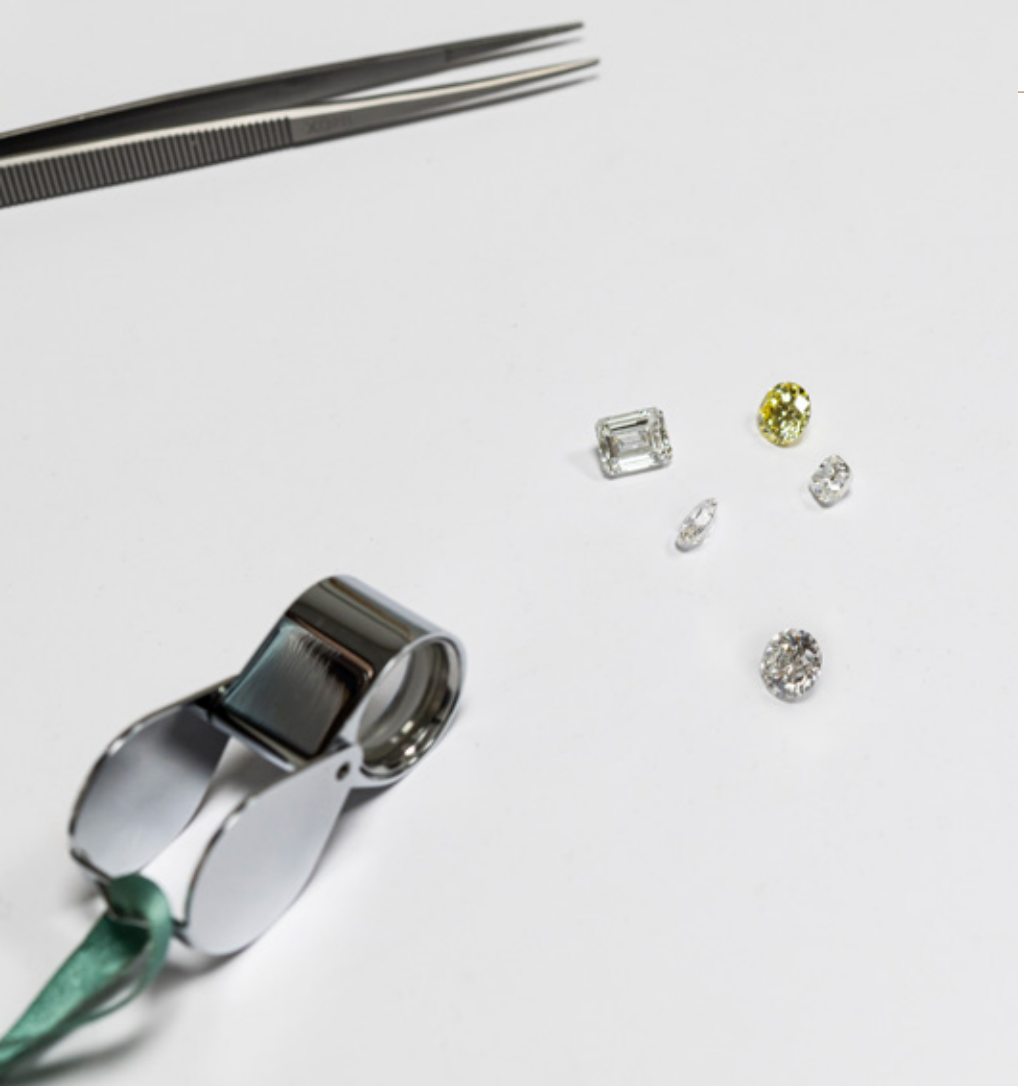
For the past nine decades, the London Diamond Bourse (LDB) has been a place that marks history and heritage. One of the thirty members of the World Federation of Diamond Bourses, it is the only diamond-trading floor of its type in the United Kingdom. It is a membership organisation where admission leads to matchless access to stock, international networking events, shared professional expertise and significant online and in-person trading opportunities, among many other benefits. The purpose of the LDB is to provide regulation and support to the UK diamond industry while instilling consumer confidence in that same industry.

The exchange's story is one of resilience. It has its origins in necessity, after the Nazi occupation of Belgium in May 1940. This invasion forced diamond traders who were based in Antwerp, at that time the world's main diamond-trading centre, to relocate; many of them chose to move to London. These traders began meeting in Greville Street, ultimately establishing London as the trading hub that it is today. Today, the Bourse, which was officially formed in 1945, is housed in a modern and secure facility at 100 Hatton Garden. This central location supports its mission to uphold tradition, integrity and protect the industry. The organisation is clearly looking forward; this is perhaps best personified by its current vice-president, Charlotte Rose.

As the first woman to hold this title, Ms Rose's journey to the Bourse offers a powerful illustration of the LDB's commitment to welcoming the next generation of trade members while staying true to its roots. While her connection to the trade began early, working in her parents' antique and vintage shop, her professional path took a sharp turn later in life. After a major life change, she pursued a degree in gemmology. This transition was, in her words, 'terrifying', but it led her to discover a particular aptitude for advanced diamond testing. This aptitude led to her entry into the diamond trade, with a temporary position running the Natural Diamond Council's Assure programme out of the Bourse. It was during this time that she encountered the LDB's unique environment: "I got to know Bourse members, got to know members of their board and loved it. I thought there was a fantastic sense of community." She immediately recognised the lure of the institution: a safe, secure and affordable organisation with fantastic knowledge to offer, yet one that was historically a 'closed door', with the younger generation of industry members often not knowing of its existence. Recognising its potential, she chose to stay at the LDB, becoming a member and later joining the board.

