Gems & Jewellery

Autumn 2018 / Volume 27 / No. 3

WELCOME TO CONFERENCE

THE STORY OF NAXOS

LALIQUE IN LISBON

DASHING GENTLEMEN

CANADIAN TREASURES

Gem-A
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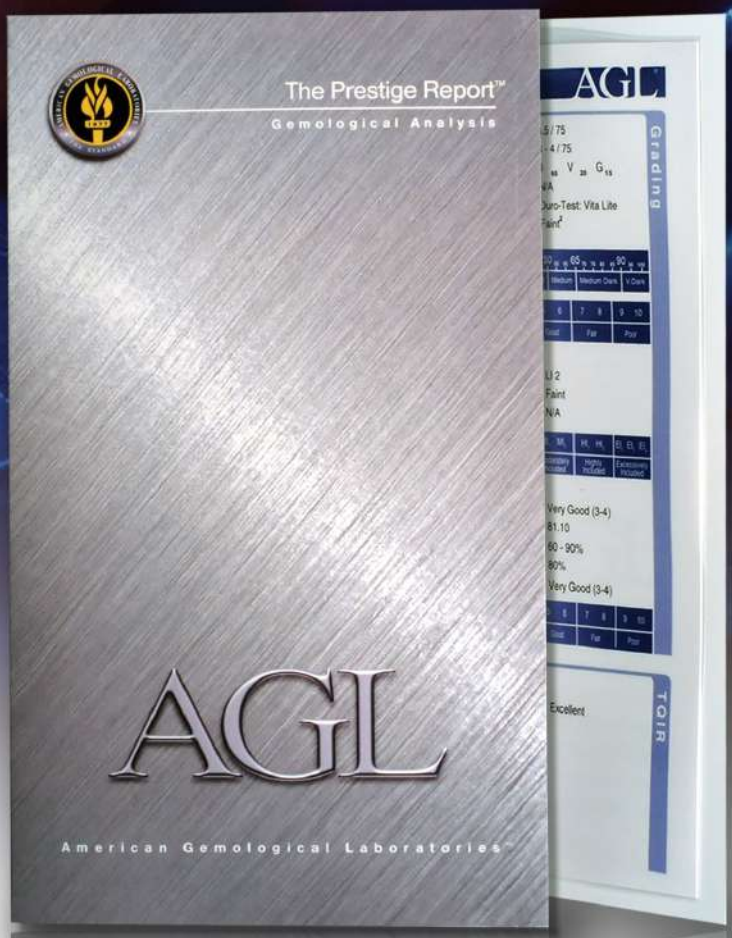

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Gems&Jewellery
AUTUMN 2018

CANADIAN TREASURES

Deborah Craig FGA DGA, director of International Women in Mining, explores the Royal Ontario Museum's stellar collection of gems and precious metals to discover more about Canada's incredible mining heritage.

LALIQUE IN LISBON

We discover an awe-inspiring collection of jewels and a trove of masterpieces by renowned Art Nouveau jeweller René Lalique in the Calouste Gulbenkian Museum, just a short walk from the heart of Portugal's capital.

THE STORY OF NAXOS

Helen Serras-Herman FGA takes us on a tour of the beautiful Greek island of Naxos and shares insights into the marble, emery, flint and gold that shape its history.

COVER PICTURE

Trigons and growth marks on a diamond macle; field of view, 2.81 mm; imaged using episcopic differential interference contrast (DIC). Image by Ziyin Sun.

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Gems&Jewellery

Autumn 2018 featured contributors

1. DEBORAH CRAIG

Deborah Craig FGA DGA, is a board member of International Women in Mining, which connects and supports women working in mining across the globe. She is also currently developing a mineral exploration project in Africa. Deborah has a special interest in the industrial mining of gemstones and has previously written about the Chimwadzulu Hill sapphire mine in Malawi, and the Aappaluttoq ruby mine in Greenland, for *Gems&Jewellery*.

2. HERIZO HARIMALALA TSIVERISOA

Herizo, also known as Zo, is a geologist, lapidary trainer and the former head of the lapidary and jewellery department at the Institut de Gemmologie de Madagascar. In 2015, Zo was part of a project developed with the Centre for Social Responsibility in Mining (SMI-CSRM) in Australia and supported by the International Mining for Development Centre (IM4DC) to deliver training for women in mining in Ilakaka, Madagascar. The project aimed to improve the position of women in the sapphire business and to create sustainable revenue streams for communities. Zo was also a gemstone training specialist for an economic empowerment program designed for women in opal mining in Ethiopia.

3. BARBARA PALUMBO

Barbara Palumbo is a freelance writer, editor and public speaker in the luxury jewellery and watch industry. Barbara is the creator and editor of *whatsonherwrist.com*, a blog dedicated to women's watches, men's watches from a woman's perspective, women who hold leadership/executive roles within the watch industry, and women who are watch collectors/lovers. Barbara is also the founder and editor of *Adornmentality.com*, the Watch Editor for *The Jewlery Book* and is a contributor to various publications including *Instore Magazine*, and *Watchonista Online*, and has been nominated twice for Women's Jewelry Association Award for Excellence in Editorial Media.

4. KERRY GREGORY

Kerry Gregory FGA DGA is a Gem-A tutor and Board Member. Following a career in pawnbroking, Kerry founded her new business, 'Gemmology Rocks' in 2017, which specialises in providing affordable and accessible gemmological support to businesses in the industry, with a focus on commerciality as well as practical advice.

5. HELEN SERRAS-HERMAN

Helen Serras-Herman FGA, a 2003 *National Lapidary Hall of Fame* inductee, is an acclaimed gem sculptor with over 34 years of experience in unique gem sculpture and jewellery art. Her award-winning artwork has been exhibited world-wide and published in over 200 trade magazine articles and books. Visit her website at www.gemartcenter.com and her business Facebook page at Gem Art Center/Helen Serras-Herman.

Straight from the heart

Opinion and comment from CEO, Alan Hart FGA DGA

There is nothing like giving a talk on the Crown Jewels of the United Kingdom to remind you about the fascinating history that's right on our doorstep. From Prince Albert re-cutting the Koh-i-Noor, to the incredible Cullinan diamonds that Queen Elizabeth II pins to her lapels, the Crown Jewels are made up of stories that dazzle to this day. I was thrilled to share a handful of these tales with the audience at The JTV Experience in Knoxville, Tennessee, from July 31 to August 3. This four-day event focuses on gemstone education, inspiring guest speakers, and hands-on jewellery making classes. It was a great experience and a good example of the long-term relationship that exists between Gem-A and JTV. The next milestone is the Gem-A Conference, where JTV will return as a Platinum Sponsor from November 3-4, 2018.

In fact, there is still time to book your tickets to the Gem-A Conference, so don't miss out. It is going to be a fantastic event this year, with a whole host of speakers delivering insightful presentations on issues as diverse as coloured diamonds, gemstone cutting, Fijian pearls and the sustainability of coral. I am particularly looking forward to boarding the Elizabethan – a replica 1890s stern-wheeled Mississippi paddle steamer – for our celebratory evening event on Saturday, November 3. The journey along the River Thames will provide an opportunity to see the sights of London at night, which even those of us who live in the city are looking forward to! I will see you all there, bright and early, on the first Saturday in November.

In the meantime, you've got the latest issue of *Gems&Jewellery* to sink your teeth into. Our editorial team are always looking for fresh voices and new content, so if you have an idea that you think would make a great article, just ask for Sarah Jordan or Sarah Bremner at the Gem-A Conference — they will be happy to help. In this issue, we take a trip to Canada with Deborah Craig FGA DGA, consider the recycling of gemstones with Kerry Gregory FGA DGA and delve into the René Lalique collection at the Calouste Gulbenkian Museum in Lisbon, Portugal. There are also some engaging photographs by Charles Evans FGA DGA and some insightful interviews with jewellery journalist, Barbara Palumbo, and Malagasy lapidary and jewellery trainer, Zo Harimala.

It is that time of year again when we think about our new crop of students, all beginning to carve their own paths in gemmology. Although our Online Distance Learning students began this summer, our in-house Gemmology Foundation, Gemmology Diploma and Diamond Diploma students are just a few weeks in. I hope you will share your words of encouragement when you meet them at the Gem-A Conference.

> **...the Crown Jewels are made up of stories that dazzle to this day. I was thrilled to share a handful of these tales with the audience at The JTV Experience in Knoxville, Tennessee...**

The Elizabethan will take Gem-A Conference attendees on a trip down the Thames.

Best wishes
Alan Hart FGA DGA

Gem-A News

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

NEW DESIGN DARK-FIELD LOUPE

If you haven't yet invested in a dark-field loupe now is the perfect opportunity to take advantage of a new and improved design by Gem-A Instruments.

More compact and simple to use, with no assembly required, this new style loupe is ready to use straight out of the box with a quick twist of the torch. The addition of two easily replaceable CR2032 batteries ensures a bright light source for clearer gemstone observation, and the lightweight case enables the loupe to be safely stored and transported when you're on the move.

For those unfamiliar with this particular loupe, the main advantage is that a gemstone is observed against a dark background with lateral illumination, allowing for easier study and identification of coloured gemstone inclusions and fracture-filling. A highly recommended piece of equipment, this loupe is especially useful for trade professionals and anyone with a keen interest in gemstones. ■

Retail price £54 + VAT
Current Gem-A members and students receive a 10% discount on instruments.

If you require any further information, advice or simply wish to make a purchase please email instruments@gem-a.com

WARM WELCOME TO NEW FACES AT GEM-A

Over the summer we've gained some new members to the Gem-A team here at our London headquarters in Ely Place!

Ranvir Kandola joins as our new Marketing and Events Coordinator, and we have strengthened the Gem-A education team with the addition of Dr Juliette Hibou and Charlie Bexfield who both join as Gemmology Tutor Assistants.


Ranvir Kandola


Dr Juliette Hibou


Charlie Bexfield

EVENTS

Gem Central: The Crown Jewels
29 November 2018.
Gem-A Headquarters,
21 Ely Place, London.
Nivek Amichund, Chief Warden of the British Crown Jewels is giving a talk about the collection.

FEEG SUCCESS!

Congratulations to all our students, staff and members on their FEEG (Federation for European Education in Gemmology) results this summer. Use your new EG post-nominals with pride!

WORKSHOPS AT GEM-A HQ

Ruby, Emerald, Sapphire (Intermediate)
26 Oct 2018

Understanding Diamond Grading
16 Nov 2018

Understanding Diamond Simulants
23 Nov 2018

Investigating Gemstone Treatments
7 Dec 2018

For more information contact the Educational Department via: education@gem-a.com

Price: £135 for Gem-A members, students and NAJ members; £165 for non-members

MEET NYSA PRADHAN

We are thrilled to welcome Nysa Pradham as the new Head of Education at Gem-A. Here we find out how she is adapting to her role by stopping by her desk at Gem-A HQ...

Welcome! How are you settling in at Gem-A?

Very well, thank you! The staff, members and the industry have been very welcoming. So far I've had the opportunity to interact and engage with the trade through International Jewellery London (IJL) and the Hong Kong Jewellery & Gem Fair, which were both amazing events. I am currently in the process of understanding the business and our current operations, which are complex considering the size of the organisation and the people within it. I am hoping to get an overall understanding of Gem-A before I can start looking at the way forward.

What drew you to Gem-A?

I have always been passionate about education, which for me is quintessential to an individual's professional and personal growth. Education for me is all about understanding the path towards the betterment of self and society. It is this passion that led me to work in the education sector for many years. My interest in gemmology is all down to my grandfather and mother, who have, for a long time, had an interest in gems and their powers. Gem-A as an association has a long and vibrant history that is rooted in a solid academic grounding, something which is well-respected globally. For me, it is an honour to be part of such a prestigious association and I am very excited to work with my peers and colleagues to grow it further, in serving our members, students and the gemmological community.

What are you most looking forward to in your new role?

Oh, that's a tricky one. There are so many things because there are numerous opportunities that can be explored to take the Gem-A education offering to the next level of excellence. However, the one thing I am looking forward to now is to work with the team to get a full overview of Gem-A, and put together a plan for a full review of all our courses that will more closely align them with the changes and developments in our industry.

As our new Head of Education, what role do you think Gem-A has in the international gemmological community?

Gem-A plays a very important role in the international gemmological community being the longest-standing association providing gemstone education. We are in a unique position to inspire the public to engage with the science of gemmology and consider careers within the industry through our Foundation and Diploma courses and through greater engagement with the public from school level and beyond. I'd like to think that we can leverage our brand and our offering to create greater engagement with the public and gemmology enthusiasts.

We have an amazing pool of members who have contributed in many ways to Gem-A and the industry. We are in a position to provide solid continuing professional development opportunities to our members so that they can remain current in their knowledge. How will we do that? Well, firstly it will be through embracing technology and the development of our online learning, massive open online courses and greater engagement using digital and social media. There are opportunities for us to collaborate and work with our industry partners to develop initiatives that better engage and serve our members and the community. ■

GEM-A ONLINE

Top stories from the Gem-A blog

Don't Miss! The Gem-A Heritage Series: Head over to our website to read about the fascinating individuals and leading gemmologists who have shaped Gem-A, including Basil Anderson, Robert Webster, Sir Henry A. Miers and more.

Speaker in the Spotlight: Are you counting down the days until Gem-A Conference? Don't miss interviews with each of our incredible speakers on the Gem-A Blog. This is the ideal way to get a sneak peek of the insightful presentations they will deliver on November 3 and 4.

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Head to the **News & Blogs** section of **gem-a.com**

Waiting for the lift, Kimberley, South Africa

Charles Evans FGA DGA shares the story behind his photo of miners at the 'Joint Shaft' that serves both the Bultfontein and Du Toitspan mines, operated by Petra Diamonds in South Africa.

Three men waiting for a lift to the surface posed for this cheerful photo at one of the lower levels of the 'Joint Shaft', so-named because it serves both Bultfontein and Du Toitspan in Kimberley, which are both Petra Diamonds assets.

The white particles on the ground are an anhydrous salt that was spread by one of their colleagues, in the background, pushing a salt-spreader like he was fertilising his lawn on a weekend. The red carriage on the left transports explosives securely. These are run as close to the blast face as possible on tracks because it minimises the risk of accidents. Blasting occurs once a day at the end of a shift.

The colours of overalls and hard hats denote seniority and job roles. The belt-worn aluminium boxes that you can see at the men's waists are compulsory for all workers and visitors. They are a self-contained breathing system that provides 20 to 30 minutes of oxygen in the event of an emergency.

More difficult to spot is the flat lens that is clipped to the centre of the hard hat's peak. Again a compulsory item, this connects every person and every item of moving machinery to proximity alarms so, if a vehicle in a tunnel were to approach someone unsighted, both the operator of the vehicle and the pedestrian would be warned. If the two appeared on a collision course, the vehicle would automatically stop.

Some workers prefer steel-toe-capped Wellingtons ('gumboots') over regular safety shoes, particularly if their roles take them to some of the wetter areas of the mine. Indeed, after this picture was taken, Bultfontein had a major 'mud-push' incident in June (slower and with higher viscosity than a mud rush). While the excellent safety awareness and procedural discipline meant there was no loss of life, the mine has closed pending assessments and this may, sadly, result in 150 job losses. Neighbouring Du Toitspan mine had similar incidents in 2005 and 2011. ■

Photo Credit: Charles Evans FGA DGA.

"What constitutes an exceptional item? A large ivory Shibayama panel? A baby's silver rattle?"

As the government consultation on the UK ivory trade ban continues to evolve, Gem-A president, Maggie Campbell Pedersen FGA ABIPP, reports on the latest developments and the questions that need answers.

In the last issue of *Gems and Jewellery* (Summer 2018/Volume 27/No.2), I wrote that the proposed bans and their exemptions covered only ivory from African and Asian elephant tusks, in spite of the fact that other ivory-bearing animals are now also under threat.

Evidently notice has been taken of this fact and the government is now planning another consultation on whether or not to include hippo, walrus and narwhal ivories in the ban. They might even go further and cover all ivory, including mammoth.

It is a shame to have to add mammoth ivory to the list when the animals are already extinct and our use of the material therefore cannot harm them, but it makes sense to do so because mammoth and elephant ivories are the two most difficult to tell apart. At present mammoth can be freely traded, while all other ivories come under the *'must have been significantly altered pre-1947'* rule.

The date March 3, 1947 was chosen because it was exactly 50 years before the EU Wildlife Trade Regulations came into effect – in other words, the bans were back-dated, but the date chosen was not based on anything scientific. Ivory is dated by carbon-14 testing in a specialised laboratory, which can tell us when the animal died (and thus ceased to absorb ^{14}C). This, however, is very inaccurate up until the mid-1960s when the atomic bomb testing caused a spike in ^{14}C in the atmosphere, which meant the ages of ivory could be far more accurately assessed. While the laws are being changed, it would make sense to abandon the old 1947 rule and bring the cut-off point forward to 1967.

Items in one exemption group, which covers anything deemed to be of exceptional artistic or historic value, must in future be over 100 years old. This group will undoubtedly cause problems. Firstly, we will not be accurately able to test the age of an item, but will have to rely on expert opinion. And what constitutes an exceptional item? A large ivory *Shibayama* panel from the nineteenth century would undoubtedly be considered special, but what of a small item such as a dish? And what of an Edwardian baby's silver rattle? According to the proposals, those with a coral teether could be sold, while identical ones with an ivory teether could not.

