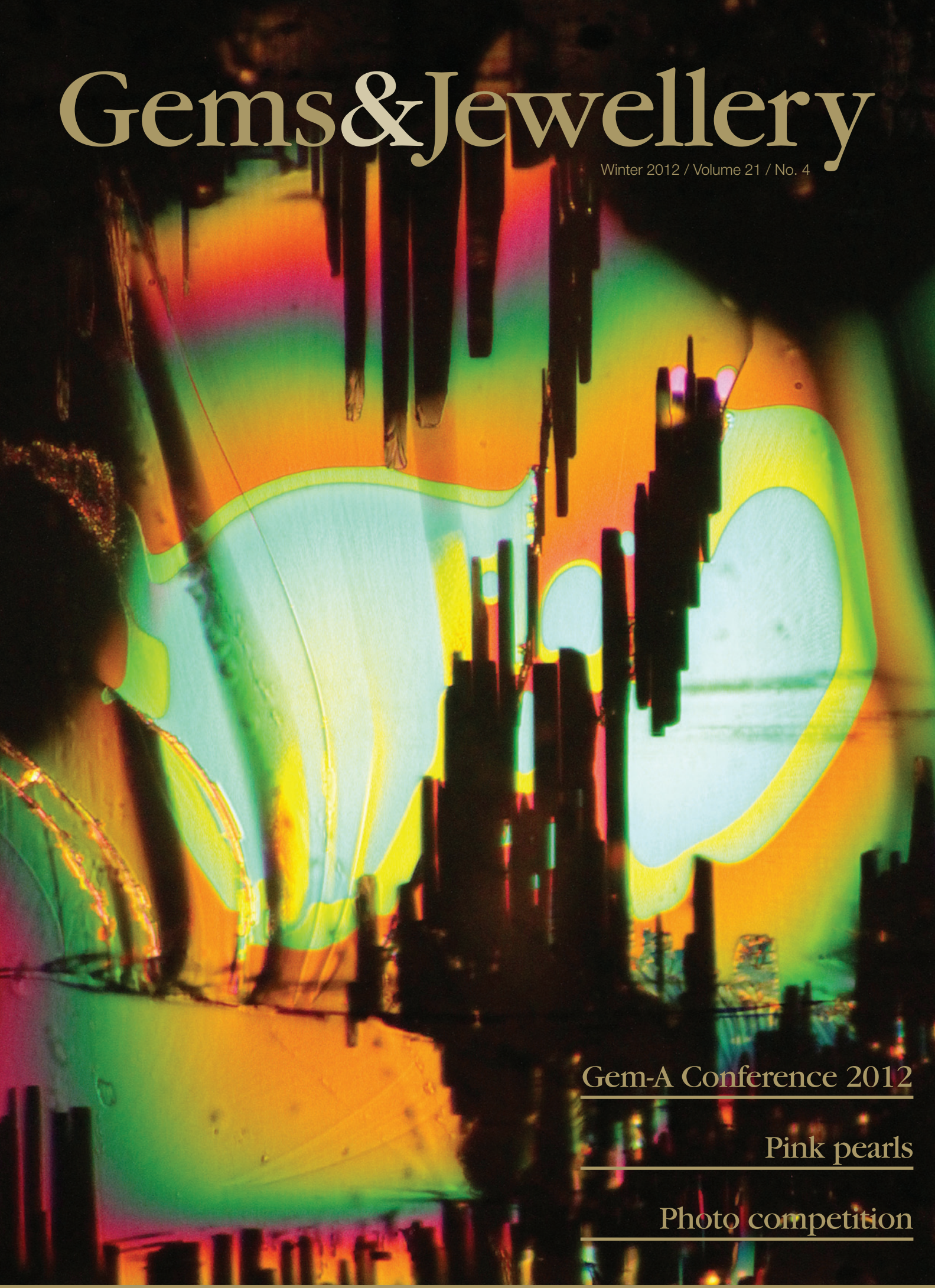
Gems&Jewellery

Winter 2012 / Volume 21 / No. 4

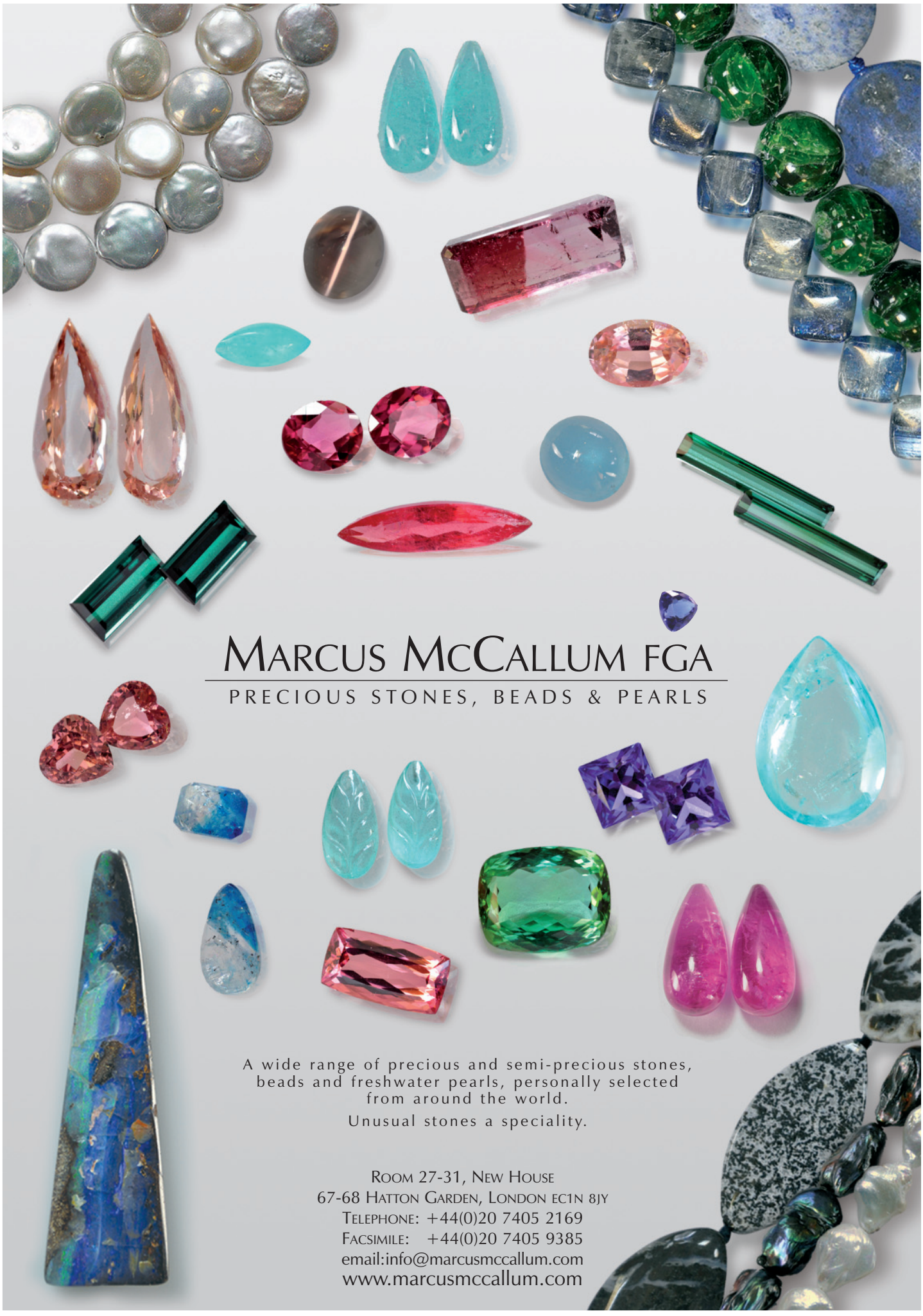


Gem-A Conference 2012

Pink pearls

Photo competition

The Gemmological Association of Great Britain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Editorial

Gems&Jewellery

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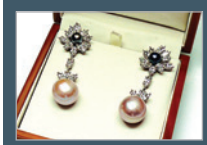
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Romancing the stone

Gemmology, as gem dealers are wont to tell us, would not exist without the gem trade. That's largely true. Without people buying gems, there would be no treatments or synthetics and who would care if it was a taafeite or a spinel? However it is not entirely true because there are gemmological hobbyists, people who study gems or their properties for the sake of it. Many are to be found among Gem-A's membership.