Charlotte Rose's determination to open the Bourse to new talent resulted in the 2023 implementation of the pioneering Mentor Programme, a key initiative designed to bridge the gap between education and the trade. Through her proactive work and advocacy for the Bourse, she was recognised by her peers and was elected vice-president in January 2024. Her ascent marks a significant moment, symbolising the LDB's shift

London Diamond Bourse vice-president Charlotte Rose (left) and chief operating officer Stacey Aylott (right) at the launch of the Bourse's Mentor Programme in 2023.



towards greater inclusivity while retaining its traditional values of community and integrity.

MEMBER EXPERIENCE AND BENEFITS

The story of the Bourse is best told through the accounts of its members. Jacqui Larsson, an independent jewellery designer, exemplifies the new wave of entrants. After a professional career as a chartered accountant in finance centres such as Hong Kong and London, Ms Larsson took a break to pursue a love of gemmology, a pivot she describes as coming 'completely from out of left field'. Finding the Bourse gave her a secure, central and collaborative base for her bespoke jewellery business.

This member-level perspective corroborates the idea that much of the LDB's value lies in the experiences of its people. Ms Larsson described the greatest benefit of association as the collective knowledge of the members. "The amount of knowledge that is in that room, on that floor, you just won't find anywhere else. You are tapping into this incredible network of knowledge and experience, which is quite unprecedented." The LDB's rigorous vetting process is a testament to its integrity and its intention to maintain the quality of its membership. Jacqui Larsson outlines the strict criteria: "Anyone who is interested has to be put forward by two existing members. Their name will go up on the board for two weeks, so that members are aware that they have been put forward," ensuring the Bourse retains its reputation as a safe and trustworthy place to conduct trade. The two-week period gives existing members the chance to raise any concerns about this person joining the Bourse (e.g., a history of nonpayment). These claims – which are made anonymously; only the council of management knows who raised the issue – must be verified, and the potential member is given the opportunity to address any concerns. The council of management then holds a meeting to discuss both sides, and votes on how to proceed.

This support of the trade is essential for maintaining the Bourse's status as the UK's only diamond-trading floor. The facility offers a secure and professional environment equipped with practical benefits, such as private meeting rooms and high-tech stone-testing machines, while also upholding a high standard of ethical governance. This operational support and ethical assurance are essential for competing in a market increasingly dominated by multinational corporations. These are the sort of challenges that an independent jeweller faces against the huge might and budgets of such companies. This level of confidence, as offered by the LDB is further solidified through strategic, high-profile partnerships. The Bourse recently demonstrated its convening power by hosting, alongside the De Beers Group, an exclusive Spotlight on Diamonds event in London. This partnership brought together over 150 influential figures from prestigious West End brands and delegates from diamond-producing nations like Botswana and South Africa, showcasing the LDB's shared vision for promoting the natural diamond industry.

> This blend of ethical assurance offered by the Bourse is further solidified through strategic, high-profile partnerships.

The Mentor Programme: Bridging the Generational Gap. The LDB is working on formally extending its membership and spreading its specialised knowledge through the Mentor Programme. It connects aspiring entrants, including students from institutions like Gem-A and the Gemological Institute of America (GIA), with established members of the Bourse. This initiative is designed to bypass the generational ties that historically blocked newcomers. "Usually, dealers enter the trade generationally; I myself am a third-generation dealer," Ms Rose

In November 2024, the LDB and the De Beers Group hosted a Spotlight on Diamonds in London, bringing together over 150 members of the domestic and international natural diamond industry. Shown here are members of the De Beers Group alongside LDB team members.

explained. "We are seeing fewer new 'dealers' in the industry, as there is very little guidance or direction for the new generation to even know where to start. I have one child, and if he does not follow in my footsteps, my business will cease to operate when I retire. In our case, my son would have my guidance and a route into the trade. If he did not, it would be very difficult for him to find a path as a traditional dealer."

The Mentor Programme offers invaluable experience in areas from stone sorting, stone dealing and trade access. Enrolees meet on a monthly basis with their mentors, and are given access to networking events, workshops and seminars alongside the LDB's Diamond Practical Knowledge course. After a period of mentorship, which can last anywhere from one to two years, successful mentees can receive a reference from a Bourse member, offering a professional vouchsafe that is critical for securing full membership. The programme seeks to enhance the knowledge and marketability of the mentees while preventing the diamond dealer from becoming a 'dying breed'.

The Women in Jewellery Network: Creating a Safe Space. A cornerstone of the LDB's current mission is its commitment to inclusivity, exemplified by the launch of the Women in Jewellery Network in January 2025. Jacqui Larsson noted the importance of this space; when she joined, "it was really, almost, a 'spot-the-woman-on-the-trading-floor' atmosphere." She admitted that the Bourse initially felt very intimidating.