There are still many questions that remain to be answered about the ivory trade bans. ■

Edwardian Baby's Rattle with Ivory Teether.

© Maggie Campbell Pedersen.

GEM-A BRAVES TYPHOON FOR SUCCESSFUL HONG KONG JEWELLERY & GEM FAIR

The Gem-A team battled howling winds and pouring rain in the pursuit of gemmological gains at this year's Hong Kong Jewellery & Gem Fair, hosted from September 14-18. Despite being forced to close on September 16 due to Typhoon Mangkhut, the atmosphere at the event was wholly positive and the Gem-A team welcomed countless gemmology enthusiasts, students, members and ATC representatives to a British-themed stand (complete with a traditional red phone box). Highlights included ATC takeovers, allowing Gem-A partners from across Asia to speak with visitors directly about their services, and a 'Guess the Gemstone' competition that proved particularly popular (and challenging) for both professionals and students alike!

On Monday, September 17, the second annual Gem-A Members' Gathering welcomed a sizeable crowd for drinks, nibbles and plenty of gemmology-themed conversation. Don't miss your chance to join us next year from September 18-22, 2019.

THE ROCK HOUND

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Editors' Choice, Techincal Trailblazer - International Jewellery London 2017

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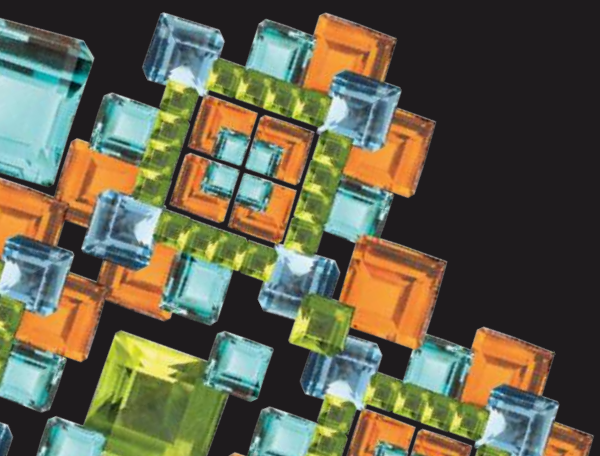

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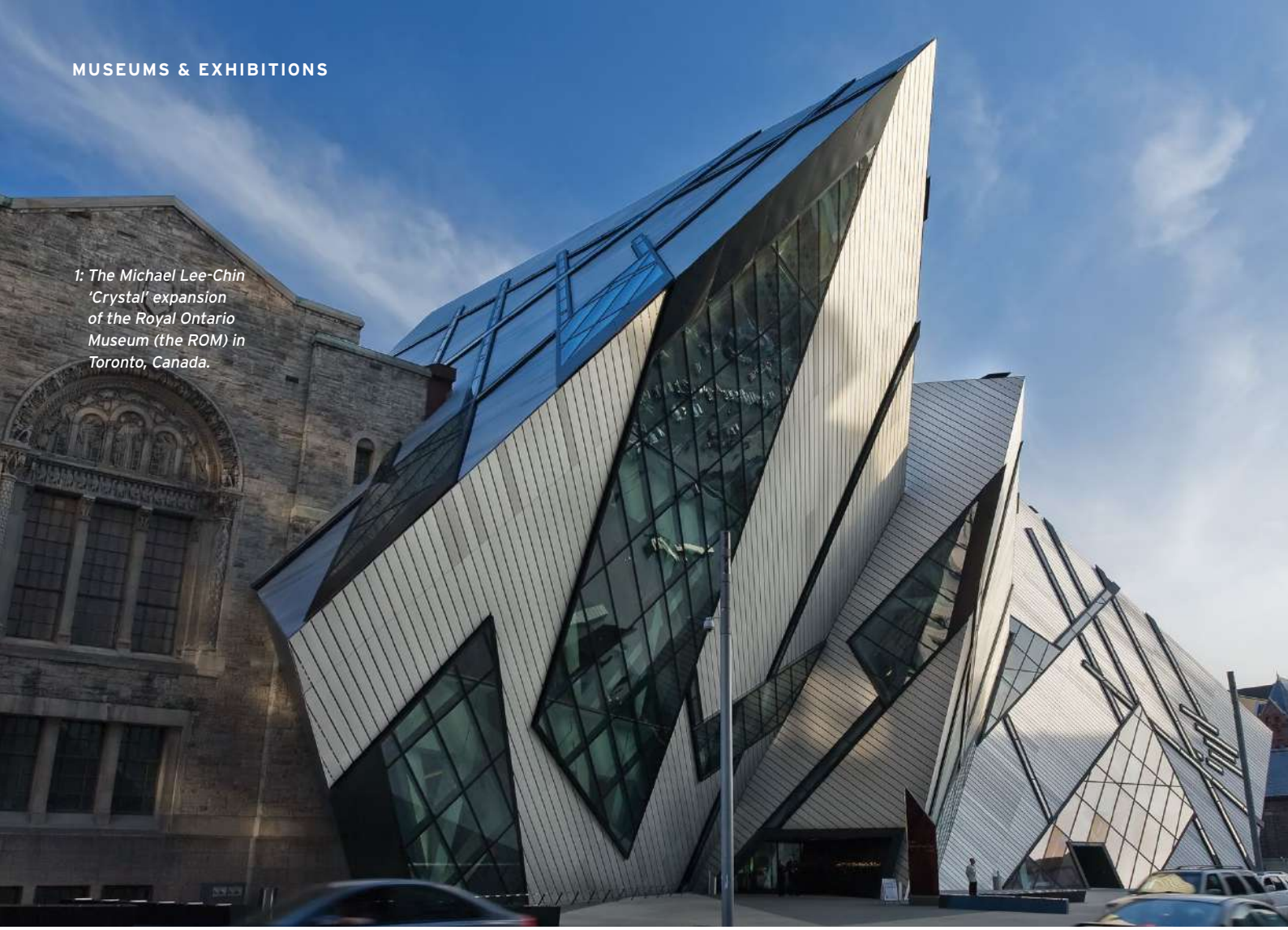


1: The Michael Lee-Chin 'Crystal' expansion of the Royal Ontario Museum (the ROM) in Toronto, Canada.

CANADIAN TREASURES

To discover more about Canada's incredible mining heritage, Deborah Craig FGA DGA, director of International Women in Mining, visited the Royal Ontario Museum's stellar collection of gems and precious metals.

In 1842, by foot, horse or canoe, surveyors explored the new colony of Canada, laying the foundations for the development of Canada's mineral resources. Fast forward to today, and Canada is a premier mining country providing geological and mining expertise on a global basis. This tradition informs the world-class gem and mineral collection at the Royal Ontario Museum (the ROM) in Toronto, Canada. Outstanding specimens collected by world-travelling Canadian geologists sit proudly beside bequeaths and acquisitions.

For gemmologists, the pleasure begins immediately upon approaching the museum. From the rather staid original building explodes a massive glass and aluminum crystal formation. This is the Michael Lee-Chin 'Crystal', a multi-million dollar expansion project, completed in 2007 as part of the 'ROM Renaissance'. Inspired by the ROM's gem and mineral collection, Berlin-based architect Daniel Libeskind sketched his ideas on napkins while attending a family wedding at the museum. Towering over pedestrians on Bloor Street, the Crystal provokes either delight or despair in those who encounter it (**1**).

We ascend to the Teck Suite of Earth Science Galleries, so named to recognise the Canadian mining house that donated $10 million toward its upgrade. First, we transverse the Vale Inco Limited Gallery of Minerals (**2**): to our left are thematic mineral display cases, to our right is a mineral classification system like the

2: The Vale Inco Limited Gallery of Minerals.

3: A display case showcasing different types of lustre within the Vale Inco Limited Gallery of Minerals. Photo by Deborah Craig.

one found at London's Natural History Museum. In the centre of the gallery are cases highlighting familiar mineral properties, such as lustre, hardness, fracture and crystal systems (**3**).

The museum welcomes 150,000 school children each year and strives to combine educational content with aesthetic appeal. Mock displays are meticulously arranged and re-arranged 'off stage', before being debuted in the galleries. The curator of the galleries is Kimberly Tait PhD, and her love of minerals and mineralogy is evident throughout.

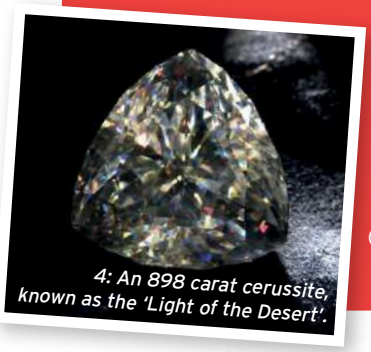
And now we reach the vault-like Gallery of Gems and Gold and the treasures within! The permanent collection includes 1,000 gems, including a mix of crystals, faceted stones and jewellery pieces, plus 70 gold specimens.

Upon entering the gallery, we are immediately dazzled by two showstoppers. The first is one of the ROM's 15 'Iconic Objects': the 898 carat 'Light of the Desert', the world's largest faceted cerussite (**4**).

Understanding Cerussite

Cerussite, $PbCO_3$, is a lead carbonate known since antiquity. Its name comes from the Latin word 'cerussa', which describes a white lead pigment. The mineral is transparent to translucent, and colourless to white to greyish, although if copper impurities are present it can be blue to green. Collectors are attracted to cerussite because of its bright adamantine lustre, which is similar to that of diamond. Its dispersion, caused by the splitting of white light into a spectrum of colours, is even greater than diamond. A faceted cerussite, therefore, has tremendous fire and brilliance.

However, the true beauty of this gemstone is not easily revealed: cerussite is soft (Mohs scale 3–3.5) and very brittle, sensitive to thermal and physical shocks, and cleaves easily. The heat generated when polishing and grinding the stone can shatter it, so extreme care must be taken when faceting. Cerussite is found in Namibia, Australia, Bolivia, Spain, Arizona and California.



4: An 898 carat cerussite, known as the 'Light of the Desert'.

5: The Star of Lanka, a 193 carat star sapphire from Sri Lanka.

The specimen is so named because of cerussite's fiery light dispersion, which rivals that of a diamond. The name 'Desert' is drawn from the two deserts integral to its story: Tsumeb, in Namibia, where the stone was found, and Sedona, Arizona, where the soft and brittle mineral was painstakingly faceted by Maria Atkinson. The inclusion-free stone, four times larger than the next largest faceted cerussite, is one of the world's most spectacular gemstones.

The second showstopper is the Star of Lanka, a 193 carat milky greyish-blue star sapphire from Sri Lanka. This extraordinary gemstone, which holds its own against the Star of India and Star of Bombay, was acquired by the museum in 1958 from Allan Caplan, the famous New York-based gems and mineral dealer (**5**).

The Gallery of Gems and Gold includes 25 separate cases, labelled in English and

6: A display case devoted to spodumene and topaz within the Gallery of Gems and Gold.

7: A beautiful array of garnets on display within the Gallery of Gems and Gold. Photo by Deborah Craig.

Canada is among the top gold producers in the world, and the Gallery of Gems and Gold hosts impressive specimens from Canadian gold mines.

8: An example of cuprite – a copper oxide also known as 'ruby copper' because of its carmine-red colour.

9: An example of a faceted kyanite in the Gallery of Gems and Gold.

French, Canada's two official languages, and augmented by animations and multimedia. The sapphire, garnet and tourmaline cases exhibit the wide range of colours of each species. There are also cases devoted to opal, jade, tanzanite, spodumene, topaz and diamond (**6** & **7**).

Talc has a hardness of 1 on the Mohs scale, but this has not stopped it from being faceted and displayed in the 'collectors gemstones' case, which includes rare and unusual gemstones not typically used in jewellery because they are too soft or brittle, or sensitive to light and heat. Other examples include: villiaumite, a soft, rare halide mineral; kyanite, which has variable hardness and a fibrous nature; and cuprite, a copper oxide, also called 'ruby copper' because of its carmine-red colour (**8** & **9**).

The museum has collected gemstones from around the world, but what treasures does it hold that are distinctly Canadian? Canada is among the top gold producers in the world, and the Gallery of Gems and Gold hosts impressive specimens from Canadian gold mines. Next to a football-sized gold nugget stands a dendritic gold specimen – considered to be one of the finest – from the Pioneer gold mine in British Columbia. The delicate branch-like gold spreads upward caressing the white calcite matrix, creating the impression of an intricate sculpture (**10**).

Mont Saint-Hilaire, in the Montérégie region of southern Quebec, is a mystical place considered a sacred site of the Algonquins (the indigenous inhabitants of North America), an enchanted home of fairies, and a location of frequent UFO sightings. The mountain is also the source of a vast array of rare and exotic minerals, making it an important mineralogical site. For decades, Gilles Haineault has prospected this magic mountain and his collection of gemstones, the Mont Saint-Hilaire Suite, is on display at the ROM.

There is a 14 carat champagne-coloured hackmanite, a variety of sodalite. A rare optical phenomenon called tenebrescence means the hackmanite appears pale to deep violet when first mined, but the colour fades on exposure to sunlight. The stone regains its colour, however, when placed in the dark. There is also a 7 carat colour-change remondite-(Ce), burnt orange in incandescent light and yellowish-green in fluorescent light.

It is only fitting that we end our tour with a stop at the Canadian Mining Hall of Fame Gallery, which presents the stories of 137 influential Canadians and their contribution to the mining industry, and by extension, to these world-class mineral galleries. I would highly recommend a visit. ■

10: A dendritic gold specimen from the Pioneer gold mine in British Columbia (pictured far left). Photo by Deborah Craig.

Welcome to London

With the Gem-A Conference just a few weeks away, Gem-A's Head of China, Jessica Han FGA, shares how the Association is growing in the country and insights into the Chinese delegation that will be arriving in London in November.

As the Chinese saying goes, "It takes time for a trend to develop; the same is true for the success of a great undertaking". This may well illustrate the growth of Gem-A in China. Starting from scratch in the country about 30-years ago, Gem-A has gradually grown into a recognised foreign institute with increasing influence in China. Such growth could not have been possible without the Gem-A team and their continuous hard work and contribution.

There are four new ATCs in China that have been established over the past nine months. Now, Gem-A officially has 14 ATCs in Mainland China and that number is growing. With the current upgraded student services, Gem-A has been developing trade awareness, but also inspiring more individuals to consider pursuing gemmology as their career.

The Gem-A management team visited several ATCs during observation trips to bring the warmest greetings to new students from the Gem-A family. The visit introduced the beauty of gemmology, but also shared the historical background and legacy of Gem-A and offered an up-to-date look at Gem-A's accomplishments. The passion of the Gem-A team triggered a sense of enthusiasm in the local community.

During the Gem-A Conference in November, students and trade leaders will join together for a Gem-A pilgrimage. They will be joining the Gem-A community for the Conference and Graduation Ceremony, while visiting UK designers and jewellery historians. The experience will highlight the privilege of being part of our outstanding historical association.

Gem-A China is now pursuing an innovation-driven, coordinated, open and inclusive programme of development. To keep providing Gem-A ATCs, members, students and stakeholders an environment of professional study and communication is our task and honour. We will continue to adapt to the new normal of the economy in China and stay ahead of the curve. ■

Gem-A CEO Alan Hart, Gem-A Regional Head of Asia, Anne Carroll Marshall, and Gem-A Head of China, Jessica Han, with representatives of Gem-A's ATCs in China, Mr Mu Li (left) and Mr Qinghua Wan (right).

英国国家珠宝协会（**Gem-A**）进入中国市场已有三十余年。通过管理团队的不懈努力，作为享誉国际珠宝玉石首饰行业的知名教育品牌，得到了中国珠宝玉石首饰行业的高度认可。**2018年中国大**陆地区新增四大教学中心，**Gem-A在**华教学中心的数量已经增至十三个，而且这个数量呈增长趋势。同时我们升级后的学生服务系统，更为高效的帮助行业内外的精英份子们通过学习投身珠宝行业。今年，为了进一步做好教学管理，**Gem-A高**层在多个教学中心进行了考察。我们带着对新生的祝福，通过一场场分享会不仅介绍**Gem-A的**辉煌历史和行业传承，还分享**Gem-A**对社会的最新贡献，让每个教学中心的师生们更加深入地了解我们。为了更好的回馈师生， **今年11月份**，**中国区将会**组织国内的优秀师生赴英参加**Gem-A 年会**，**并考察英国珠宝市**场、拜访设计大师、珠宝历史学家等。**Gem-A**中国区正处在改革的新起点，我们追求协同创新的发展方向。我们会一如既往地为**Gem-A的会**员们，师生们和朋友们提供专业的学术交流环境和市场信息互动平台。我们会积极适应中国的新常态发展，勇立潮头，砥砺前行。

A Global Perspective

Herizo 'Zo' Harimalala Tsiverisoa.

Miners search for sapphires during the most recent rush in Ambinany Bekily, Madagascar. Image Credit: Andry Rabemanatsoa.

With experience in the gemstone communities of Ethiopia, Malawi and her home country of Madagascar, Herizo Harimalala Tsiverisoa, also known as Zo, has a unique perspective on small-scale mining, supported by time at the Institut de Gemmologie de Madagascar. Here, she shares her insights into a complex supply chain.