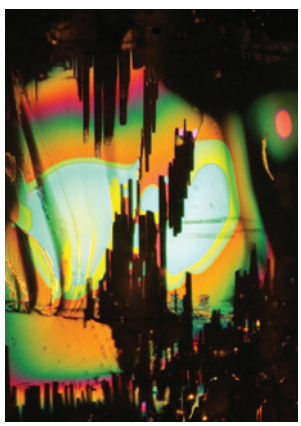
Even so, the prime motivation for gemmological research is the commerce in gemstones. So it is fair to ask just how independent the gem labs should be of the trade. Independence is not that obvious. One might define gemmology as the science of trying to define and classify objectively the subjective criteria that steer the gem market. I am not sure such a cosy relationship with the market is wholly a good thing. Wouldn't we think it odd if the focus of research for a natural historian studying wildlife on the savannas of Africa was dictated by the price of a fur coat in Paris? The gem lab can perhaps say whether a ruby is from Burma or Mozambique and the trade in turn can use that information to their commercial advantage. With this there is a clear differentiation. All, consumers included, should expect that a gem lab has an objective function; the trade adds the subjective 'romance' and the price ticket. However this distinction is being blurred because increasingly labs are romancing the gems in supplementary documents issued alongside their formal lab reports. These range from one-page letters to impressively bound volumes. There are no doubt good commercial incentives for issuing these, but when they lack rigorous objectivity or when the wording blurs optimism with fact, the perceived scientific independence and thus reputation of the lab could suffer. Buyers might even be misled. The same criticism can be levelled at some gem descriptions in auction catalogues, although here buyers presumably expect to read them with a more sceptical eye.

Selling gems requires a mix of fact and fable; a combination of aesthetics, science, history and myth; any documentation that increases the buyer's understanding of a gem is a good thing. Lab staff can have the training and research experience to provide excellent information about gems, their sources and their history, but perhaps it is time for the labs themselves to define guidelines about the academic standing of their supplementary reports. A start might be to require the same level of referencing and substantiation as would be applied to an article submitted to a peer-reviewed gemmological journal.

Jack Ogden
Editor, *Gems & Jewellery*

Cover Picture

Winner of this year's Gem-A Photo Competition is Tony de Goutière GG, with this image of a of a thin-film inclusion in an aquamarine crystal specimen. See page 22 for a full report on the competition winners.