However, this new initiative focuses on both educational and networking events, such as the popular 'Coffee and Diamonds' breakfast meet-ups, alongside a dedicated WhatsApp channel that is designed to connect

LDB president and CEO David Troostwyk and Charlotte Rose at FACETS2024, a conference hosted by the Antwerp World Diamond Centre.

> Much of the value of the London Diamond Bourse lies in the experiences of its people.

women across all facets of the industry. From diamond polishers to wholesalers and retailers, the Women in Jewellery Network is helping to break down old barriers and build professional support while providing a much-needed safe space for women in the industry. These goals go far beyond the casual networking; they are explicitly

intended to be a "platform to exchange information." According to Ms Larsson, "It is amazing the sorts of things and opportunities that can come out of just getting together. You might find that there are professional opportunities that come your way that you weren't aware of, or you learn about a new course that might be of interest." The ambition for, and progression of, the group is already international, with plans to collaborate with similar bodies, such as Women in Diamonds (Belgium).

NAVIGATING CHALLENGES AND DEFINING THE FUTURE

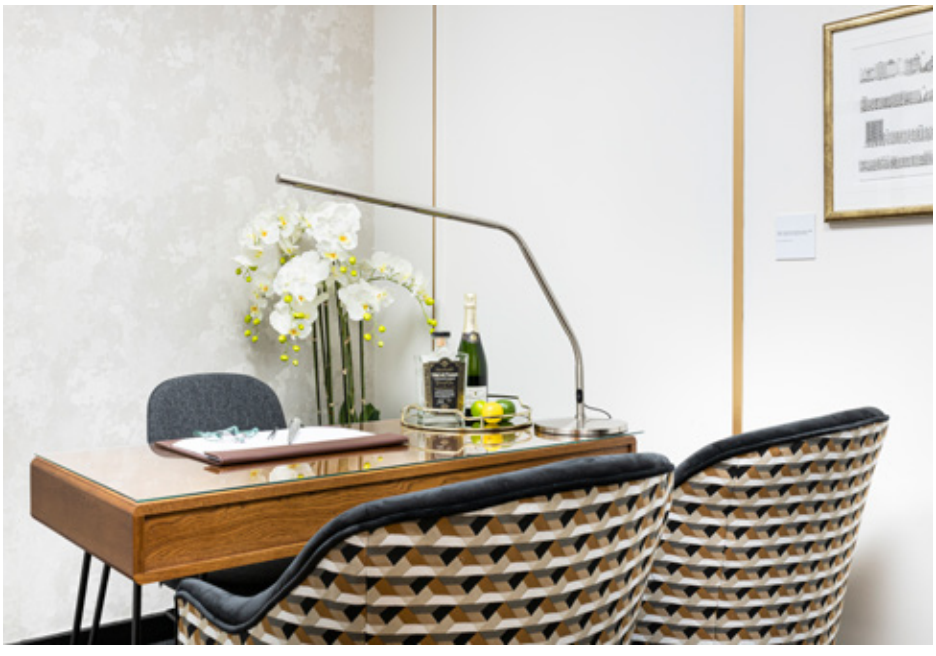
Ultimately, the LDB's future goal is one of strategic promotion and long-term protection. By leveraging powerful collaborations, the Bourse actively works to promote the natural diamond industry. This effort focuses on communicating the rarity, positive impact and storytelling of natural diamonds, an area the industry previously failed to champion effectively. The success, however, will be measured by its longevity and relevance. By championing initiatives like the Mentor Programme and the Women in Jewellery Network, it is proactively solving its greatest internal challenge: ensuring the pipeline of talent remains open and diverse.

In an industry increasingly defined by large-scale retailers and digital transactions, the London Diamond Bourse remains the critical, physical space where human expertise and integrity are the core currency, safeguarding the knowledge of the trade for future generations. Looking ahead, the LDB is securing its legacy not by rejecting change, but by driving it. As Charlotte Rose stated, the aim is for the next generation to look back at this period and recognise that the Bourse upheld tradition and integrity while successfully working to protect the industry.

Is this pledge a strong enough guarantee to ensure that the London Diamond Bourse will continue to be the heart of the UK's diamond trade for decades to come? Only time will reveal the full impact, but this concerted demonstration of focus and drive proves the LDB is moving in a positive trajectory. The organisation provides a clear example of what can be achieved through dedicated leadership and acting as a solid example for the wider trade. ■

Editor's Note: Mr Kleinberg conducted his interviews in September 2025.

All photos are courtesy of the London Diamond Bourse.



Top: The women of the LDB Board. Back (from left): Kathy Chappell, Stacey Aylott, Charlotte Rose and Jacqui Larsson. Front: Lisa Levinson and Deborah Smookler.

Left: Among the benefits of LDB membership is access to the Bourse's facilities, including the luxurious and private viewing rooms.