At *Gems&Jewellery*, we are always interested to meet individuals who have first-hand experience of our global trade. Herizo 'Zo' Harimalala Tsiverisoa is one such individual, who combines extensive skills as a lapidary instructor with academic qualifications in geology and development studies. Zo spent 12 years as a lecturer and the head of the lapidary and jewellery departments at the Gemmological Institute of Madagascar (IGM), while delving deeper into small-scale gemstone mining in her home country. This led her to Ethiopia and Malawi, where she supported projects designed to empower women and men in the gemstone sectors. Now studying for a Master's degree in Development Studies at the University of Melbourne, Australia, Zo is happy to share her insights into the fascinating, albeit challenging, mining industry in Madagascar and beyond.

How did you first become interested in gemmology?

I first discovered an interest in gemstones when I started my degree in geology. I had the opportunity to spend several months as a trainee in a lapidary and gemstone laboratory with a gemmologist from Belgium. I learnt about the potential of natural resources to create opportunities to end poverty in a country endowed with gemstones like Madagascar. Later, I worked at the IGM as a lapidary instructor and head of the lapidary school, and I also had the opportunity to connect with communities involved in gemstones. I have met local and international amateurs and professionals, but I am particularly interested in working with small-scale miners and small businesses.

How did working for the IGM shape your understanding of the Malagasy gemstone community? What in your opinion makes it unique?

Working for the IGM, and later as an independent consultant, helped me to discover the various stones from the different regions of my country. Madagascar is endowed with incredible gem resources, including a range of sapphires and rarer gemstones like grandidierite and pezzotaite. The Malagasy gemstone community is fascinating; the people involved in the gemstone business are from various backgrounds, such as diplomats, military officers, physicians, politicians, religious or community leaders, but also illiterate miners, farmers and villagers. The community involves professionals with years of experience and enormous funding, but also amateurs and newcomers who begin primarily as middlemen in the trade. A gemstone laboratory or the expertise of a gemmologist is sometimes unavailable in remote areas, so transactions are based on 'trust' or through 'trusted middlemen' in mining areas. A 'good patron' [buyer] with a good reputation does not necessarily need to travel to the mines to receive high quality stones — as soon as trust is built, the middlemen and miners will arrive at their headquarters with valuable stones from different locations, sometimes with better prices than at mining locations.

How did the sapphire rush of 2016-2017 impact Madagascar and how has the gem community coped with the situation?

Gemstone rushes have become common since the discovery of the first sapphire in Ilakaka in the late 1990s. The discovery of the first sapphire gave a greenlight to uncontrolled open pit mining.

Zo, pictured centre, hosting a lapidary training session in Malawi.

Unfortunately, gemstone rushes have not made a positive impact on the living conditions of Malagasy miners at the local and national level. I have personally observed many beautiful and valuable stones from the area of a rush brought by miners to gemstone centres, but I did not notice any tangible change in the living conditions of those individuals. Mining revenue from gemstones does not reflect production, since the activity is informal and illegal. The damage created has been inestimable and irreversible, and the natural environment has been significantly degraded.

The most significant damage, however, has been on human wellbeing: poor working conditions, prostitution and child labour have become common in mining areas. The current rush is more intensive and uncontrolled because of youth unemployment and gemstone speculation. However, the gem community has gained experience of these kinds of rushes and what is happening in Madagascar is more visible to the global gem market. Recently, the increase of foreign businessmen has increased demand, which has empowered small miners. Many negotiations are now based on internet prices and more dealers identify and certify their stones according to international requirements, which has upgraded local business standards. Despite this, the unfair redistribution of revenue between diggers and gemstone sellers is still significant due to the huge number of middlemen in the supply chain.

What has been your experience of working with women in the small-scale mining sector, and what can be done to support them?

I support women as a lapidary instructor and development practitioner with a focus on small gemstone association. The gemstone sector is still male dominated. In Madagascar, as in other gemstone communities, the contribution of women is neglected or ignored even though women fully participate in gemstone production. In gemstone activity, the roles of men and women are gendered; women are reduced to marketing on low-value minerals, or assigned to some specific tasks that are less valuable such as sieving. These gender roles in the gemstone sector disempower women.

Women do not know how to use their potential to make change and take advantages of all the opportunities offered by gemstones resources. They lack the skills needed to improve their activities. They are not confident to take initiative and risks. So, it is very important for me to share my experience and knowledge with women in order to protect them from exploitation and to enhance their position in the gemstone community. Gender issues in the gemstone trade are not highlighted or recognised as a major issue, but by tackling gender issues we could create a fairer distribution of resources.

Women in Ethiopia celebrate finishing their lapidary training.

You have travelled far and wide, but in particular to Ethiopia and Malawi. What can you tell us about the gemstone communities in these countries?

Access to information and supportive infrastructure is limited in many African countries. However, gemstone communities in developing countries are quick learners and they adopt a professional attitude following short courses in gemmology and lapidary. I remember one of my trainees from Ethiopia who had been involved with opals for years, but she didn't have any idea about what opals were for, or why people buy them. A few days' training on basic gemmology and cabochon cutting provided her with new information, new skills and the potential to improve. She was more confident to run her business in just two weeks.

> A few days' training on basic gemmology and cabochon cutting provided her with new information, news skills and the potential to improve.

Finally, what are the moments that make your career in gemstones particularly worthwhile?

Every time I hear about one of my former students becoming a professional in the field is a memorable moment for me. Many are young, single mothers with very limited opportunities for a better life. My training and development intervention empowers them and provides them with the skills to find a decent job. Later, they become independent and confident enough to develop their own business. Some have had the opportunity to travel and broaden their experiences at the international level. I feel very proud of the people I have worked with and I am motivated to do more. ■

Woman in Profile Dog Collar: *c. 1898-1900. A rectangular convex plate of chased gold, finished with translucent enamels of black and lavender blue. The woman's face is of carved chrysoprase surrounded by ribbons and bows of blue-enamelled chased gold, completed by three poppies.*

LALIQUE IN **LISBON**

Drone and Umbels Hair Grip: *c. 1901-1902. A hair grip with three teeth of carved horn. Three umbels of wild carrots in horn and gold with blue enamel inlays adorn the crown, while six bees in light blue and black enamel sit on the flowers.*

Just a short walk from the heart of Portugal's capital you will discover the Calouste Gulbenkian Museum, a hidden gem housing a trove of masterpieces by renowned Art Nouveau jeweller René Lalique. Here, we discover how such an awe-inspiring collection of jewels found its home in Lisbon...

Renowned for defining the aesthetic of the Art Nouveau design movement of the late 19th and early 20th century, René Lalique was famed for his elaborately romantic jewels with carved gemstones.

Born in 1860 in the small French town of Ay, Lalique displayed a gift for drawing at an early age, winning his first artistic prize in 1871. Following an apprenticeship in Paris in 1878, Lalique began experimenting with sculpture with the likes of Pierre Ledru and Auguste Rodin, before securing his own private jewellery clients in the 1890s. His fans included elite millionaires and adventurous middle-classes, all clamouring for his signature style and innovative design ideas. As the 20th century began, the name Lalique became synonymous with a renaissance of semi-precious and forgotten gemstones.

Cockerel Diadem: *c. 1897-1898. The cockerel's head has a large cut amethyst in its open beak. The crest and wattles of the bird are in gold résille finished with iridescent enamels.*

Female Face Pendant: *c. 1898-1900. With its symbolic association to the world of dreams, the poppy is considered one of the most emblematic flowers of Art Nouveau. This pendant shows a female face in opalescent glass, surrounded by hair in painted silver with a silver hood formed of four large open poppies. A large baroque pearl hangs below, which Lalique started to use in his work from around 1897, inspired by Renaissance jewellery.*

Instead of selecting gems and materials based on their value, Lalique chose items for their beauty: for their colour, texture, the effects these produced, and for their symbolism — epitomised most clearly in his use of baroque pearls.

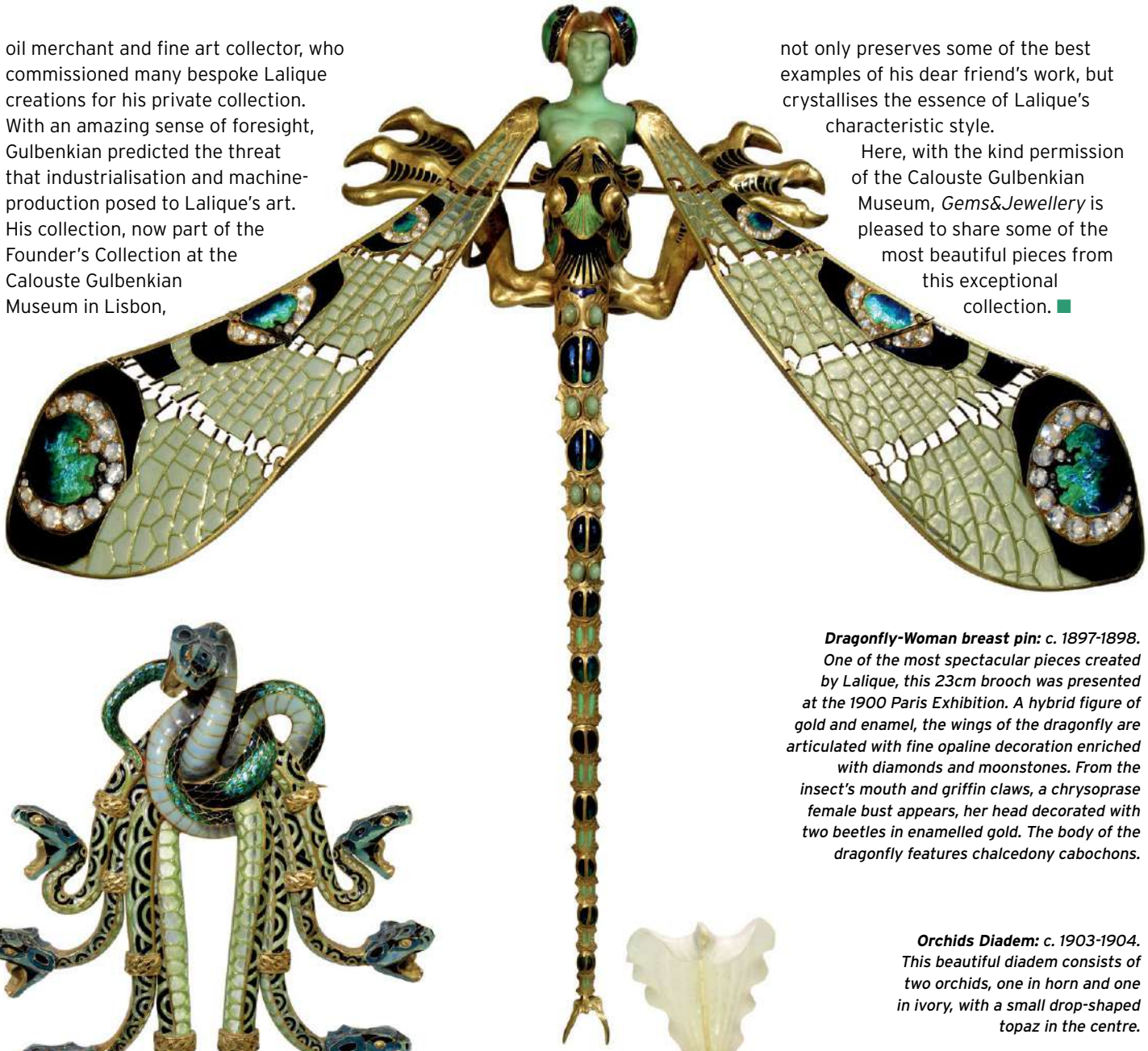
Lalique was an expert in the application of enamels of different types, using varied techniques, including translucent, opaline, cloisonné and champlevé. This array of colours translated into pieces inspired by magical, almost mystical, themes, including owls, serpents, dragons, butterflies, dragonflies and peacocks, plus stylised orchids, poppies and irises. Another recurrent motif is the female figure, often depicted with wings, or as water or wood nymphs with flowing hair and romantic proportions.

During his most successful years, Lalique maintained a firm friendship with Calouste Gulbenkian — a well-known →

Peacock Breast Pin: *c. 1898-1900. Evoking the spirit of Art Nouveau, the peacock is a recurring theme in Lalique's creations. This pin features an articulated peacock in enamelled gold, with tones of blue and green to evoke the bird's feathers. Small cabochon opals are also set across the piece, and either side is balanced by a cluster of diamonds, of various sizes.*

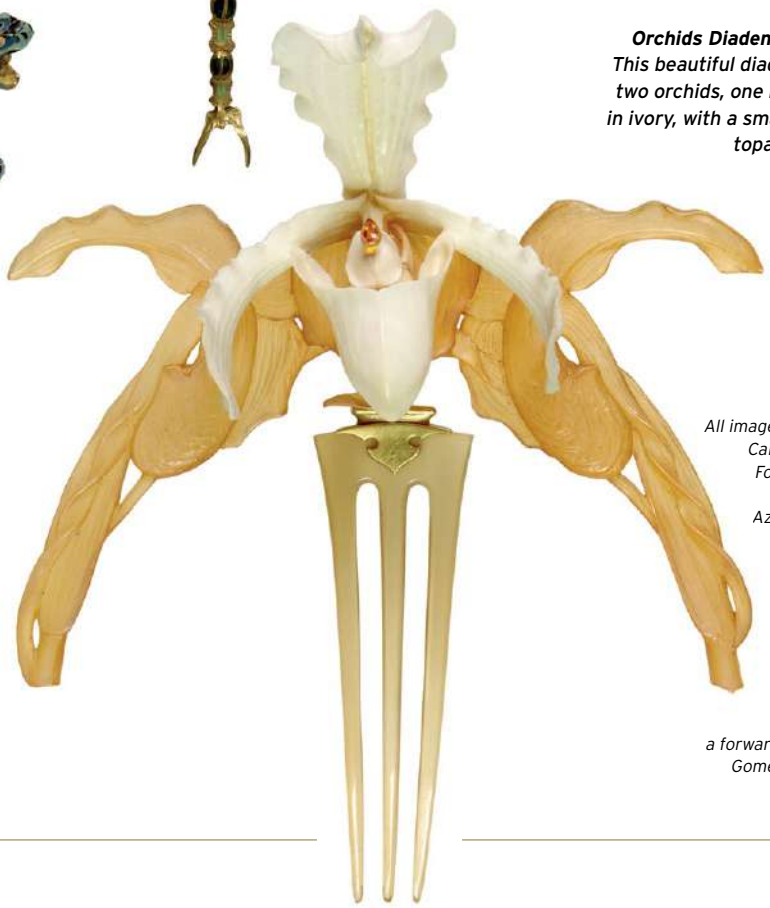
oil merchant and fine art collector, who commissioned many bespoke Lalique creations for his private collection. With an amazing sense of foresight, Gulbenkian predicted the threat that industrialisation and machine-production posed to Lalique's art. His collection, now part of the Founder's Collection at the Calouste Gulbenkian Museum in Lisbon, not only preserves some of the best examples of his dear friend's work, but crystallises the essence of Lalique's characteristic style.

Here, with the kind permission of the Calouste Gulbenkian Museum, *Gems&Jewellery* is pleased to share some of the most beautiful pieces from this exceptional collection. ■



Dragonfly-Woman breast pin: *c. 1897-1898. One of the most spectacular pieces created by Lalique, this 23cm brooch was presented at the 1900 Paris Exhibition. A hybrid figure of gold and enamel, the wings of the dragonfly are articulated with fine opaline decoration enriched with diamonds and moonstones. From the insect's mouth and griffin claws, a chrysoprase female bust appears, her head decorated with two beetles in enamelled gold. The body of the dragonfly features chalcedony cabochons.*

Serpents Pin: *c. 1898-1899. Reptiles were a common theme in Lalique's jewellery, glasswork and sculptures. This piece is made up of nine serpents entwined to make a knot from which the eight snake heads descend. Pearls would have been strung from the snake heads in a similar style to other Lalique pieces, which have been sadly lost to history. This piece is believed to be the only one left in existence, with Calouste Gulbenkian acquiring it directly from Lalique in 1908.*



Orchids Diadem: *c. 1903-1904. This beautiful diadem consists of two orchids, one in horn and one in ivory, with a small drop-shaped topaz in the centre.*

All images courtesy of the Calouste Gulbenkian Foundation, Lisbon. Photos by Carlos Azevedo. Additional information gathered from René Lalique at the Calouste Gulbenkian Museum (Passos Leite, in Castel-Branco Pereira, 2008), including a forward by Maria Teresa Gomes Ferreira (1997).

Gem-A
THE GEMMOLOGICAL ASSOCIATION OF GREAT BRITAIN

CELEBRATING **110** YEARS OF GEMMOLOGY

Gem-A Conference 2018

LAST CHANCE TO BOOK -
BOOKING CLOSES 21 OCTOBER!