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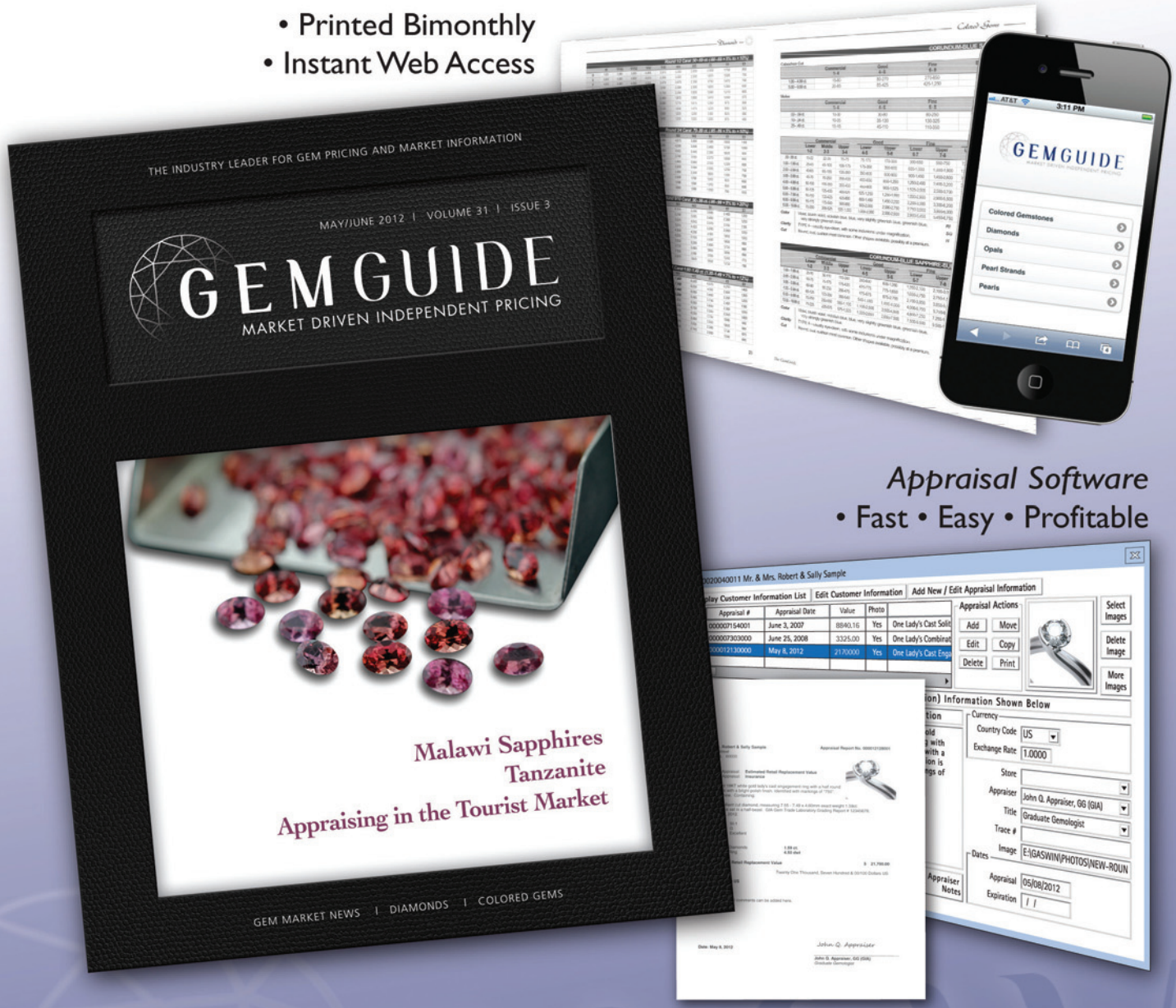

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Gem-A Conference Report

The 2012 Gem-A Conference attracted a record number of delegates, with over 180 people attending from 21 countries. Kerry Gregory reports on the talks from the panel of international speakers.

New emeralds in Brazil

First to the floor was Dr Hanco Zwaan FGA, head of the Netherlands Gemmological Laboratory, who talked us through a new emerald find in Brazil, located in Rio Grande do Norte, west of Natal. The emerald deposits, located near a gold and tungsten mine, were found accidentally during a search for platinum and rare earth elements in the area. The emeralds form hydrothermally at low temperatures in pegmatites, which are rich in rare earth elements. The pegmatites have been dated 480 to 523 million years old by U-Pb (uranium-lead) dating on uraninite and columbite, and Ar-Ar ages on biotite, methods of dating useful for determining the age relationship of rocks. A new map of the area has since been produced in line with a geological survey in order to map out the pegmatites and to find more emerald. However, only 1% of all pegmatites have high enough concentrations of rare elements, such as beryllium and lithium, but also niobium and tantalum; they are rare and difficult to find. These are not the only issues faced by the mine owners; in addition to a long dispute over mining rights (which has fortunately been settled), there are also rising labour costs, increased environmental challenges and currency fluctuations to be faced, with the Brazilian Real (R$) currently down against the US dollar. Despite these problems the mine owners are committed to running a sustainable mine, and have invested significantly in proper infrastructure, understanding the geology, substantial wage packets, and adherence to environmental standards.

Hanco informed delegates that during the first exploration phase the mine produced around two and a half tonnes of

Gem-A Conference Special

Conference 2012 (cont.)