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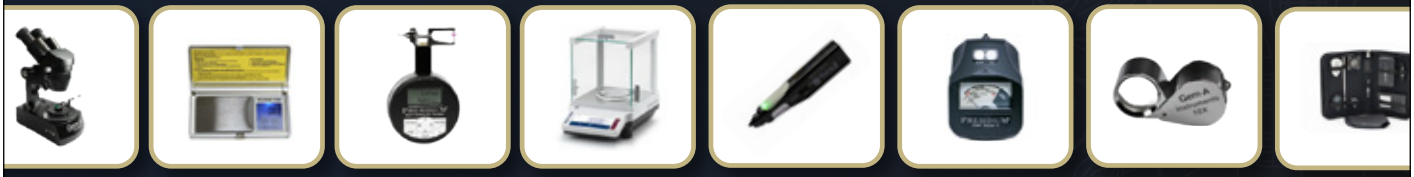

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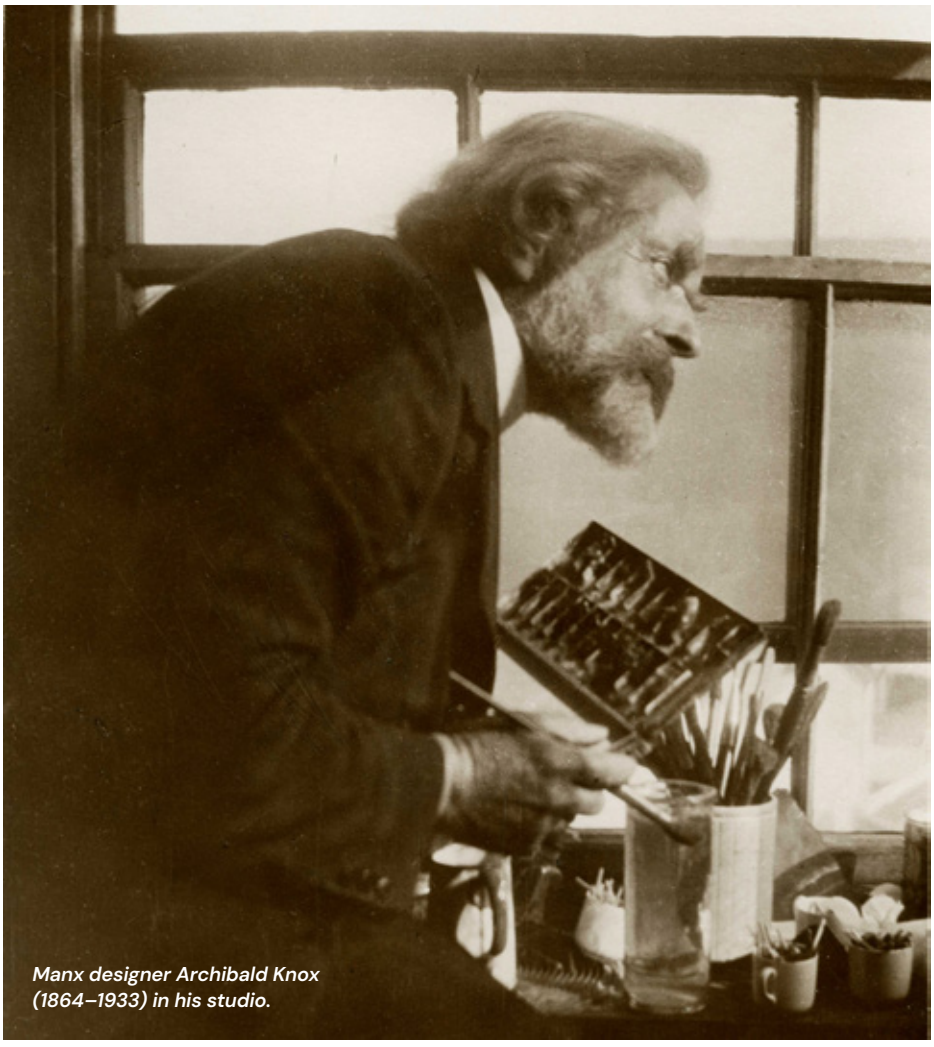
KNOX: Order & Beauty

at the Manx Museum on the Isle of Man

Jennifer-Lynn Archuleta describes the largest exhibition of the work of Archibald Knox, an influential designer at the turn of the twentieth century.

Manx designer Archibald Knox (1864–1933), known for his work as a designer with Liberty & Co., was a leading figure in the Arts and Crafts, British Art Nouveau and Celtic Revival movements at the turn of the twentieth century. The world's largest exhibition of works by Knox, including numerous pieces of jewellery and decorative objects, is currently on display in the National Art Gallery at the Manx Museum in Douglas. *KNOX: Order & Beauty* offers a rare opportunity to delve into the enduring legacy of this extraordinary designer. The show brings together more than one hundred pieces from Manx National Heritage's collections alongside over one hundred works from private lenders and museums, including the Victoria and Albert Museum, Peartree Collection and Titus Omega.

The name of the exhibition comes from a maxim Archibald Knox instilled in his students: "Aim at order, hope for beauty." A graduate of the Douglas School of Art (now University College Isle of Man), Knox took inspiration from the natural beauty found on the Isle of Man, as well as from the island's Celtic and Norse heritage. According to the BBC, Manx stone crosses inspired him from childhood, and are at the core of his designing sensibility. Knox's distinctive style had a profound effect on the era's aesthetics. He taught while still a student at the Douglas School of Art, temporarily leaving the Isle of Man when his career took him to London. There, his collaborations with Liberty & Co., as well as the commercial design →



Manx designer Archibald Knox (1864–1933) in his studio.