SATURDAY FROM 9AM

Venue: etc.venues County Hall, Belvedere Road, London, SE1 7PB

Registration - tea and coffee

Welcome and introduction

Wallace Chan: Master of Failures

Dr. Eloïse Gaillou: The beauty of defects: colour in natural diamonds

Peter Lyckberg: Gem deposits of Afghanistan and Pakistan

Victor Tuzlukov: Precision and artistic cut: today and tomorrow

Justin Hunter: J.Hunter Pearls

SATURDAY FROM 6:45PM

Join us as we celebrate 110 years of gemmology education with a cruise down the River Thames on the Elizabethan. Cruise departs from London Eye Waterloo Pier. Dress code: smart/casual

SUNDAY FROM 9AM

Registration - tea and coffee

Welcome and introduction

Monica Stephenson: A Responsible Journey: One Woman's Trip into a Gem Mine

Federico Barlocher: The deep secrets of rubies from the legendary Mogok mines in Myanmar

Dr. Jeff Post: The Hope Diamond and other Smithsonian Gems

Rui Galopim De Carvalho FGA DGA: Precious Coral and Sustainability

Speaker 5: TBC

MONDAY 5 NOVEMBER

Venue: Gem-A HQ, 21 Ely Place, London, EC1N 6TD

Workshop 1

Gemworld International: Coloured Stone Grading and Pricing Workshop

Workshop 2

AM/PM Session

Magilabs: Fluorescence spectroscopy: A new technique for diamond screening and gem analysis

Workshop 3

Monica Stephenson and Barbara Palumbo: Social Graces: Etiquette and Intricacies of the Instagram Age

TUESDAY 6 NOVEMBER

Trip 1

A private viewing of the Crown Jewels at The Tower of London

Trip 2

Tour the Jewellery Gallery at the V&A.followed by a private handling session

Trip 3

Private visit to the mineral collection at the Natural History Museum.

BOOK NOW on Eventbrite: gem-a-conference-2018.eventbrite.co.uk

Gem-A Members and Students! You have been sent an email with a link to book the members/student rate. Contact events@gem-a.com if you haven't received the email.

LONDON CALLING

Celebrating 110 years of Gemmology

Gathering gemmologists from around the world, the Gem-A Conference is the highlight of the gemmological year. Here, *Gems&Jewellery* speaks to some of this year's speakers to get a taste of what is to come in November.

MONICA STEPHENSON, writer, jewellery expert and entrepreneur

What initially sparked your interest in the world of gemstones and mining in particular?

I've had a lifelong love affair with jewellery, beginning in childhood, but it chose me for a career during college. While I've always worked with and admired designer jewellery, I wasn't completely aware of the gemstone world, complete with its colourful cast of characters, until about 2013. That was when I saw a tweet about a feature documentary, *Sharing the Rough*, that was filming the story of a gemstone from the dirt in East Africa to a finished piece of high jewellery. I was hooked, and eventually ended up in Tanzanian and Kenyan gemstone mines for the filming! What I saw there – passionate people working tirelessly to unearth colourful treasures – changed the course of my life. I figured out how to connect all the dots in my jewellery experience to help bring gorgeous gems to market — and hopefully help East Africans participate more in the global gem trade.

Can you remember your first gem mining experience – how did it impact you?

Vividly! It's absolutely at the heart of why I focus on gems and East Africa! On my first trip in 2014 for the film, I had finally made it to Kenya and after a couple of days there, I was enthralled with the landscape, the people, and the sheer beauty of it all. But then I found myself standing at the top of this big hole in the ground... peering down towards the tsavorite mine entrance at the bottom... wondering if I was actually going to go in. Seeing the reality of where gemstones truly come from – the sweat, the callouses, the bats – changed how I see gems and how we value them.

> – the sweat, the callouses, the bats – changed how I see gems and how we value them.

How do you strive to support communities and empower female miners and why is this important to you?

My company, ANZA Gems is founded on the premise that 10% of sales are reinvested back into the East African gemstone mining communities for education and training. We officially launched in 2015, and have since sold finished jewellery and gemstones, so we are actively reinvesting back into communities. We make trips to Tanzania and Kenya at least a couple of times a year to buy more gemstones, which puts money back into their economy, and check on the schools we support. There is a primary school near a ruby mine in Tanzania that has been adopted by some in the gemstone industry. The 450-500 students are mostly Maasai. It is always a high point in our trips to go visit the kids and see how everyone is doing.

Another area of investment for ANZA is trade education. There are a couple of lapidary schools in Arusha, Tanzania, but not a lot of jobs once students graduate. I am working on setting up the most promising faceting students with modern equipment and more specialised training so that they can make a good living by cutting gems that the US, UK, and European markets might embrace. And increasingly, I am working on initiatives that involve supporting women miners. We are hoping to work with an NGO in Tanzania to identify women miners in the Tanga region, and try and bring their gems to market in a traceable way. It would incorporate the ANZA model of reinvesting a premium back into the women and their villages: equipment, gemmological training, helping the local schools, even local health clinics.

Supporting these women by bringing their gems to market has become a huge priority for me, as well as finding ways to support other women-owned endeavors from photographers to designers to the Maasai women who make the ANZA packaging...it's where I want to go.

Kenyan tsavorite.

WALLACE CHAN, jewellery artist and innovator

You are a trailblazer in the world of gem carving, especially intaglios, which has resulted in the Wallace Cut – what can you tell us about this for those who may not know?

The Wallace Cut is a form of three-dimensional intaglio carving that I invented in 1987. It is an illusionary technique because it lends the appearance of multiple carved figures, when in reality, it is only one. For example, if you look at a Wallace Cut from the front, you might see five faces, but if you change your perspective a bit, you might see three; what will not change, however, is the goddess looking directly at you.

The Wallace Cut was inspired primarily by double-exposure in photography. The technique is based on reverse thinking, where left is right and shallow is deep. It took me many years to master this carving method, and to train my mind to think in reverse. With every failure, I learned something new.

> It took me many years to master this carving method, and to train my mind to think in reverse.

What can you tell us about your other innovations and how are these unique in the jewellery sector?

Life is simply too short to repeat the creations of yesterday. As a jewellery creator, I feel a responsibility to always be innovating.

Throughout my 40-year journey with gemstones, I've created various techniques and materials, and the tools to carry them out with. In addition to mastering titanium for use in jewellery creation, I invented a jadeite luminosity-enhancing technology and a number of gemstone settings which minimise, and in some cases eliminate, the use of metal claws (prongs). My latest innovation is a new form of porcelain that is five times harder than steel.

Your porcelain was recently featured in the *New York Times* and took five years in development, how much is the balance of patience and creativity part of your philosophy?

I spent seven years researching and experimenting before I managed to create the porcelain material I had envisioned. My patience, in a sense, results from my impatience. I am very curious and quite hungry, greedy even, for knowledge. I am always experimenting, and with that inevitably comes failures. I will try and try and try until I have reached my idea of perfection. Curiosity translates to creativity — it is an interest in exploring the unknown, the ambition to discover and to create something completely original.

JUSTIN HUNTER, pearl farmer and specialist

How did you first become fascinated by pearls and what inspired you to return to Fiji to set up your own business?

I approached it from a marine biology and aquaculture perspective so the concept of putting this background towards creating a Fiji pearl industry, and getting back home, was the driver. Unlike other *pinctada margaritifera* producers, our pearls come from selected shells that are reproduced in our hatchery. Fiji simply does not have natural stocks of pearl oysters, so my background in hatcheries and marine biology was most helpful.

What do you wish customers appreciated more about pearls and pearl production?

What customers need to realise, and I am pushing this very hard at UN and COP23 level, is that when are pearls are produced in a corporate, social, and environmentally responsible way, the pearls are not damaging the pristine tropical waters that they come from; when a consumer purchases a pearl that is farmed in a responsible manner they are not just buying a piece of a rock or jewellery, they are investing in our oceans and the long term health of our planet.

What makes pearls from Fiji unique to the market?

They come from a unique oyster not found in other parts of the pacific, it is a hybrid of two subspecies *pinctada margaritifera cumnigi* and *pinctada margaritifera typica*. Our shells have unique colouration as they have adapted, not to an atoll environment, but rather the fringing reefs of high tropical islands where we can get influxes of water. They are exceptionally rare but also very beautiful.

> Fiji simply does not have natural stocks of pearl oysters, so my background in hatcheries and marine biology was most helpful.

CREATING GEMMOLOGISTS SINCE 1908...

In the build up to the Gem-A Conference this November we are exploring our history as the world's longest serving provider of gemmological education, an idea first proposed 110 years ago...

A GLANCE AT GEM-A'S HISTORY

1896

Sir Henry Miers (president 1932-7) publishes on precious stones in *Nature* and champions the "absolute necessity of accurate scientific knowledge" to identify gemstones (and their imitations).

1908

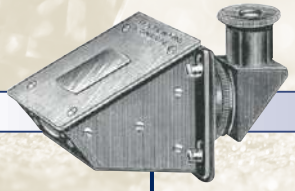
The beginnings of the Association – Samuel Barnett proposes lessons in gemmology to the National Association of Goldsmiths, marking "the beginning of organised gemmology, not only in this country, but in the whole world".

Caricature of Samuel Barnett

1912

Herbert Smith's *Gem-Stones* is published in 1912, offering the first textbook on gemstones with full instructions on how to use specialist equipment. A renowned mineralogist, Dr G F Herbert Smith was the Association's first examiner, and was president from 1942-53.

The Herbert Smith Refractometer featured in Gem-Stones (below).



1913

The first Gemmology Diploma is awarded to Samuel Barnett, set and marked by Herbert Smith.

Samuel Barnett's Gemmological Diploma, signed by Dr Herbert Smith.

1915

Future Association presidents, and father and son team, Sir William and Sir Lawrence Bragg are awarded the Nobel Prize in physics for their research in X-Ray Crystallography.

Sir Lawrence Bragg

Image Courtesy of the Royal Institution of Great Britain.

1925

World-First! In response to the new challenges in identifying and authenticating pearls following the arrival of Mikimoto's cultured pearls on the markets in 1921, Basil Anderson is invited to lead the newly established Laboratory of the Diamond, Pearl and Precious Stone trade section of the London Chamber of Commerce & Industry.

Basil Anderson

1929

Robert Shipley, founder of GIA, is the first American to receive the Gemmology Diploma.

Robert Shipley

The history of Gem-A has been shaped by some remarkable figures and is intertwined with the development of gemmology as a science in its own right at the turn of the 19th century.

Our early founders and distinguished presidents were trailblazers in the gemmological world and were instrumental in making their knowledge accessible to the jewellery sector.

While the gems and jewellery industry is an ancient trade, the equipment and techniques developed by the likes of Dr Herbert Smith, Sir William and Sir Lawrence Bragg, Basil Anderson and B J Tully enabled jewellers to look inside gemstones. These early years mark the first advances in practical gemmology and the Association was born out of a need for gemmological education for the jewellery industry, an ethos that continues to define us to this day.

Since the first Gemmological Diploma in 1913, the Association has grown into an international community of gemmologists working with and for the wider industry. Today our Gemmology and Diamond Diplomas are taught in multiple different languages in 26 countries across the world. ■

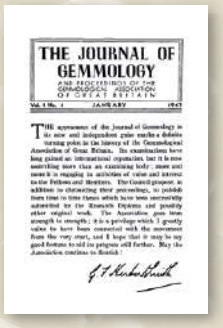
1938

We officially become the Gemmological Association of Great Britain

Early gemmology classes

1947

The Journal of Gemmology is born, the world's oldest journal dedicated to gemmology.


THE JOURNAL OF GEMMOLOGY

Front cover of the 1947 The Journal of Gemmology

1958

Sir James Walton library is opened. Now housed at Gem-A HQ in Ely Place, London, it is is one of the largest gemmological libraries in Europe.

Sir James Walton Library

1962

The Diamond Course is introduced and the Chelsea Colour Filter (created by Basil Anderson & CJ Payne) is officially patented to the Association.

Chelsea Colour Filter

1967

We are granted our Coat of Arms by royal authority by the Kings of Arms.

Gem-A Coat of Arms

1987

Heading East. Our courses are taught on the Chinese mainland by Prof. Yan Weixuan of the National University in Wuhan, with Prof. Chen Zhonghui. The Association now has over a dozen Chinese language Allied Teach Centres in the Far East, including four in Hong Kong.

2018

Gem-A celebrates 110 years of gemmology. The 2018 Gem-A graduation returns to the Royal Institution, 80 years since we were last there.

Gem-A Graduates from 2017

HIDDEN TREASURES

Locked away in the vaults of Gem-A HQ in London is an assortment of breath-taking treasures that form Gem-A's Gemstones and Minerals Collection. Here, Gem-A gemmology tutor, Pat Daly FGA, offers us a glimpse at some of the more unusual items in the collection.

Decades of collecting, bequests and acquisitions have led to the Gem-A Gemstones and Minerals Collection, which includes bixbite, banded fluorite, citrine, gypsum, peridot, zoicite and many more specimens that are worthy of conversations in their own right. Now, thanks to fantastic photography by Gem-A's Henry Mesa, we can share some of these unique gemstones with you in *Gems&Jewellery* magazine.

CORAL SKELETON

This example (pictured above) shows a classic coral skeleton: a branching, porous supporting structure produced by a colony of marine invertebrates. Precious coral, on the other hand, is a more compact and less porous material with a deeper saturation of colour. The sale of coral, like all organic gem materials, is subject to controls, which are designed to preserve marine faunal diversity and maintain stocks for the future.

DON'T MISS!

Rui Galopim de Carvalho FGA DGA will speak on 'Precious Coral and Sustainability' at the 2018 Gem-A Conference. His presentation will focus on the work being done by scientific authorities to gather knowledge for future decision makers in the industry, the consumer and for sustainable natural resources.

JADEITE

Also part of the Gem-A Collection is this cobble of rough jadeite (pictured previous page, bottom right), which has been polished on one side to reveal the bright lustre modified by a dimpling, which is common on polished jadeite. This has a pleasing variation of white, green and lavender colours and a granular structure.

Jadeite is a polycrystalline gem material, composed of many small interlocking crystals. This structure gives it great strength and its resistance to breakage means that this gemstone can be made into delicate carvings, which are highly valued in China.

EMERALD IN PYRITE

This specimen showcases well-formed crystals of emerald from Muzo, Colombia, in pyrite (top right). Both minerals are formed from hot aqueous fluids circulating at high-levels and under great tectonic pressure in the earth's crust.

TANZANITE

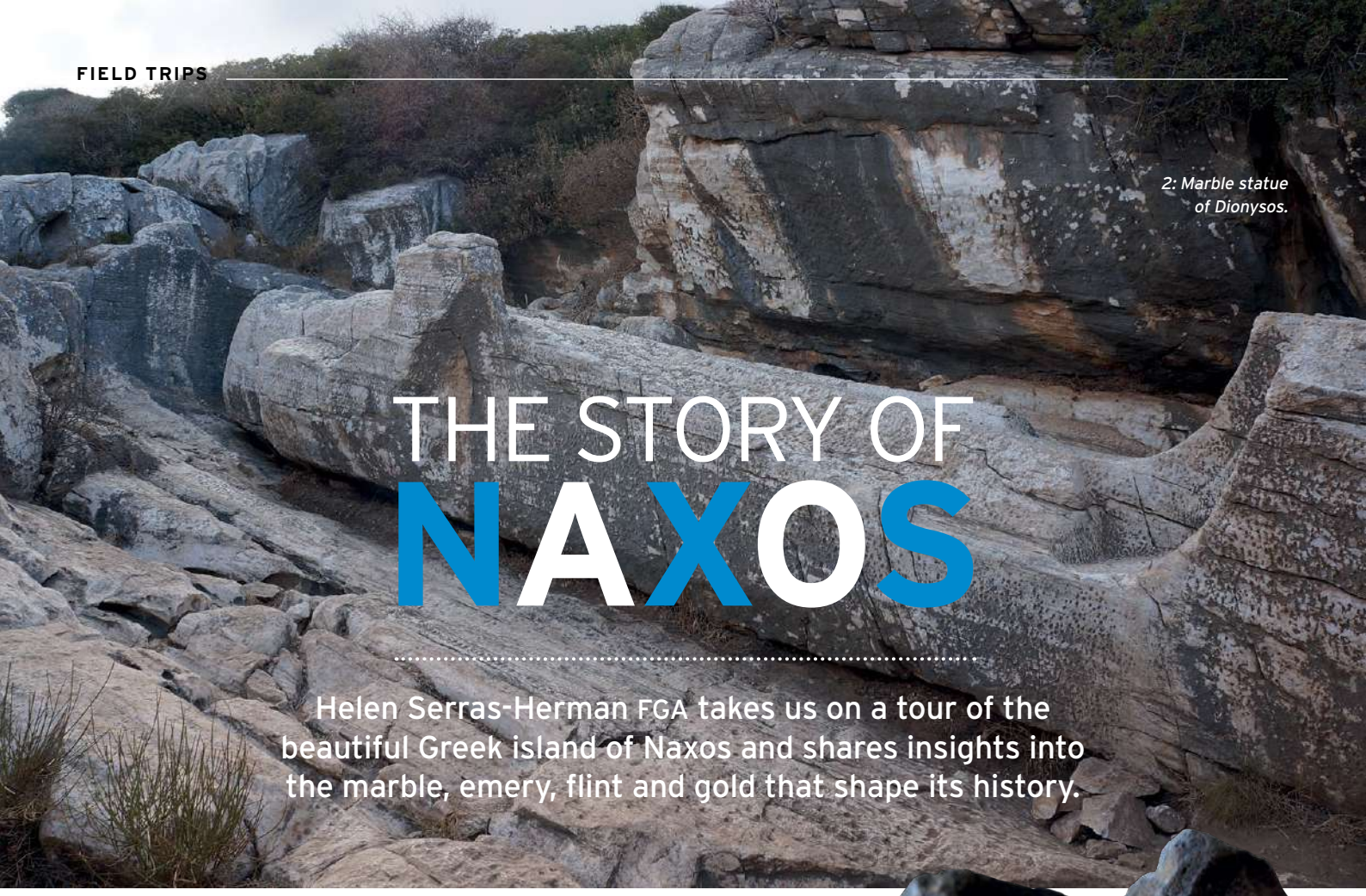
The minerals zoisite is well-known as an abundant compound in some rock types, but it was of little significance to the gemstone trade until 1967 when tanzanite was found is a relatively small, two kilometre-wide belt in Tanzania. This well-formed crystal of tanzanite now forms part of the Gem-A collection, along with other cut and faceted tanzanites with deeper purple tones (pictured left).