Below: Polished emeralds from Fazenda Bonfim (0.17 to 3.89 ct) showing attractive, bright colours. Photo by Dirk van der Marel. © Netherlands Gemmological Laboratory.

ore a day, yielding 5 g of emerald per tonne of ore removed. Of the material produced around 10% is suitable for cutting; this consists of medium light bluish-green crystals of up to 5 cm in length, with slight to moderate inclusions. The inclusions seen are usually partially healed fissures, two-phase inclusions, fine growth tubes running parallel to the *c*-axis and hexagonal shape negative crystals containing CO_2 bubbles. Solid inclusions are not common.

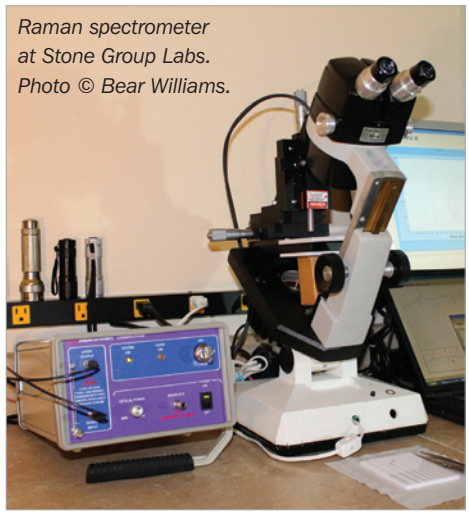
Small rough emerald from Fazenda Bonfim measuring only 5 mm. Emeralds from this area are usually very clear. Photo by Hanco Zwaan. © Netherlands Gemmological Laboratory.

The emeralds appear similar to those from African and other Brazilian sources, and have relatively high RIs, a feature common to emeralds formed in schist. It seems it is possible to separate them by analyzing the potassium, lithium, caesium and gallium levels, although as it is a new source there is limited data available.

Hanco concluded his presentation with an overview on the geology of emerald formation and related subjects that need further study.

The Bear facts

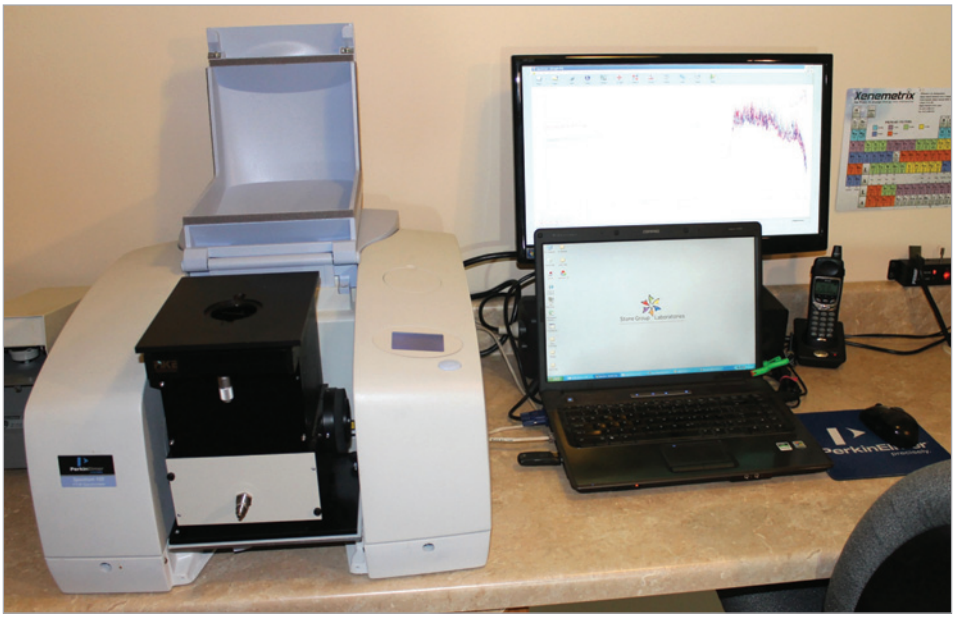
Nowadays standard equipment can't always identify gemstones, particularly when it comes to species determination, localities and treatments, so any reputable laboratory has to fully equip themselves with advanced instruments if they want to offer a complete testing service. Bear Williams FGA of Stone Group Labs talked us through the equipment that he uses on a daily basis. Much of this equipment still sounds far removed from the everyday testing of non-lab gemmologists, but advancements in technology have produced smaller, lighter and considerably less expensive machines — nowadays you can pick up the four main spectrometers (ultraviolet, visible and near-infrared spectrometer (UV-Vis-NIR), Fourier transform infrared spectrometer (FTIR), energy dispersive X-ray fluorescence spectrometer (EDXRF) and the Raman spectrometer) all for under $200k, so they are now within the reach of more people. Bear pointed out however, that the more one learns, the more they realize they need to learn, remarking upon how easy it is to get caught out. Not only do you need to operate the equipment, but you need to know how it works, be able to intelligently interpret the data and, with experience, sometimes question it. All four spectrometers are not new advances in testing; they have been around for decades. The UV-Vis-NIR is able to take readings of absorption, photoluminescence (PL) and reflectance and transmission spectra in the range of 200–1200 nm and is essentially an extension of the handheld spectroscope.