This pendant, created by Archibald Knox ca. 1900, is formed of two Celtic-style gold-wire work loops. The lower loop is a particularly interesting asymmetric modernist design. The pendant is set with twenty-four emeralds of various sizes. This design appears (as a necklace) in the Liberty jewellery sketch books (Model 8264).

company Silver Studio, transformed him into a pioneer of modern design.

Celtic design is associated with non-linear geometric design and inspired by natural forms with symbolism, stylised motifs or interlacing elements. The style gained popularity in the 1880s and continued into the twentieth century. Archibald Knox was the main designer for Liberty's Celtic range of metalwork (frequently described as 'Cymric', 'Tudric' and 'British Art Nouveau'). Liberty & Co. manufactured these pieces under their name (see pp. 18-23). Thus, Knox remained a 'ghost designer' and was not given credit for his work. After his death, however, his work became widely sought. His work gained prominence after a 1975 exhibition at the V&A, and shows spotlighting his work have continued to the present day. He was added to the Manx Patriots' Roll Of Honour in 2019.

Knox taught at various locations during the course of his career, including the Kingston School of Art, from which he resigned in 1912. In response, his students founded the Knox Guild of Design and Craft, which operated until at least 1935. A review in *The Times*, published in 1921 on an exhibition at the Whitechapel Gallery, noted that "The work of the guild combines utility and beauty in the most satisfying manner." Among the members of this guild was designer Mabel Pope, who created silver-and-gemstone jewellery according to Archibald Knox's principles. Knox acted as Master of the Guild, while continuing to teach on the Isle of Man, until his death in 1933.

The precious objects on display, both for the home and the human, are representative of Knox's sensibility. Of particular note are a necklace, dating from around 1900, with a pendant is formed from two Celtic-style gold-wire work loops and set with twenty-four emeralds in different sizes. Another necklace in the Arts and Crafts style, with blister pearls and enamel set in gold, was created for Liberty & Co. circa 1902. Other stunning jewels include a gold-and-opal brooch dating from the early 1900s; a gold pendant set with purple, blue and green opal plaques and Celtic knot shoulders; and a silver-and-abalone brooch with a gold pin and catch from 1905. Decorative objects include a Celtic-inspired vase comprising silver, turquoise and enamel and a silver-and-enamel scent bottle, from 1901 and 1905, respectively.

> Knox remained a 'ghost designer' and was not given credit for his work, but after his death his work became widely sought.

In addition to the array of jewellery and household objects created by Knox over the course of his five-decade career, the Manx Museum has on display rarely seen paintings, sketches, manuscripts, ceramics, textiles and furniture. Connie Lovel, chief executive of Manx National Heritage, said "We are truly thrilled to be hosting and working with the Archibald Knox Forum to jointly curate this unique exhibition, bringing together the world's largest-ever showcase of work from such an internationally renowned Manx artist. The island's cultural heritage helped inspire so much of his work and that

Archibald Knox designed this Cymric gold, blister pearl and enamel necklace (ca. 1902). The necklace appears as Model 8337 in the Liberty jewellery sketch book.

This stunning, large Cymric gold pendant (ca. 1900) is set with purple, blue and green opal plaques and Celtic knot shoulders. The 'cloisonne' or 'mosaic' opal style is found in Archibald Knox's most respected jewellery designs, and this pendant is considered one of the most striking examples.

continues to resonate around the world today. In fact, his Celtic-inspired works are now synonymous with Manx art and culture and this exhibition, in our National Art Gallery, will not only celebrate his legacy, but will be the first time many of the pieces will have been seen in public."

Chris Hobdell, founder of the Archibald Knox Forum, stated, "It is an honour to have jointly curated this outstanding exhibition with Manx National Heritage... it is only on the Isle of Man that one can begin to understand Knox and his work. He was inspired and motivated by the culture, history, spirituality and scenery of our extraordinary island. We invite visitors to come and see what inspired him for themselves."

Already attracting great interest both on- and off-island, the exhibition is part of a wider 'Isle of Knox' campaign, supported by the local government's Visit Isle of Man Agency, with associated events, walks, talks and workshops taking place through the beginning of 2026. ■

KNOX: Order & Beauty *is on exhibition at the Manx Museum in Douglas, Isle of Man, until 1 March 2026. Admission to the exhibition is free, with donations welcome. The museum is open daily from 9:30 a.m. to 4:30 p.m. (closed Christmas Day, Boxing Day and New Year's Day).*

All photos courtesy of Manx National Heritage, KNOX: Order & Beauty.

A gold brooch with a single opal, created between 1900–1904. Archibald Knox designed the brooch for the jewellery department of Liberty & Co.

Silvia Furmanovich Traces the Road from Inspiration to Creation

In a book review and subsequent interview with Brazilian jeweller Silvia Furmanovich, Christine Puleo Reis draws a connection between inspiration and creation.

This silk tapestry bracelet, set in yellow gold with orange sapphire, opal and diamond, was inspired by Ms Furmanovich's travels to Uzbekistan.