If you would like to find out more about what is in the Gem-A Collection, please send us an email on editor@gem-a.com.

THE ANDERSON COLLECTION

This historically significant collection of gemstones was once owned by Gem-A founding father, Basil Anderson. In the 1980s, the entire collection of exceptional quality gems was destined for auction and risked being lost to the Association forever. Recognising this, an anonymous donor purchased the entire collection and donated it to Gem-A in 1986. Highlights include a specimen box containing 17 gemstones, including a 30.82 carat beryl, and a second box containing nine gems with a 39 carat aquamarine (pictured). ■

Image credits, Henry Mesa.



2: Marble statue of Dionysos.

THE STORY OF NAXOS

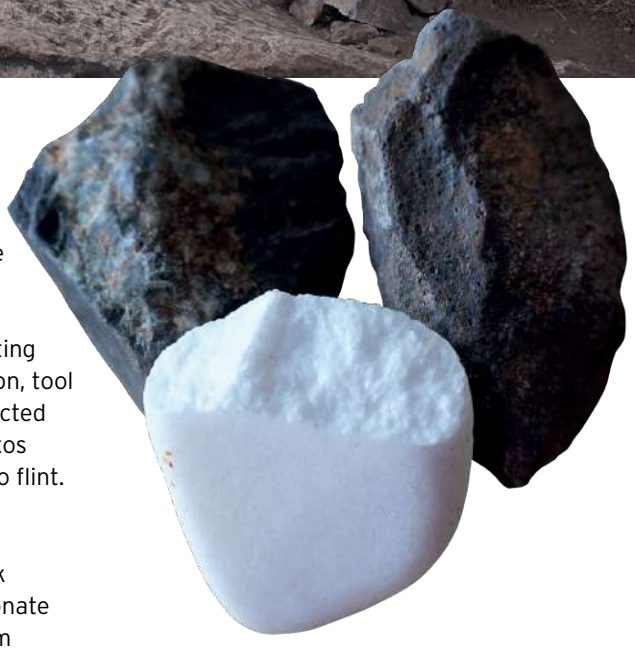
Helen Serras-Herman FGA takes us on a tour of the beautiful Greek island of Naxos and shares insights into the marble, emery, flint and gold that shape its history.

The Greek island of Naxos is part of the Cyclades, an island group in the Aegean Sea, located southeast of Athens and the mainland of Greece. They are connected via air with Athens, and via ferry with the port of Piraeus and the port of Rafina outside of Athens. The most famous and cosmopolitan Cycladic islands are Myconos and Santorini. Naxos is the largest island of the Cyclades, rich in farming (olives and potatoes) and stock-raising (producing cheese).

All the Cycladic islands are famous for their white-washed houses, blue-domed churches hanging on the edge of cliffs, narrow cobble-stone streets and brilliant crystal blue sea waters. But most importantly, historically, Naxos and the Cyclades are famous for their Ancient Greek Cycladic civilisation, which dates back to the 4th millennium BC. Naxos flourished during the Late Neolithic and Early Bronze Age between 2700 and 2300 BC.

Three natural stones – marble, emery and flint – all found on the island of Naxos, were most vital in shaping this ancient culture (**1**). Marble was the main material for sculpture, and emery was used to sand and polish it, as well as for engraving hard gems.

Recently, geologists found hard flint (or chert) specimens near the seaside town of Stelida, containing hematite, barite and zircon, while archaeologists argue that the Stelida material provides the first evidence of Neanderthal settlements on the island, reiterating the importance of flint as a weapon, tool or surgery implement which attracted these peoples to the island of Naxos instead of somewhere else with no flint.



1: High quality marble and emery are both found on the Greek island of Naxos.

MARBLE

Marble is a metamorphic soft rock composed of re-crystallised carbonate minerals, primarily calcite (calcium carbonate, $CaCO_3$) or dolomite. It usually contains other minerals, such as clay minerals, micas, quartz, pyrite, iron oxides and graphite. Marble is only 3-4 on the Mohs hardness scale, and is considered a 'soft' material compared to hard gemstones. It can be shaped and chiseled with metal tools rather than diamond tools.

The marble from Naxos was a very significant ancient deposit, and it is still quarried today. The Naxian marble is over 98% calcite with traces of dolomite and pyrite. It displays randomly-spread, rather large calcite crystals up to 15mm in diameter, making the Naxian marble one of the largest-grained marbles on Earth. The crystals are usually transparent, a quality that gives the stone an appearance of depth and a blue-grey shimmer.

One of the oldest ancient marble quarries in Greece is in the northern part of Naxos, high in the mountains above the seaside town of Apollonas, where an unfinished statue of Dionysos, 10.7 meters tall (over 32 feet) and weighing

around 80 tons, was found (**2**). When my husband and I recently visited the island of Naxos, reaching these remote sites by driving over the high mountainous terrain was not an option for us. Therefore, for two days, we joined the Naxos Bus Transfer Tours, on both of their island route tours.

Getting to the Apollonas ancient marble quarry site itself was an accomplishment. The quarry is high up on the hill, and we had to climb fifty large, almost vertical steps. But once we reached the top of the hill out of breath, the sight of the colossal statue lying down on a rough stone slope was truly breathtaking.

The modern marble quarries are located near the village of Kinidaros (**3**). Naxos produces the 'White Crystallina of Naxos' marble, as well as the 'Semi-Crystallina of Naxos', which are very important products for the island's economy.

3: A modern marble quarry located near the village of Kinidaros in Naxos. Photo courtesy Manolis Manolas.

EMERY

Emery is a very hard rock, a mixture of corundum (aluminum oxide Al_2O_3), magnetite and hematite, along with 32 other minerals (**4**). It is a dark grey or black-coloured granular rock and it has been made into powder and used as an abrasive agent for thousands of years.

The hardness of emery varies, and consequently so does the quality, as it depends on the corundum (Mohs 9) and spinel (Mohs 8) content as well as the softer magnetite (Mohs 6), setting the hardness of emery between 7 and 9 on the Mohs scale. Natural emery is crushed and used in making emery cloths for sanding, emery boards or files, or most importantly as a powder for sanding and polishing metals and stones. Today it is also used as a traction enhancer for applications that require highly anti-slippery properties, such as tarmac and fire-resistant surfaces, pavements, airport runways and loading ramps.

The Greek name of emery is 'smyris' or smirida (*smirigli* in the local dialect of the lapidary and metal-smithing community). The Romans called emery *Naxium*. The earliest mention of emery by its scientific name is by Greek gem engraver Dioscourides (65-30 BC): "The *smyris* is a stone with which gem engravers polish the gems." (*Natural History of Precious Stones and Gems*, C.W. King 1865).

4: An Emery specimen.

But once we reached the top of the hill out of breath, the sight of the colossal statue lying down on a rough stone slope was truly breathtaking.

5: Emery miners. Photo courtesy of Manolis Manolas.

Emery is found in large quantities on the slopes of Mt. Amomaxis of Naxos, between the villages of Koronos and Apeirnthos. About 50 mines have been operating in recent years with about 500 workers. Mines feature narrow entry points and labyrinth galleries, some reaching 600 meters depth. Mining emery in Naxos is a dirty and very strenuous manual labour (**5**). Miners use jack hammers to break the extremely hard rock, then break off the rocks with large picks and carry it with their hands to iron carts; then they break it down into smaller cut pieces with sledge hammers.

Manolis Manolas, an elected local official for nearly 40 years and past president of the Union of Naxian Emery Workers, was very kind in providing me with information and photos of the emery mines. An advocate for the emery miners' rights, supporting their struggle to keep the mines open, Manolas has also supported the building of an Emery Museum, which unfortunately stands unfinished since 1998.

Natural emery has become almost obsolete with the advent of silicon carbide (SiC), also known as carborundum. It is a compound of silicon and carbon that has been mass-produced since 1893 for use as an abrasive, and has become a popular lapidary abrasive due to its low cost of manufacture. The complex mineral composition of natural emery, however, gives it an elasticity property that makes it hold together better than the man-made products.

THE NATURAL HISTORY MUSEUM& THE GEOLOGICAL MUSEUM OF NAXOS

The Natural History Museum and the Geological Museum are both located in the remote and picturesque mountain village of Apeiranthos, about 32 kilometers from the capital Naxos Town. Both museums were established in 1996. We received an amazing warm welcome from both museum guardians, Eirini Bardani (Natural History), and Argyro Karapati (Geological) who has over 20 years of experience. They both made a huge effort to tell us the story of the exhibits and the museums in the short time we had available.

6: Naxite – a white marble with distinct crystals of blue sapphire.

The Natural History Museum of Naxos enriched with private collections and donations, contains over 1,300 specimens of sea and land fauna and flora of the island of Naxos. The separate Geological Museum includes over 3,000 specimens of rocks, minerals, fossils and metals mostly found on the island of Naxos. Also on display are obsidian blades and sulphur from the neighboring volcanic islands of Milos and pumice from Santorini, along with other volcanic minerals from Mount Vesuvius and Mount Etna in Italy, as well as an array of minerals from around the world.

A wonderful section of the museum is dedicated to Greek marbles, with samples of white, semi-white and crystallina Naxian and Parian marbles. Also included are stalactites and stalagmites from caves from Naxos, and aragonites and dolomites from the Cyclades and other parts of Greece, and a rare smithsonite from Laurion. A large part of the exhibit is devoted to the local emery: mineral specimens, data, maps and tools, and emery products for sanding and polishing (grit, blades, sanding paper and emery wheels). I was also drawn to the unique mineral specimens called naxite, which are white marble with distinct crystals of blue sapphire (**6**).

ARCHEOLOGICAL MUSEUM, NAXOS TOWN

The Archeological Museum in Naxos Town is located inside a Venetian castle, built between 1600 and 1800 AD, which has been declared a historical

7: Naxos Town, castle and Archeological Museum.

9: Gold necklace from the Late Mycenaean period.

monument itself (**7**). The museum houses art and objects of daily use dating from the Late Neolithic period toEarly Christian times (5300 BC – 5th c. AD). Astounding is the quality and quantity of the Early Cycladic marble figurines. Cases upon cases are filled with these flat, minimalistic sculptures. The collection is considered second only to the one at the National Archaeological Museum in Athens.

What also drew my attention were the beautiful gold jewellery and stone bead necklaces. A stunning display of gold rosettes from a decoration of a wooden chest or a dress, from the 12th c. BC, highlights a level of prosperity (**8**). I was truly amazed with the fine craftsmanship of a necklace with twenty gold beads graduating in size and four gold sheets stamped with a representation of a child from the same Late Mycenaean period (**9**). Also exhibited were finely engraved seals, some cylindrical others lenticular, in carnelian and agate, and carved beads in what seemed to be green serpentine, rock crystal, carnelian and shells (**10**). I am always awed by the labour my fellow anient lapidaries, sculptors and goldsmiths invested in their pieces, mastering their art.

With a backdrop of fine sandy beaches and mountainous beauty, splendid archaeological exhibits, rare mineral exhibits, the magic of the Aegean Sea and its iconic sunsets, the island of Naxos is a terrific destination for a Greek island vacation. ■

All images courtesy of the author unless otherwise stated.

> I am always awed by the labour my fellow ancient lapidaries, sculptors and goldsmiths invested in their pieces, mastering their art.

8: Gold rosettes from the 12th c. BC, or the Late Mycenaean period.

10: Beautiful carvings (more than 3,000 years-old) in what seemed to be green serpentine at the Geological Museum of Naxos.

Shifting Shades

2: Alexandrite with a fine purity and a a remarkable size and weight of 11.179ct showing a colour change from bluish green in daylight (left side) to purple in incandescent light (right side). Photo: © SSEF – Swiss Gemmological Institute.

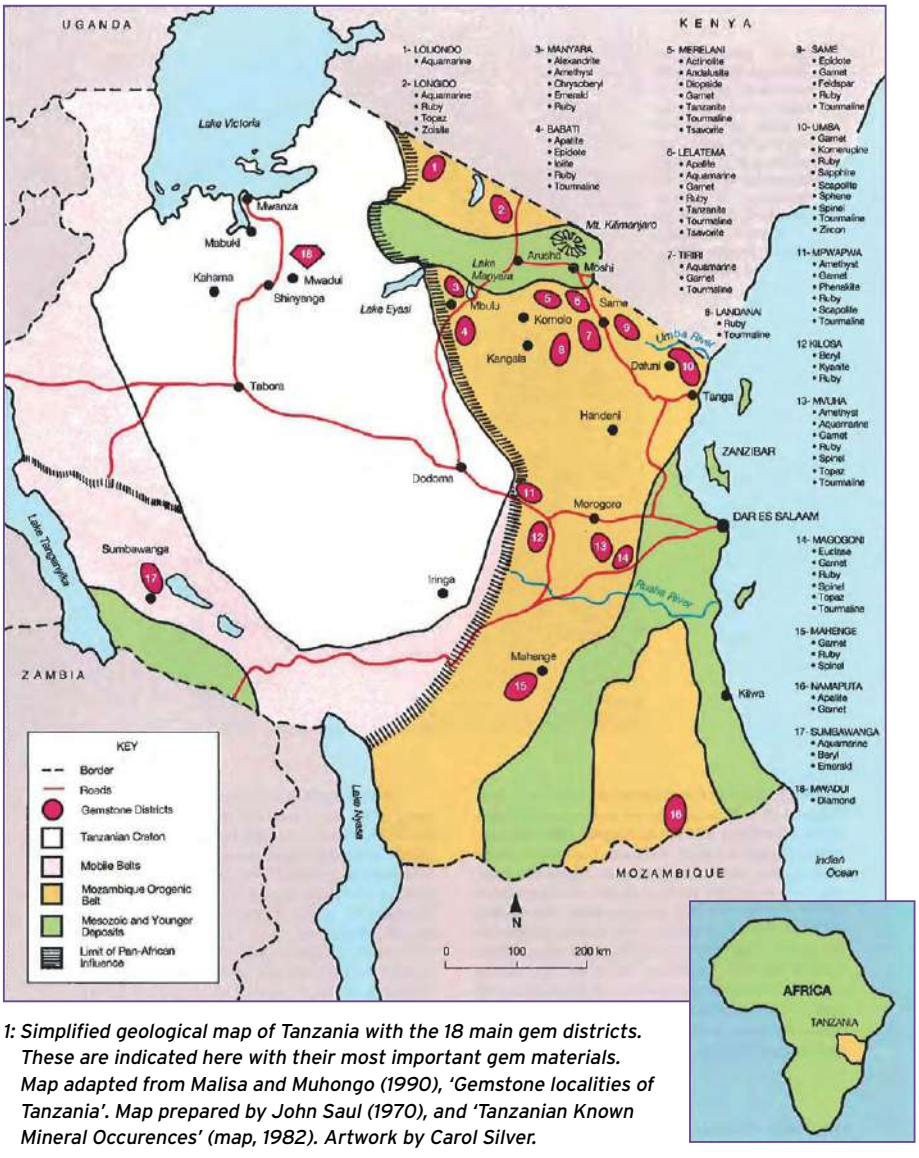
Our students often tackle unusual gemmological phenomena in their final projects. A perfect example is Alexander Klumb FGA, who showcased a special interest in the Usambara effect to secure his Gemmology Diploma in 2016. We are pleased to reproduce his work here.

This study will have a closer look at a very special colour change effect — the Usambara effect. The intent is to make clear what this effect is, how it interacts with other colour change phenomena, and when it was first observed. But first let us have a short look into geography and geology to understand where most of the beautiful and unique gemstones that exhibit the Usambara effect come from and how they are formed.

REGIONAL GEOLOGY OF THE USAMBARA MOUNTAINS AND THE UMBA VALLEY

Tanzania is one of the larger countries in East Africa. The neighbour states in the north are Kenya and Uganda. In the east, Tanzania is delimited by the Indian Ocean. To the south, the neighbour states are Zambia, Malawi, and Mozambique and to the west Rwanda, Burundi, and the Democratic Republic of Congo. Tanzania is also the homeland of Africa's highest mountain, the Mount Kilimanjaro (**1**).

Since the late 1800s Tanzania has been the subject of formal geologic mapping and exploration projects in which some major geologic environments have been identified. One of the main geologic divisions in Tanzania is the Precambrian Usagaran Belt, part of the much larger Mozambique Belt, in which the Umba Valley at the foot of the Usambara Mountains is located (**1**).