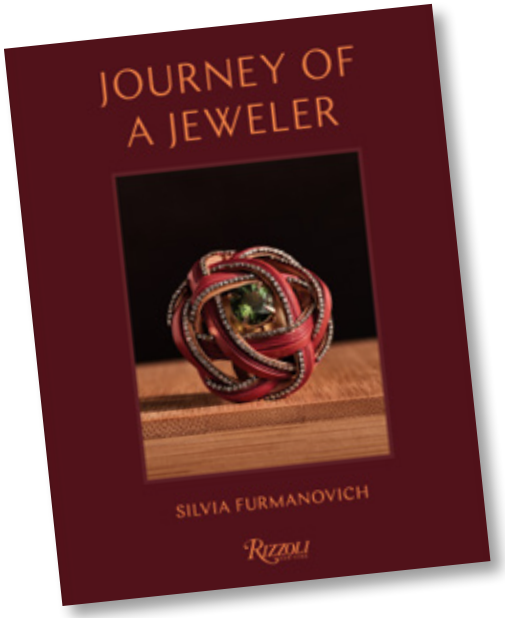
Silvia Furmanovich's latest book, *Journey of a Jeweler*, is aptly named. This visual odyssey sweeps readers into the world of the renowned Brazilian jewellery designer, offering a rare glimpse into the hidden enclaves of ancient craftsmanship across several continents. The book is a study of her relentless curiosity and her process, as well as the craftspeople with whom she collaborates.

Over the course of the book's 256 pages, it becomes abundantly clear to the reader that Ms Furmanovich is a global designer in the truest sense of the phrase. While her roots are Brazilian, her vision is borderless. She will spend months at a far-flung location discovering, learning and refining techniques and materials that continually push – and sometimes even shatter – the boundaries of what fine jewellery can be. Papyrus earrings studded with diamonds? Intricately tiered earrings fashioned from strands of horse mane? Such pieces are improbable, but Ms Furmanovich has proven that they are indeed possible. Her book reveals the journey from the spark of a fantastical idea to the completion of stunning reality.

> How does the designer manage to create pieces that are so intricate, so unexpected and so alive, yet so technically challenging, pushing the limits of imagination?

In the foreword, Stellene Volandes poses the central question she and many others have raised when discovering Silvia Furmanovich and her work: "Wait, what is that?" Not only does *Journey of a Jeweler* respond to this, but it also answers an even more complex inquiry: *How is it?* How does the designer manage to create pieces that are so intricate, so unexpected and so alive, yet so technically challenging, pushing the limits of imagination? Ms Furmanovich explains through an exploration of her travels and their impact on her practice. Chapters are organised by technique and location — starting with marquetry in the Amazon and ending with aforementioned horsehair weaving (known as *crin*) in Chile. Other adventures include bamboo weaving in Japan, miniature painting in India, silk weaving in Uzbekistan and working with papyrus in Egypt.

The book is itself is a work of art, rich with colourful photographs, sketches and exquisitely shot finished pieces that capture the full range of Ms Furmanovich's imagination and craft. She also pays homage to the many artisans she has met along the way of her travels, skilled artists whose names and faces might not otherwise have been well known outside these pages. Because of this, *Journey of a Jeweler* is a portrait not only of Silvia Furmanovich's vision, but of the global community of craftspeople who help bring it to life.



By Silvia Furmanovich and Melanie Grant, foreword by Stellene Volandes; hardcover; 256 pp.; illus.; publ. by Rizzoli International Publications; New York, NY; 2025; £47.50.

Ms Furmanovich was kind enough to take time from her busy travel schedule to share her perspectives on the book and on her work with Christine Puleo Reis.

CPR: For me, the highlight of the book is the inclusion of images of your richly illustrated, multimedia travel journals that trace your pieces from inspiration to final product. They are an aesthetic joy in themselves. Can you tell our readers more about your journals? When did you start this practice? How many have you created?

SF: My journals began as very personal companions. I started them decades ago, almost instinctively. I cannot draw professionally, so I started sketching patterns, pasting a scrap of fabric, writing down an observation or quote someone told me. Over time, they became a kind of bridge between experience and creation. I have filled countless journals by now — one per collection — because each journey has its own story. They hold memories, impressions, colours and emotions that later translate into collections. They are like little time capsules of inspiration.

Brazilian jeweller Silvia Furmanovich alongside the mosaic details of the Kunya-Ark citadel in the historic old town of Khiva, Uzbekistan.

Managing the supply chain is a challenge many jewellers share. In the chapter on marquetry, you start the process of becoming closely acquainted with your supply chain. The book shows how you work with a vast network of craftspeople around the world (notably, many of them are women). How do you manage such a far-flung group of artisans and deliver consistent and quality work?

Working with artisans across continents is both a privilege and a responsibility. It only functions through trust, respect, consistent visits and long-term relationships. I spend time traveling to their workshops, talking to them, listening to their rhythms and trying to understand how their traditions shape the pace and nature of their work. I don't 'manage' them in a corporate sense. It's more of a dialogue. We share the same commitment to excellence, and that shared devotion creates consistency. Many of these artisans, men and women alike, have inherited techniques that were passed down for generations. My role is to support their mastery, protect their working conditions and ensure that each piece created honours their craft.

What was the most challenging material to work with? I imagine it would be bamboo, as the line noting that it is 'stronger than steel' might suggest.

Bamboo was indeed surprising; its dual personality of delicacy and incredible strength demands patience and humility. The most challenging material is always the one you haven't yet learned to understand or commonly associate with jewellery. Once you discover how a material wants to be treated, the difficulty becomes a conversation, and a welcome challenge, rather than an obstacle.

You seem to have mastered a wide range of techniques yourself. Which technique do you have the greatest affinity for?

Marquetry is very close to my heart, because it feels like painting with wood. →

A page from Ms Furmanovich's travel journals shows sketches and photos of flora and fauna that have inspired jewellery pieces.

Each fragment has its own history and texture. But lacquer has its own poetry, too; it requires stillness, patience and a tremendously deep understanding of time. My real affinity is for the moment when technique and imagination meet, when something shifts from craftsmanship into expression.

A fascinating passage in the book takes place in Uzbekistan, where you detail the creation of carpets measuring 3x4 centimetres, with 1,600 needlepoints apiece.

You ultimately transformed these pieces into a collection of earrings finished with Brazilian gems. What was the reaction among the weavers when you proposed the idea of producing these tiny carpets?

At first, they looked at me with a mix of amusement and disbelief. They thought I was crazy. They couldn't imagine why anyone would want a carpet so small. But once they realised I wasn't asking them to change their technique, only the scale, they grew excited. The moment the first miniature carpet appeared, perfectly woven and full of soul, we all sensed we had crossed into new territory. It was a beautiful meeting point between tradition and imagination.

Papyrus is another radical idea for contemporary jewellery. Did anyone ever try to dissuade you from this, or from any of your other ideas? Just as an aside, a recurrent feature of the book is your plainly obvious persistence. Would you consider it one of your most salient features?

Papyrus definitely raised some eyebrows! A few people gently wondered if it was practical. But when an idea captures me completely, I feel compelled to pursue it.

Persistence is absolutely part of who I am. I will never give up on going after what I am interested in and will do what I believe in. When I work with materials that carry centuries of meaning, I feel responsible for finding the right form to honour them, no matter how many attempts it takes.

> "I hope readers see that jewellery can be a portal into culture and history, an invitation to slow down, to look closely and to appreciate the hands that keep traditional techniques alive."

An experienced person knows that failures often teach more than successes. Have you ever tried to innovate with materials or processes that simply never made it beyond your sketchbook, or perhaps the prototype phase?

So many times that I have lost count! My studio is full of prototypes that were beautiful ideas but not technically feasible, or pieces that simply didn't feel right once they existed. But I never consider these outcomes failures. They are part of the creative evolution.

Sometimes I revisit a sketch years later with new knowledge or new collaborators, and suddenly it works. Nothing we learn along the way is ever wasted.

What's next for Silvia Furmanovich? Can you offer your legion of fans and collectors some clues about a future collection?

I just came back from Japan, one of my favourite places on the planet, and I had the good fortune to visit five different artisans who are considered Living National Treasures. This is the highest designation the government of Japan will give to a living artisan at the top of their field. You can only imagine what an honour it will be to collaborate with them!

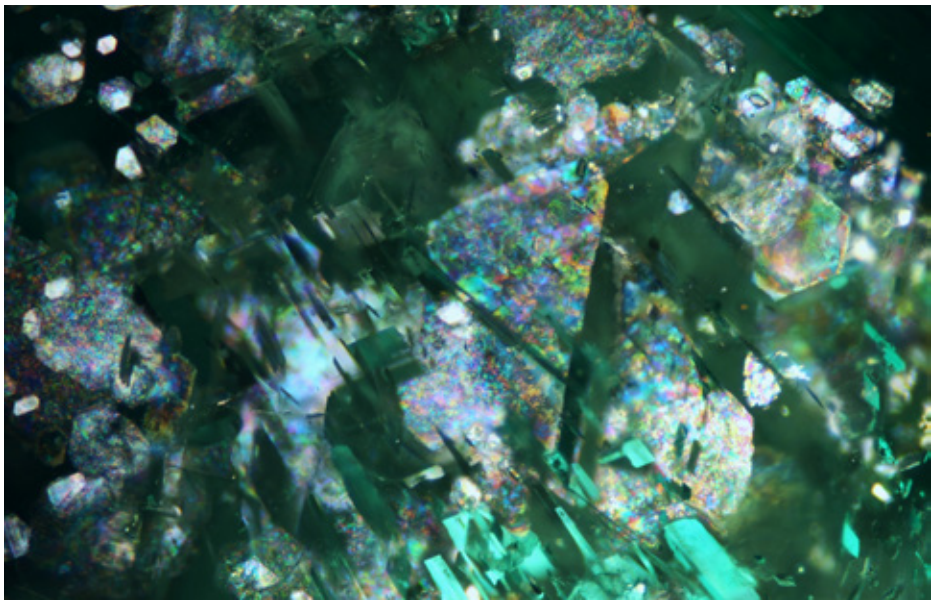
Silk tapestry earrings set in yellow gold with tanzanites, pink tourmalines and diamonds.

Butterfly earrings in wood marquetry set in yellow gold with citrines, fire opals and diamonds.

Finally, what do you hope readers take away from the book?