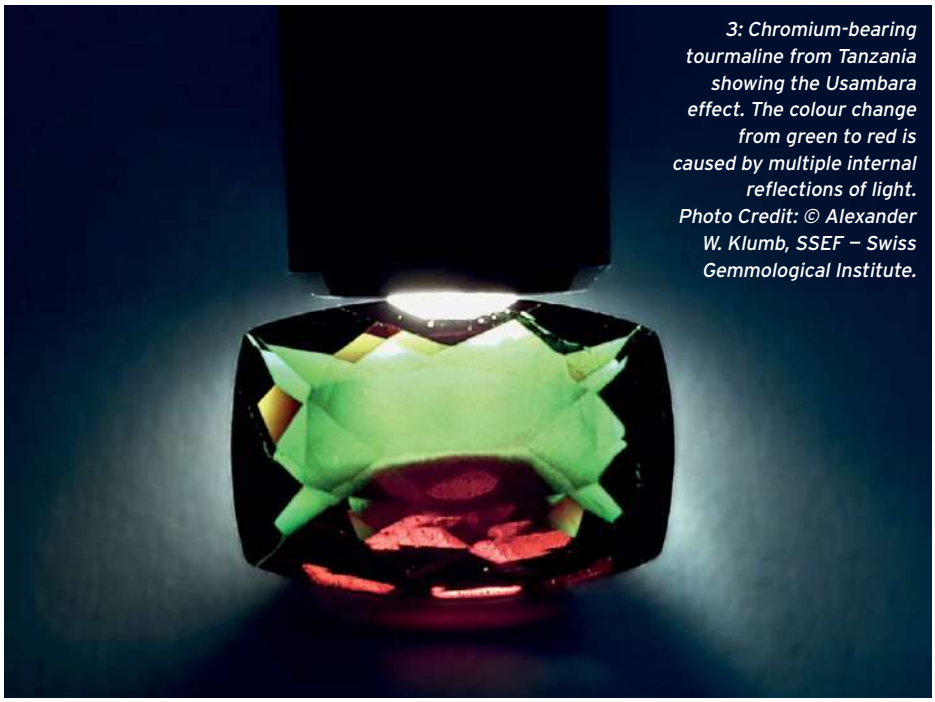


1: Simplified geological map of Tanzania with the 18 main gem districts. These are indicated here with their most important gem materials. Map adapted from Malisa and Muhongo (1990), 'Gemstone localities of Tanzania'. Map prepared by John Saul (1970), and 'Tanzanian Known Mineral Occurences' (map, 1982). Artwork by Carol Silver.

This is one of the richest gemstone areas in East Africa producing ruby, sapphire, spinel, garnet, tourmaline, chrome diopside, zircon, scapolite and kornerupine to name just a few.

The rocks in this geological formation have undergone extensive metamorphism, plutonism, folding and faulting. High-grade metamorphic events (up to 800°C) produced several granulite complexes. In association with major tectonic events, a wide range of minerals were subjected to heat, pressure and hot fluids. According to Dirlam et al. (1992) these processes have caused a remobilisation of chromophore/transition elements such as chromium and vanadium.

These elements then concentrated in gem-materials like e.g. garnets, tourmalines and sapphires from this district and resulted in their unique colours which are not found elsewhere and in optical phenomena like colour change comparable to alexandrite (Bank and Henn, 1988; Dirlam et al., 1992).



3: Chromium-bearing tourmaline from Tanzania showing the Usambara effect. The colour change from green to red is caused by multiple internal reflections of light. Photo Credit: © Alexander W. Klumb, SSEF – Swiss Gemmological Institute.

COLOUR AND COLOUR CHANGE EFFECTS

"Colour change in minerals is complex and its understanding requires a holistic approach."

This quotation by Halvorsen (2006) highlights how one has to understand all aspects that contribute to a colour change and to the Usambara effect, which can be slightly modified by crystallographic orientation and pleochroism. Consequently this study will not only look at the Usambara effect, but also the alexandrite effect and pleochroism, which will be briefly explained.

ALEXANDRITE EFFECT

Since it was first described in 1831 for alexandrite (the chromium-bearing variety of chrysoberyl) from Russia, colour change, also known as 'alexandrite effect' has been studied extensively by many scientists (von Pott, 1842). When the main hue of a mineral in daylight differs from that seen in incandescent light we traditionally speak of colour change (LMHC 2010, Infosheet No. 9). (**2**) shows an alexandrite exhibiting this kind of colour change.

The main three factors for observation of colour change in a gemstone or mineral are: two white light sources of distinctly different emission spectra (e.g. daylight vs. incandescent light); a material that shows two transmission windows in its absorption spectrum separated by an absorption band at approximately 570nm (commonly due to transition metals like chromium or vanadium); and an observer whose brain interprets the incoming residual light energies into an according colour sensation (White et al. 1967; Nassau, 1983).

Minerals showing a colour change like the alexandrite effect are said to have dichromatic transmission spectra. This means, that for light sources stronger in the red wavelengths (incandescent light), the perceived colour is red. In contrast, daylight is stronger in the green part of the spectrum and the eyes are more sensitive. Thus, the perceived colour is green.

Apart from the alexandrite effect (colour change), there are other effects, which may considerably contribute to the colour perception of a mineral or gemstone, namely pleochroism (Liu et al., 1995) and the Usambara effect (Halvorsen and Jensen, 1997).

PLEOCHROISM

The effect of different colours due to different selective absorption along two (uniaxial) or three (biaxial) vibrational directions within an anisotropic mineral (very distinct in alexandrite) is described as pleochroism. This property may also influence the perceived colours in anisotropic minerals. This happens by reducing the colour change especially in faceted alexandrite due to multiple internal reflections of the different plane polarized pleochroic colours (Liu et al., 1995).

USAMBARA EFFECT

The Usambara effect was first described as 'colour-shift' on colour changing garnets by Manson and Stockton in 1984. Only in 1997 was this 'colour-shift' fully described by Halvorsen and Jensen on chromium-bearing tourmalines from the Umba valley at the foot of the Usambara Mountain range in Tanzania and thus named the Usambara effect.

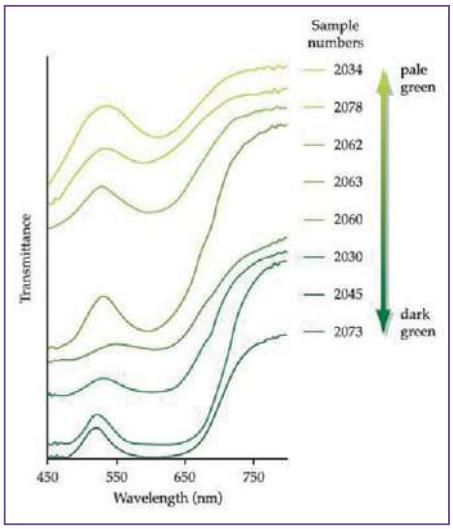
It is a not-so-well-known type of colour change in the public mindset and, in contrast to the alexandrite effect, is not dependent on the type of illumination (different white light sources). The Usambara effect describes the property of a material to change colour in relation to the path length that the light travels through the material. The colour of gem materials exhibiting the Usambara effect can change due to internal reflections (**3**) or when two stones are superimposed (resulting in a 'doubling' of the path length). Internal reflections are an effective increase in path length and red flashes may appear in an otherwise greenish Cr-bearing tourmaline at some facets. Nevertheless, both pleochroism and the alexandrite effect play an important role when observing the Usambara effect.

THE USAMBARA EFFECT IN TOURMALINE

The crystal structure of tourmaline is very complex and numerous different elements can be incorporated in many different crystal sites. The general formula of tourmaline is $XY_3Z_6B_3Si_6O_{27}(O,OH)_3(OH,F)$. Tourmalines of the Umba Valley usually belong to the Dravite- (Na, Mg, Al) or Uvite-series (Ca, Mg, Al/Mg), seldom to the Liddicoatite-series (Ca, Li/Al, Al).

Qualitative EDXRF analyses on these stones indicate a significant content of vanadium, which is nevertheless only a quarter of their chromium content (Halvorsen and Jensen, 1997). According to Schmetzer and Bank (1979) in most green so-called 'chrome tourmalines' from Kenya and Tanzania, vanadium is in excess of chromium and they should therefore be named vanadium tourmalines.

In (**4**), transmittance spectra of eight samples of Usambara effect tourmalines are shown. Samples with a high vanadium-content show a distinctly broader absorption band in the yellow-orange (approx. 550 – 650nm) part of the spectrum (and therefore a more bluish green colour) than the ones with a lower vanadium-content (pure, but pale green colour).



4: Transmission spectra for eight Usambara effect tourmalines from Nchongo, Tanzania, investigated by Halvorsen and Jensen (2006).

5: A green Usambara effect tourmaline turns red when placed on top of another green Usambara effect tourmaline marking the critical thickness change-over point. Photo Credit: © Asbjørn Halvorsen

All the stones under test showed different shades of green from golden green, via olive green to bluish green in both transmitted and reflected light (Halvorsen and Jensen, 1997) and appeared mustard yellow under short wave ultraviolet illumination (254nm). Exactly the same reaction was reported several years before by Dunn for chromium-bearing tourmalines with low iron content (Dietrich, 1985).

At the so-called critical thickness change-over point of the material (the critical path-length through the gemstone), the perceived colour of the transmitted light shifts to red (**5**). This effect can be observed viewing either the ordinary or the extraordinary ray.

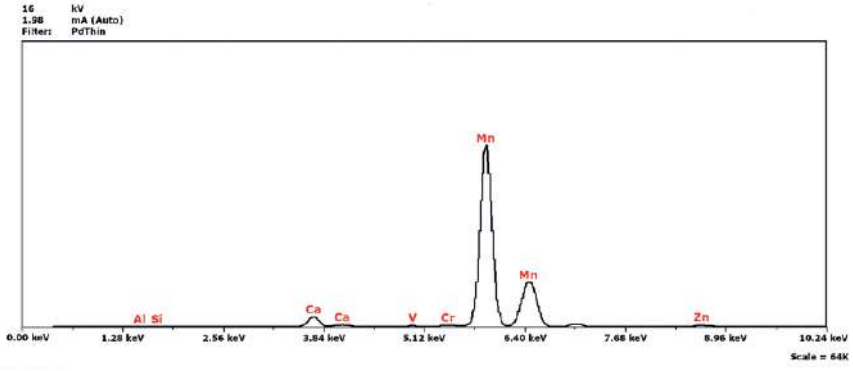
THE USAMBARA EFFECT IN GARNET

Some time ago, some exceptionally large colour changing garnets from southern Tanzania between 50 – 140 carats each were analysed by the SSEF Swiss Gemmological Institute (see also *SSEF Facette* No. 21, 2014, pages 16-17). With spectroscopic and chemical analyses, it was confirmed that these chromium- and vanadium-bearing stones belonged to the pyrope-spessartine series, because the stones showed substantial concentrations of magnesium (pyrope-component) and manganese (spessartine-component). The chemical formulae for these end members are as follows: Pyrope: $Mg_3Al_2(SiO_4)_3$ and Spessartine: $Mn_3Al_2[SiO_4]_3$ (**6**).

The stones showed a distinct colour change from brownish green in daylight to red in incandescent light. This is, as mentioned before, due to the two transmission windows in its absorption

Chemical analysis:

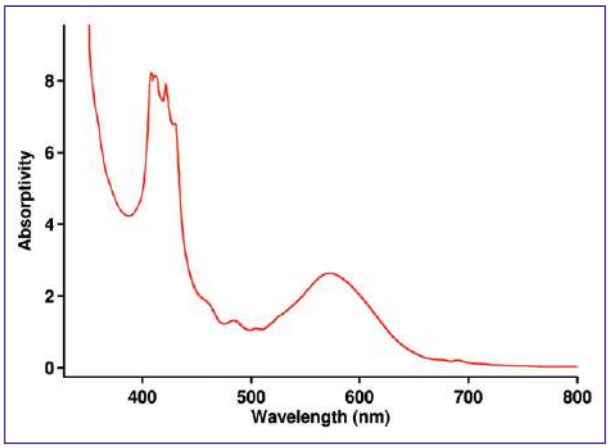
spectrum:



analysis:

Element	Normalized	Std. Dev.
Na2O	0.00 %	0.0
MgO	12.65 %	0.12
Al2O3	18.077 %	0.067
SiO2	37.40 %	0.13
CaO	7.671 %	0.025
TiO2	0.0554 %	0.0043
V2O3	0.0911 %	0.0033
Cr2O3	0.2127 %	0.0036
MnO	21.946 %	0.037
Fe2O3	1.783 %	0.014

6: EDXRF spectrum of one of the large colour changing garnets (approx. 140cts) from Tanzania showing magnesium and manganese confirming that this garnet belongs to the pyrope-spessartine series. Trace element amounts of chromium and vanadium were also measured. © SSEF – Swiss Gemmological Institute.



7: Absorption spectrum of one of the large colour changing garnets (approx. 140cts) from Tanzania with a distinct absorption band due to chromium and vanadium at 570nm and very weak band at 690nm due to chromium. © SSEF – Swiss Gemmological Institute.

9: Usambara effect (red transmission colour) shown with two superimposed colour changing garnets (each brownish grey in daylight) of ± 50ct. Photo Credit: © M.S. Krzemnicki, SSEF – Swiss Gemmological Institute.

spectrum separated by an absorption band at approximately 570nm which is commonly due to transition metals like chromium or vanadium (**7**). The very weak absorption band at 690nm is due to the presence of chromium. The effect of dichroic colours can be excluded due to the isotropic nature of the garnets.

Very similar absorption spectra can be seen with the above mentioned tourmalines and also for alexandrites. The spectra of these two types of stones are broadly similar with the absorption spectrum of the garnet in (**8**) showing absorption bands at almost the same wavelengths. It becomes obvious that only minerals with absorption spectra characterised by two colour maxima show the Usambara effect. These minerals are therefore named 'dichromatic'.

In contrast to the tourmalines investigated by Halvorsen and Jensen, the reaction of the garnets under long wave ultraviolet illumination was slightly red and under short wave ultraviolet illumination nearly no reaction was visible.

Furthermore in daylight the Usambara effect was visible, resulting in reddish facet reflections around the girdle (**8**).

In the large-sized faceted garnets this effect could easily be seen without superposition of a second stone. In the main part below the table, where the light simply transmits through the volume of the stone, these garnets display a brownish green colour. The facets around [it] display reddish reflections as a result of increased path lengths of light by internal reflections. This effect can only be seen in daylight. In incandescent light the whole stone appears red due to the colour change (alexandrite effect) and covers the Usambara effect.

> Colour change in minerals is complex and its understanding requires a holistic approach.

With smaller stones this effect is usually only visible when two stones (both brownish green) are superimposed, one upon the other, with no change in the conditions of illumination or in orientation (only for anisotropic stones). Based on the elongation of the path length the resulting transmission colour appears red (**9**).

CONCLUSION

Based on all observations made so far, it can be said that the Usambara effect can only be seen in dichromatic minerals or gemstones. Furthermore, the Usambara effect interacts and is affected by other phenomena like the alexandrite effect, pleochroism and thus also crystallographic orientation.

It is still largely unknown to what degree these effects interact with each other, which is why in the future further tests have to be done to fully understand these complex interactions causing colour shift and colour change. It is also important to observe and test stones from other localities around the world to confirm the results gained from stones originating in the Umba Valley in Tanzania. ■

Full bibliography available upon request.

8: Colour change of garnet from daylight (brownish green) to incandescent light (red). The reddish brown facet reflections around the girdle in daylight are the result of the Usambara effect. Photo Credit: © SSEF – Swiss Gemmological Institute.

WORDS OF WISDOM

Freelance jewellery and watch journalist and editor, Barbara Palumbo, talks to *Gems&Jewellery* about her sparkling career, her successful blogging platforms and the advice she would give to aspiring jewellery writers, columnists and authors.

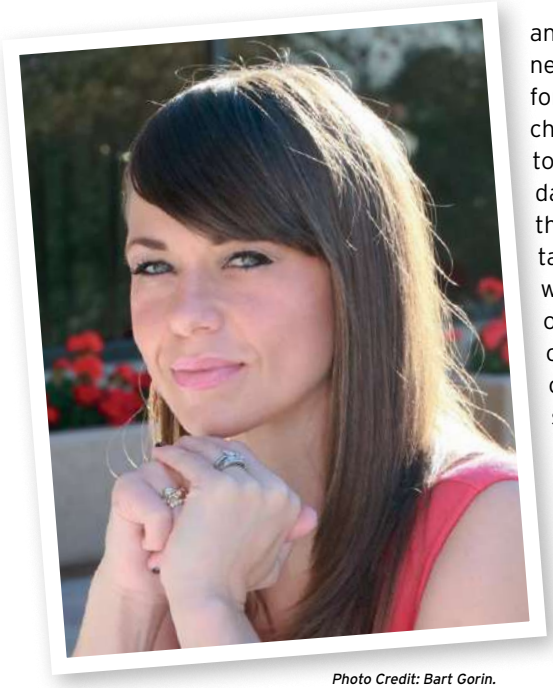


Photo Credit: Bart Gorin.

Discovering beautiful jewellery, discussing gemstones and perusing diamonds is the stuff of dreams for many, but for American journalist Barbara Palumbo, it is a way of life. As a specialist jewellery and watch writer, Palumbo has travelled the world in search of the latest trends and innovations, writing for leading publications and establishing her own websites – WhatsOnHerWrist.com and Adornmentality.com – in the process. Here, *Gems&Jewellery* gets the inside scoop on what it takes to carve a career in jewellery writing and editing...

How did you find yourself working in the jewellery and watches sector?

My uncle was a part-time metalsmith and had a jewellery bench in his basement for as long as I can remember, but never did I think to myself as a young kid that this was something I wanted to do. It wasn't until I found myself at 23-years-old and without a job that I answered an advertisement in a Philadelphia newspaper for a jewellery store looking for 'runners'. They were the people in charge of taking a customer's sketches to the wax-carver (this was pre-CAD-CAM days), then taking the wax to the caster, then the casting to the polisher before taking it to the stone setter. All these workers – these craftspeople – had their own businesses on one street, so you could go to a lapidary on the 5th floor of one building before dropping off the stone you just picked up to the setter on the 2nd floor. The job paid $10.00 per hour in 1996, which was a pretty good wage at the time, but what I got out of the experience was priceless.

In my first year of 'running' I was educated from start to finish on how jewellery is made. I got to know all the Armenian master jewellers and the Israeli diamond dealers and the Italian goldsmiths. Working in a large jewellery district not only opened my mind to the art and craft of the trade, but it taught me about cultures and that was part of the reason I found the industry so special and so intriguing.

> Our days as members of this industry are potentially numbered if we don't pull together as one entity and collectively teach the next generation.

In August of 2013 I launched my original blog, Adornmentality.com, with the idea that I wanted to bring some fun back into the jewellery world. It was immediately well-received and in a short period of time I found myself with a solid following from all over the world. Three years later, after having been given an ultimatum to choose between the blog I wrote (which was an unpaid side project) and the sales job I had (which was business development for a luxury jewellery brand), I decided it was time to take my writing to the next level and so I launched my own media company (TheAtrics Media) and, with it, a female-friendly watch blog called WhatsOnHerWrist.com.

What do you think are the core challenges in today's jewellery market?

Honestly, I think a huge challenge, particularly in the retail market, is that younger people don't want the jobs that made jewellery such a successful industry decades ago. In the age of Instagram 'superstars', YouTubers, and influencers, some Millennials simply weren't interested in standing behind a sales counter or sitting at a work bench, even when the business was passed down to them. Many wanted to be their own bosses and start their own companies and so there was never this experience of moving up the ladder gradually. But Generation Z is different, and they could possibly turn the industry around.

Experiences and education for the next generation will result in them appreciating what goes into making a piece of fine jewellery, and in turn, that could save the industry from its potential demise. But, we have to be open to involving more kids – young kids – in everything from mining trips overseas to enrolling them in summer jewellery-making camps. I believe if we teach Gen Z,

Barbara (far right) taking part in a panel discussion. Photo Credit: Initiatives in Art and Culture.

then they will take the reins and see to it that the other current core challenges (the lab-grown vs. natural diamond debate, nondisclosure in media, mercury in mining environments, underpaid workers, workplace discrimination, etc.) are either addressed, solved, or become problems of the past.

In your blogs you often talk about debunking the myths surrounding our trade and offering a more honest approach – do you think we all need to do more to own up to the complexities and challenges in our industry?

What we need to do as an industry is realise that we are all in this together. If we fight one another, if we become territorial, or if we think we can't tell other people our secrets because we don't want them to be successful (because their success would take away from our success), then we will isolate ourselves to the point of being recluses. We can't be an industry of recluses. Our days as members of this industry are potentially numbered if we don't pull together as one entity and collectively teach the next generation.

What are your thoughts on the shifting landscape of lab grown diamonds and De Beers' Lightbox venture?

I think it was pretty smart of De Beers for a couple of reasons. First, the price points for these 'diamonds' are fairly low and while you might think that a lower price point would send the consumer running toward the lesser expensive product, when it comes to diamonds, it's probably going to have the opposite effect. These Lightbox stones are so inexpensive that the buyer might feel uneasy spending so little on something that is supposed to represent eternity, which may very well send them back to natural diamonds, thus creating a win-win situation for De Beers. I mean, kind of brilliant, business-wise, don't you think?

Finally, in your opinion, are there any brands or businesses that are really doing something special right now?

I am very impressed with Chopard because of its promise to use only Fairmined or ethically-sourced gold in both its jewellery and watch lines, and to have that [transition] happen over the next couple of years. I feel that this has sent a strong message to some of the other luxury brands out there, and hopefully some of the others will step up to the plate as well. ■

Meet Barbara Palumbo at the 2018 Gem-A Conference at her workshop with Monica Stephenson on Monday, November 5, 2018.

Barbara Palumbo strikes a pose at Dubai Watch Week. Photo Credit: Dubai Watch Week.

Recycling the ROCK CYCLE

With the issue of resources, recycling and responsibility taking centre stage in our modern world, Kerry Gregory FGA DGA considers whether the gemstone trade is adept enough at repurposing stones that have already been uncovered.

Buying and selling gemstones at auction is a growing trend among consumers and a fantastic example of gemstone recycling. Image Credit: Fellows Auctioneers.

It seems at the moment not a day passes without mention of an environmental issue in the news or on social media. Ban plastic straws, stop fracking, halt climate change... in this context should our industry think more about how we consume gemstones?

Worldwide production figures for gemstones are difficult to assess; there are around 2,700 known minerals in the world, around 100 of those with the qualities that make these suitable for use as gemstones. With gemstones mined across every continent except Antarctica, and much of that mining being artisanal in coloured stones, calculating a worldwide production total is an almost impossible task. However, if we look at diamonds, whose figures are more readily available, in 2016 approximately 122 million carats were produced according to the British Geological Survey, which equates to approximately 30 billion tons of earth moved (based on an average of 250 tons per carat). Should we be reducing, reusing and recycling instead?

LET'S START WITH REDUCING

We are gemmologists, we love gemstones, and the use of gemstones provides us with a profession. If we reduce the use of gemstones we reduce our usefulness and potentially our livelihoods. Personally, I would like to see more gemstones in jewellery.

SO HOW ABOUT REUSING THEN?

Reusing gemstones is not a new thing, for as long as we have used gemstones to adorn ourselves, we have remodelled and reworked the jewels that contained them when fashions and our whims changed. If anything, with our 'disposable' society this happens less now. Whilst remodelling still continues, modern consumers are more likely to sell old jewellery to put towards mainstream mass-produced pieces than spend the time and money remodelling or remaking. How many of our engagement and wedding rings were once granny or grandad's? Hopefully, with more consumers wanting to be connected to the things they own, wanting a story and emotional attachment, this will change and we will see more demand for the traditional craft of reworking jewellery.

Sorting gemstones in order for them to be recycled and reused in new jewellery designs. Image Credit: Kerry Gregory.

THIS LEAVES US WITH RECYCLING

The Oxford Dictionary definition of recycling is 'the action or process of converting waste into reusable material'. Are gemstones 'waste'? Do we throw them away? Unfortunately, yes. How many of you have sent items to be scrapped or melted without removing the gemstones? It happens frequently due to the nature of the precious metal market, where scrap jewellery needs to be processed quickly. It takes time and effort to manually remove gemstones from mountings, and although companies like Presman Mastermelt (Hatton Garden, London) offer good value services to chemically de-stone metal, what do you then do with them?

If you work with gemstones in any capacity, chances are you have residue somewhere. Stones removed from scrap, jobbing stones left over, things found on the floor you have never got round to identifying. The problem with trying to recycle these stones is usually the 'action or process' required to convert them into useable material.

Diamonds are less difficult to reuse due to their innate hardness, the fact they rarely need re-polishing, and are easy to identify, clean and reuse as jobbing stones or in new jewellery. They are even relatively easy to sell on if you do not mind taking a big discount off the Rapaport guide price for a single stone. You can parcel them up and send them off to a Rapaport, White Pine (based in New York and Birmingham, UK), or even Fellows Auctioneers (Birmingham, UK) and get a return.

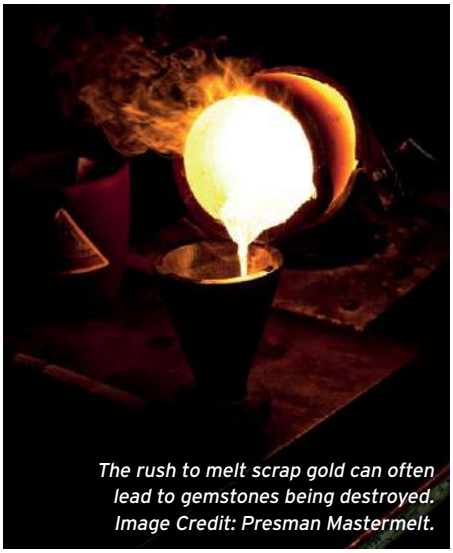
Coloured stones can be trickier. The processes used for de-stoning can frequently damage the stones, introducing chips, fractures and scratches, which are the all-too-common result of manual process. Many less durable stones get damaged or destroyed by chemical processes; corundum, spinel, chrysoberyl and other oxides will survive but tanzanite, emerald, opal and pearl will be destroyed. Quartz, topaz, other beryls and tourmaline usually survive intact unless heavily fractured of filled to begin with. Lead glass filled ruby just falls apart at the mere thought of being boiled in acid!

If you don't have the time, skill or inclination to sort and identify stones, having this done can be a costly process using traditional laboratory services. If stones need re-polishing, the cost of the work in the UK or shipping in bulk abroad is often prohibitive. Therefore, we are often left with a waste product because it is ultimately cheaper to buy new stones than reuse the resources we have.

> How many of our engagement and wedding rings were once granny or grandad's?

IS THERE A MAGIC SOLUTION?

Unfortunately not. I think we need to be creative, be innovative, and find ways to use these stones in new ways that will delight and inspire our customers. We need to collaborate to find solutions for the hurdles that stop us reusing these resources. A good example would be supplying damaged stones to training lapidaries in colleges, or finding ways to pool resources and get gemstones recut in centres abroad. Finally, we all need to educate our consumers on reusing and recycling gemstones, which in turn will fuel a strong auction, vintage and estate jewellery market. ■



The rush to melt scrap gold can often lead to gemstones being destroyed. Image Credit: Presman Mastermelt.

Unmistakeable Mines

In the third of a four part series for *Gems&Jewellery*, Bangkok-based gem testing lab, Lotus Gemology, shares pairs of photographs that, when placed side-by-side, reveal the full story of an inclusion or treatment. In this issue, we explore how inclusions can help to reveal the origin of rubies...

In the laboratory we are often asked to issue our opinions on the origin of a stone. While we look at a variety of factors to form our overall conclusion, the inclusions we see through the microscope are still our most important tool in determining origin.

Most of the origin determination we do focuses on separating stones found in different countries. However, in some cases the inclusions can even provide evidence that stones are from different mines in the same country. One such case is rubies from Burma (Myanmar). The two main sources of ruby in Burma are Mogok and Mong Hsu, both of which have produced fine rubies.

> **IN SOME CASES THE INCLUSIONS CAN EVEN PROVIDE EVIDENCE THAT STONES ARE FROM DIFFERENT MINES IN THE SAME COUNTRY.**

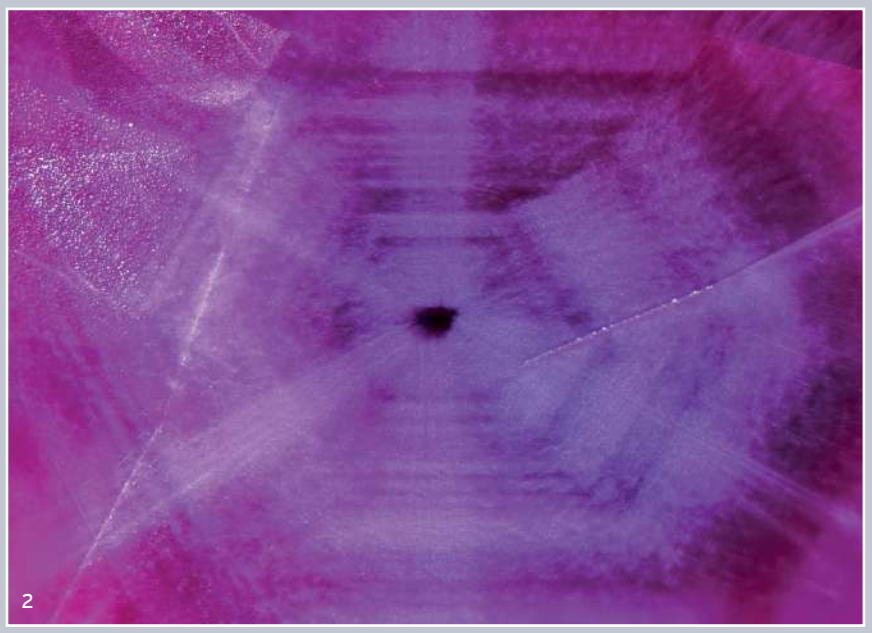
In the stones from Mogok, we commonly see rutile silk in needles (image **1**). Notice how the lines are sharp and well defined. This 'silk' tends to appear clustered in dense 'nests'.

Mong Hsu, on the other hand, has inclusions with a different appearance (image **2**). The silk in these stones is made of diaspore, and instead of forming in needles it has a wispy, 'cottony' appearance. In this example we can see it follows the hexagonal structure of the ruby, but often we see it in less-defined irregular clouds.

By doing these types of inclusion comparisons, we are able to more precisely determine their origin. Both images show examples of stones that have not been heat treated. ■

Photos courtesy of E. Billie Hughes. More photomicrographs by Lotus Gemology are available to view via its Hyperion archive at lotusgemology.com.

1



2

A NOTE FROM LOTUS GEMOLOGY

Both images pictured were taken using fibre optic illumination. Fibre optic lighting is one of the most versatile and important light sources used for testing gemstones and in photomicrography.

BLOOD FROM A STONE

Gem-A tutor Beth West FGA DGA explores the origins of 'pigeon's blood' rubies and uncovers the current issues with the gemstone industry in Myanmar.

'Pigeon-blood red'. The theatre, the passion, and indeed the violence of the term makes it one of the most evocative in the gemmological glossary.

But with any high degree of drama there is always a hint of lunacy in the wings, as made apparent by the controversy around its use.

'Pigeon's blood' translates directly from the Burmese 'ko twe' and is said to describe the colour of the finest ruby. Therefore, as Burma (Myanmar) is associated with the mystical hue, a stone of Burmese origin is actively sought and prized. However, with tensions once again rising in Myanmar, backs are being turned (admittedly with caution) on Burmese gems. The biggest player to make a stand has been Cartier, who boycotted the use of Burmese gemstones in February this year.

This is not untimely. The reserves in Burma's celebrated Mogok tract, which have historically produced some of the world's finest rubies, are drying up. But nature has a penchant for pointing us in the direction of her treasures at serendipitous moments. If we consider the history of diamond discoveries, as the Golconda mines of India dried-up, Brazil unearthed her bounty in the 18th century, only to pass the baton on to Africa in the following century.

We need not mourn the potential loss of Burma, but rather we can celebrate the exciting newer or lesser-known deposits, such as Montepuez, Mozambique, which is now the principal source of rubies. Equally, localities such as Tajikstan, in Afghanistan, and even Greenland are no less significant in terms of the quality being produced.

However, there has been an insistence on carrying the term 'pigeon blood' away from Burmese stones and imposing it upon any stone of vivid colour as a means of securing a higher value. This has led to an out-and-out muddle.

The blame does, in part, fall on Dr A. Peretti of GRS (GemResearchSuisse) Lab, who invited the use of the term onto gemstone reports in 1996. He was justified to a point. By defining 'pigeon's blood' in terms of the ratio of chromium to iron in the stone, where a low iron content would permit it to fluoresce red and enhances the hue, he initiated the suggestion that rubies from other localities are also worthy of the 'pigeon's blood' name because of their individual chemistry, and not necessarily their geographical origins.

However, he commercialised the term by presenting too limited a criteria. The use of 'pigeon's blood' was also extended to incorporate heated stones, which account for a huge percentage of those on the market. It seemed to do little more than enable an increase in profitability per carat, as opposed to offering an appreciation and understanding of what constitutes a colour.

In 2015, in response to concerns that the term may have been misappropriated in the marketplace, the leading coloured gem laboratories, SSEF and Gübelin advanced Peretti's cause by harmonising and developing a more stringent criteria used to define the perfect 'pigeon's blood' red.

As comprehensive as this criteria may appear, what has actually been defined? Yes, it is prescriptive of a vivid red, but is it 'pigeon's blood' red? The term is a poetic device designed to conjure an ideal. The leading authority on corundum, Richard Hughes FGA, calls the colour a state of mind. And as a state of mind, it permits it to soar with subjective interpretation. Therefore, I believe we need to untether the term from science and let it abound in each of our imaginations as we see fit. ■

The criteria for the perfect 'pigeon's blood' red are as follows:

- A high chromium and low iron content with consequential strong red fluorescence.
- An origination in a marble host, regardless of country.
- The presence of 'weak silk', the needle-like rutile common in corundum. Otherwise a lack of visible inclusions.
- A lack of colour zoning.
- A high transparency.
- An exceptional cut that both manipulates the dichroism of ruby to maximum effect and eliminates any extinction or windowing.
- No evidence of treatment.
- Rigidly standardised viewing conditions.