The book grew out of a desire to bring together everything that has shaped my creative life: my travels, my curiosity about the world and my deep admiration for ancestral craftsmanship and things made by hand. For years, people asked how an idea becomes a piece of jewellery, and I realised the answer lived in the stories, textures and encounters I collected along the way. I hope readers see that jewellery can be a portal into culture and history, an invitation to slow down, to look closely and to appreciate the hands that keep traditional techniques alive. If the book inspires a sense of wonder and respect for these traditions, then it has done its job. ■

All photos courtesy of Silvia Furmanovich, © Journey of a Jeweler, *Rizzoli, 2025.*



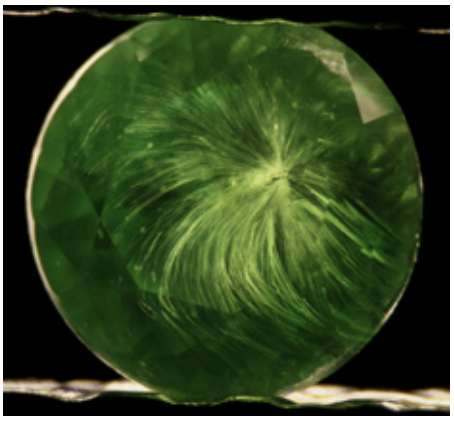
Oriented syngenetic mica exhibiting vivid iridescent colours in a Zambian emerald. This image was featured on the longlist of the 2024 Gem-A Photographer of the Year competition. Image captured with a Leica S9D and Canon EOS RP under darkfield and fibre-optic illumination. Focus stacked; field of view: 3.5 mm.

In Praise of Photomicrography

Keith Chow, the first- and third-prize winner of our 2025 competition, shares his thoughts on capturing the inner world of gemstones.

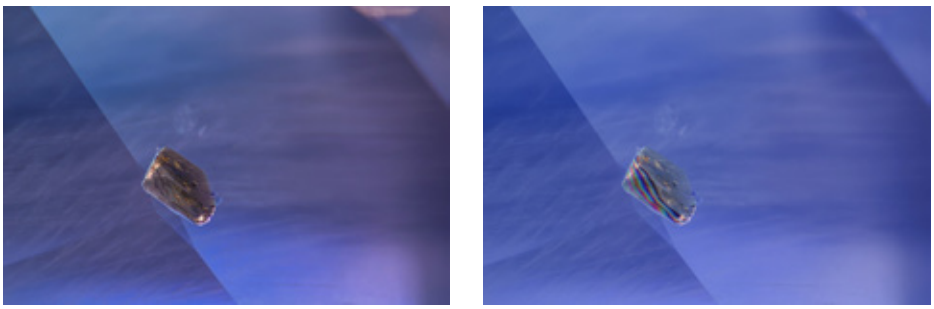
When studying a gemstone, the first impressions of size, colour, transparency and cut are naturally important. These elements shape our initial response and sense of attraction. For gemmologists – who are encouraged to look beyond the surface and explore the inner world of a gemstone – this is only the beginning of the journey. Through the examination of fluid inclusions, solid inclusions and structural features, we begin to understand the conditions under which the gemstone formed. Each detail is a record of aspects of its growth environment and geological history, offering clues to its origin as well as evidence of any post-mining treatment. This practice deepens our appreciation of gemstones and allows us to read them like a story that can be carefully observed, interpreted and described.

Photomicrography plays an important role in this process. It provides a means for gemmologists to present what they observe and interpret from inclusions, while documenting evidence that supports their conclusions. At the same time, these records also capture something less tangible: the passion behind the work. Through careful documentation, gemmologists preserve knowledge for future generations. Some explore inclusions in-depth to encourage younger gemmologists to experiment with different approaches to examination. Others use photomicrography as a creative tool, offering perspectives that inspire artists, jewellery designers and gemstone collectors alike.



Horsetail-like fibrous inclusions in a Russian demantoid garnet. This is one of the author's early inclusion photographs, captured while studying for his Gem-A Gemmology Diploma.

What inspires me most is not only the inclusions, but the dedication and passion with which people work in gemmology. This journey reflects the spirit behind 'Deeply Inspired', a theme of the House of Gübelin. Ultimately, it is the internal world of gemstones that leaves the strongest impression, one that remains with us long after the first glance at a specimen. I sincerely hope this passion continues to inspire those people along their own journeys. From the mine to the market, and finally to the wearer, it is important for us to remember that gemstones are not merely products and gemmology is not just a field of scientific study. Rather, they are both sources of inspiration and wonder. ■



A biotite crystal in an untreated Sri Lankan blue sapphire. The image on the left was captured under native lighting conditions, while the right-hand image was recorded with polarisers applied, revealing vivid interference colours. Both photos were captured with a Leica S9D and Canon EOS RP under darkfield and fibre-optic illumination. Focus stacked; field of view: 3.5 mm.

All photos by Keith Chow.

AT THE INTERSECTION OF GEMOLOGY AND EDUCATION

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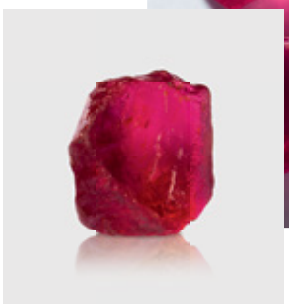

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