***'The Sunrise Ruby'** An exceptional Burmese ruby weighing 25.59 carats. **Sold for $30,335,698 ($1,185,451 per carat)** Sotheby's Geneva, May 2015. ©Sotheby's.*

A Fabergé pierced diamond bow brooch (c.1913) millegrain set in platinum with rosecut diamonds and a central brilliant-cut diamond.

Dashing Gents

In this insightful extract from *Jewelry for Gentlemen* by James Sherwood, we are introduced to the biggest plot points in the history of men's jewellery and the design movements that have influenced stylish men for generations.

As a brief canter around the British Museum will demonstrate, men of power have adorned themselves with yellow gold and gemstones since the time of the ancients. Celtic thanes, Egyptian pharaohs and Chinese emperors all chose sartorial treasures to display their wealth, refinement and status, and the artistry of the goldsmith invariably made the object more highly prized than the intrinsic value of the precious metal and stones. This remains true of the most desirable pieces of jewelry today.

A Russian imperial yellow gold double-headed-eagle stick pin by Fabergé, surmounted with a crown and set with a ruby (c.1910), courtesy of Wartski. Tailoring by Turnbull & Asser.

The bejeweled male was a glorious if increasingly uncommon sight until well into the twentieth century. In 1928 the fabulously wealthy Maharaja Sir Bhupinder Singh of Patiala commissioned Cartier in Paris to create a five-tier diamond-and-ruby festoon necklace to frame a cushion-cut 234.6-carat yellow diamond. A photograph in the Cartier archives shows Sir Bhupinder's son Maharaja Sir Yadavindra Singh wearing the necklace in 1939, with a foliate diamond 'fender' tiara over his turban. He also sports a substantial diamond rivière necklace and a diamond starburst brooch pinned to a gold-embroidered coat, a large diamond collar and a pearl drop earring. The Patiala necklace disappeared after the Second World War, presumably sold and broken up and the stones re-set, although Cartier reconstructed its masterpiece with the original platinum frame and diamonds, and a citrine in place of the yellow diamond.

For men who collect precious antique jewels, the most highly prized sartorial treasure is the piece that holds all the following major cards: it is signed by an important maker and was owned by a man of fascination, and its design perfectly embodies the elegance of an era. A prime example is the Duke of Windsor's Cartier art deco platinum and diamond dress set of 1935, sold by Sotheby's in 2010. The Duke and Duchess of Windsor's jewels had already broken the world record for a single- owner jewelry sale when they were auctioned in 1987 for £31 million.

The dress set, comprising three buttons, a stud and cufflinks, is monogrammed E (Edward) in diamonds, with an E and a W (Wallis) on the links. One link is inscribed with a date (23/6/35) that was significant for the lovers, and 'hold tight' is inscribed on another. The year 1935 was pivotal in their love story. Within a year the Duke would be proclaimed King Edward VIII and then abdicate for the love of Mrs Simpson. His diamonds tell this story in miniature. The dress set belonging to an ex-king adds lustre, as does the Duke's posthumous position as one of the best-dressed men of the twentieth century. These elements contributed to the £70,000–90,000 estimate for the set, leaping to £115,250 in 2010.

Any piece of jewelry connected to the doomed Russian Romanov royal family is highly prized, to the point that they are collected and worn like religious relics.

> ...the most highly prized sartorial treasure is the piece that holds all the following major cards: it is signed by an important maker and was owned by a man of fascination, and its design perfectly embodies the elegance of an era.

Add the magic word Fabergé, the imperial jeweler that was nationalised after the Russian Revolution in 1918, and even modest pieces of men's jewelry and *objets de vertu* touched by the Romanovs soar into six figures.

In 2009 Sotheby's sold the 100-plus pieces of a forgotten cache of imperial jewels discovered hiding in pillowcases in a Stockholm bank vault belonging to the Grand Duchess Maria Pavlovna (a cousin of Tsar Nicholas II). An imperial enamel, two-colour-gold and diamond Fabergé cigarette case made in 1899 and bought by the Dowager Empress Maria Feodorovna contributed £577,250 to the total of £7,073,300. A handsome pair of Fabergé links in a concentric circular motif with a cabochon sapphire in the centre of each realised £17,500.

The late San Franciscan socialite and realtor John Traina's collection of sartorial treasures included Fabergé jade boxes, gold cigarette cases and fifty-three dress sets made by the greats: Van Cleef & Arpels, Harry Winston, Cartier, David Webb, Tiffany & Co. and Verdura. The 'Elegant John Traina' sale at Sotheby's New York in 2011 doubled estimates and

Exceptional white-gold, moonstone and diamond belle époque dress studs by Chaumet.

Chalcedony cufflinks by Francesca Grima (2015), set in 18ct yellow gold with a ribbon of white diamonds embedded in the stones.

realised $1,921,755. Traina's taste in twentieth-century cufflinks and dress studs was exquisite: 18ct yellow-gold and enamel frogs on lily pads designed by David Well ($6,250), and Jean Schlumberger for Tiffany 18ct yellow-gold and haematite acorns ($6,250).

Traina is a hero of jewelry for gentlemen. One can imagine the pleasure he found in acquiring those dress sets, knowing full well that they would be an amusing opener to a conversation, as all good jewelry should be. Victorian men's jewelry was designed specifically to raise an inquisitive eyebrow questioning the story behind a diamond wishbone stick pin, an enamel playing-card cufflink or a jeweled horse-and-jockey lapel pin. The Victorians appreciated jewelry that hinted at a man's interests, character or heart. Sentiment is a theme that runs throughout this book, largely because so many pieces for men were precious mementos of interesting lives.

ARCHAEOLOGICAL REVIVAL

Yellow gold in the antique style is unimpeachably masculine. The Castellani workshop in Rome produced jewelry inspired by the study of Byzantine, Greek and Roman gold archaeological finds. The Castellani brothers rediscovered the Etruscan technique of gold granulation, setting ancient cameos and intaglios in elaborate filigree designs. Jewelry made in the archaeological revival style was bought by Emperor Napoleon III of France and by Queen Victoria's consort, Prince Albert. Carlo Giuliano trained in the Castellani workshops, where he became a master of enamelling and developed his own style, rather than copying antiquities. The setting of ancient coins and cameos in yellow gold has since become a signature of the Italian house Bulgari.

ART NOUVEAU

The languid lines of art nouveau jewelry acknowledge the influence of Japanese art, the Aesthetic movement and natural motifs. Art nouveau revolutionised

The 18ct blackened yellow-gold and cabochon-emerald Villain pendant. Tailoring by Sir Tom Baker.

jewelry design and the master was René Lalique, whose intricate work was characterised by renderings of flowers, vines and the female form in gossamer-thin yellow gold and sinuous plique-á-jour enamelwork. Lalique's Parisian contemporaries Georges Fouquet and Henri Vever mastered the art, as did Liberty & Co in London and the American marques Tiffany & Co. and Marcus & Co.

NATURALISTIC

The 1890s vogue for naturalistic motifs in white diamonds and coloured stones unleashed a swarm of jeweled bees, butterflies, spiders, lizards, dragonflies and birds in flight, some set *en tremblant* to move with the wearer. Spray brooches of ivy, orchids, wisteria and roses were also popular. Naturalistic brooches by Tiffany & Co., Chaumet and Garrard,

A 14ct yellow-gold diamond and ruby Bow & Arrow brooch, attributed to Paul Flato.

among others, are a particularly rich source for men's lapel pins. Diamond hair ornaments for *belle époque* ladies migrate happily on to the lapel of a modern gentleman.

ART DECO

The frantic energy of art deco was reflected in fashion and jewelry influenced by the Garçonne style of Coco Chanel's moderns, Serge Diaghilev's Ballets Russes and the craze for Egyptiana following the discovery of Tutankhamun's tomb in 1922. The East-meets-West ebullience of the maharajas' jewels made by Cartier, Boucheron and Van Cleef & Arpels arguably represented the apex of the era's style. Art deco jewelry is georic in design and has a cold, severe brilliance. The dazzle of precious stones is balanced by the dull sheen of lacquer, onyx and rock crystal. Deco had its mavericks who retained their own style throughout the period, such as Paul Flato, for whom Fulco di Verdura designed the ingenious solid yellow-gold Nuts & Bolts cufflinks, and Suzanne Belperron, who graduated from the René Boivin atelier in Paris.

A Victorian diamond twelve-ray star brooch from Bentley & Skinner, centred on a 0.65ct old brilliant-cut diamond (c.1870). Tailoring by Henry Poole & Co.

MID-CENTURY OPULENCE

Of the limited jewelry design during the Second World War, the most interesting pieces for men are the yellow-gold 'tank track' and 'bicycle chain' bracelets designed by Cartier. The spotlight after the war turned towards the American masters Harry Winston, Tiffany & Co. and Fulco di Verdura. Post-war austerity had already popularised semi-precious stones, which are particularly showy set in yellow-gold signet rings. Novelty brooches such as those by Van Cleef & Arpels and LaCloche Frères, and Verdura's 'cocktail jewelry' entered the men's jewelry box with such talking-point pieces as Jean Schlumberger for Tiffany & Co.'s rope knot, acorn and animal cufflinks.

FUTURISM AND ABSTRACTION

The stars of 1960's and 1970's jewelry, Andrew Grima, John Donald and David Webb, have a cult following among connoisseurs of fine jewelry design, and Grima is venerated and collected by such tastemakers as Miuccia Prada, Marc Jacobs and the Duke and Duchess of Devonshire. There was a space-age, 1960s futurist element to Grima's preference for included, unpolished minerals, crystals and semi-precious stones. Precious stones are accents in Grima's designs, and among his most covetable work are the stalactite and shell brooches in woven yellow gold with chips of baguette-cut diamonds. ■

This text is extracted from **Jewelry for Gentlemen** *by James Sherwood (published by Thames & Hudson). All images courtesy of Andy Barnham.*

An elegant gold leaf brooch scattered with round brilliant-cut diamonds by Pierre Sterlé (c.1950). Courtesy of Hancocks. Tailoring by Henry Poole & Co.

Gem Empathy 2018 Winning Design, by Tivon Fine Jewellery.

Amertrine by award-winning gem cutter, John Dyer.

CAPTURING **THE BEAUTY**

The annual Gem-A Gem Empathy competition, in collaboration with trade event International Jewellery London (IJL), celebrates those who keep gemmology at the forefront of jewellery design. In an exciting change for 2018, Gem-A invited entries from the entire spectrum of IJL exhibitors, not just those in the Design Gallery.

Brands, designers and wholesalers were tasked with creating a hand-drawn or CAD rendered design to showcase the beauty of an 18.28 carat Bolivian ametrine, which has been expertly faceted by award-winning gem-cutter, John Dyer. Showcasing Dyer's signature 'Dreamscape' cut, the gemstone is visually striking, highly unusual and certainly inspired a great deal of creativity among IJL exhibitors.

To decide the winner and runners-up, Gem-A assembled an judging panel made up of Gem-A CEO, Alan Hart, IJL event manager, Sarah Kitley-Spencer, and *Retail Jeweller* magazine editor, Ruth Faulkner. The trio were looking for entries that highlighted the innate beauty of the gemstone, its cut and colours, but also a sense of manufacturing practicality and aesthetic style. The winner was later declared as Ariel Tivon of Tivon Fine Jewellery, for his summer-inspired ring. The design incorporates swirls of 18k rose gold, diamonds, and pink and orange sapphires to perfectly complement the ametrine centrepiece.

Winner Ariel Tivon with judges Sarah Kitley-Spencer and Alan Hart.

"For me, what really stood out about the design from Tivon was the way in which the other vivid-coloured gemstones had been incorporated into the design to maximise the tones of the ametrine," says Ruth Faulkner, editor of *Retail Jeweller* magazine.

Two runners-up who narrowly missed out on this year's Gem Empathy Award were Yvonne Knight, with her striking cuff design, and Leya Levi, who impressed with a bracelet design in hammered white gold.

Ariel Tivon was presented with his prize, the 18.28 carat Bolivian ametrine, at International Jewellery London on September 4. He will now use the stone to bring his stunning ring design to life. ■

Runner up Yvonne Knights' striking cuff design, with calibré cut princess cut diamonds.

Runner up Leya Levi's bracelet design of dark hammered white gold.

JOURNEY TO SRI LANKA

Captured on a joint field trip hosted by Gem-A and the National Association of Jewellers (NAJ), this picture of a Sri Lankan miner, taken by Charles Evans FGA DGA, reveals the human face of small-scale sapphire mining.

There exists a wonderful dynamic synergy in some small-scale gem mining between Mother Nature's cycle of the seasons, the farmer and the miner, all while being licenced and controlled by the state. When the dry season is in full swing, the rice paddies in the Elahera region of central Sri Lanka switch from food production to mining. The dry fields are excavated as the rich soils of this country cease to produce food and are exposed down to the layers of old alluvial gem-bearing gravels. The fertile topsoil is laid to one side in order to be replaced as the mining season ends and the holes get filled in again for the rainy season. The sub-soils are put in another pile. The high water table provides the water necessary to wash the extracted gravels. The two miners pictured here, who are also rice farmers, were showing me their finds of the day, including a mixture of well-formed gueda sapphire crystals, some well-tumbled tourmalines and some impressive garnets. ■

The second annual Gem-A and NAJ field trip to Sri Lanka is taking place this month (October 1-16, 2018). Attendees are given an escorted tour of various mine sites, as well as the opportunity to buy gems, see gem-cutters in action and partake in a safari.

Gem-A INSTRUMENTS

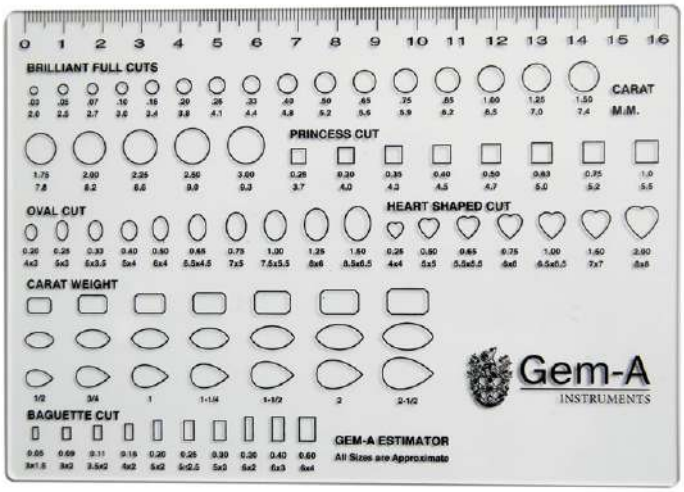
Current Gem-A members and students get a 10% discount on instruments!

GET A FREE DIAMOND ESTIMATOR GAUGE!

To celebrate the upcoming Gem-A Conference, the team at Gem-A Instruments has launched an exciting giveaway. Discover how a free Diamond Estimator Gauge can help you...

From the moment this issue of *Gems&Jewellery* lands on your desk, until Friday November 30, visitors to the Gem-A Instruments shop at Gem-A's London HQ will be gifted a Diamond Estimator Gauge if they quote 'Gems&Jewellery'. Those attending the Gem-A Conference from November 3-4, 2018, can also get their hands on one by visiting the Gem-A Instruments stand. There is no minimum spend required – if you purchase anything from Gem-A Instruments you will receive your free gift.

The Diamond Estimator Gauge is a simple-to-use tool for estimating the carat weight of brilliant, princess, heart, oval and baguette-cut diamonds. Simply hold the template over a diamond or lay your stone over the gauge to read the carat weight. Plus, the gauge can be used for both loose and mounted gems, making it versatile and quick in the field.



Don't miss the full Gem-A Instruments range of diamond testing equipment!

Presidium Synthetic Diamond Screener II
An upgraded version of Presidium's original diamond screener to differentiate between synthetic Type IIa colourless diamond and natural Type Ia colourless diamon\d.

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Our best-selling multi-tester that distinguishes between loose and mounted diamonds, simulants and synthetic moissanites.

CZ Colour Comparison Sets D-M & N-Z
These one carat round brilliant-cut cubic zirconias range in colour from D-M and N-Z and are essential for grading colourless to fancy coloured diamonds.

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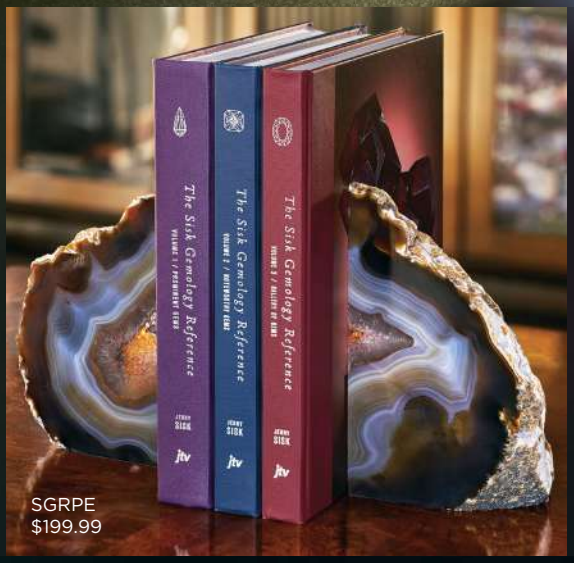

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