Raman spectrometer at Stone Group Labs. Photo © Bear Williams.

It gives a reading and displays characteristic peaks for different types of stones and their elements. The instrument can also be used to identify natural and synthetic spinel. The FTIR operates on a principle similar to standard spectrometers and can measure in the ranges where the visible spectrometer leaves off, going from 1200–25,000 nm. Transmission and reflectance readings can both be taken, although they must be taken separately. The FTIR is also useful for determining species in gemstones, as well as fillers and treatments in turquoise and jadeite. The EDXRF machine can be used to detect specific elements and measure fluorescence that is invisible to the eye by measuring the energy of the atoms which are causing the fluorescence. The user

Conference 2012 (cont.)

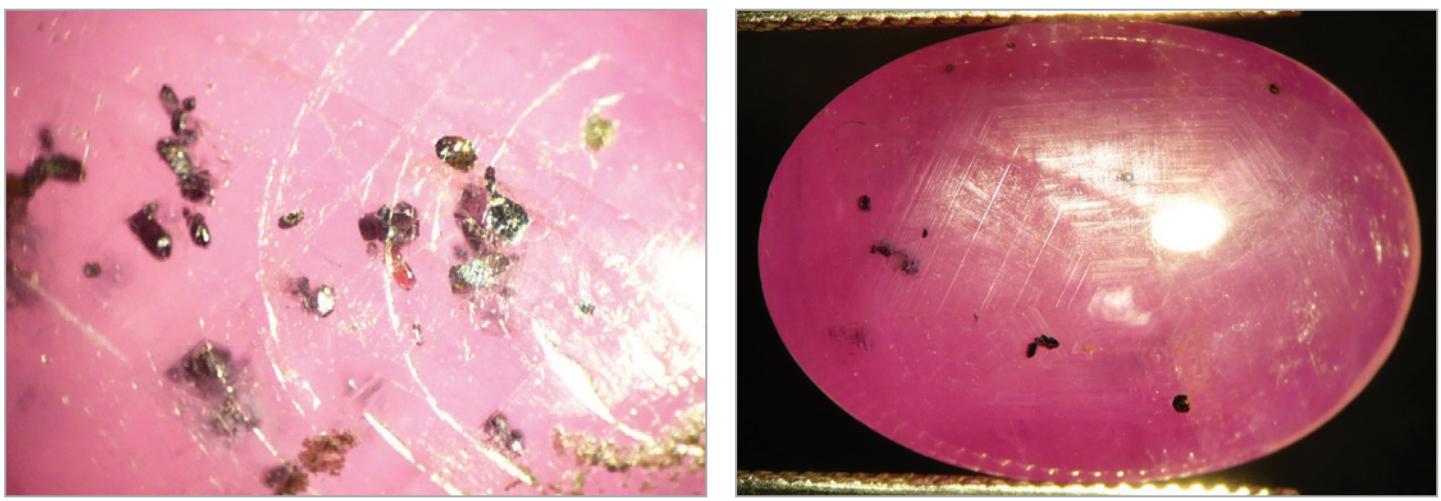


FTIR spectrometer in use at Stone Group Labs. Photo © Bear Williams.

can refer to a periodic table energy chart and look up the energy levels and thus the corresponding fluorescence, measured in thousands of electron volts (KeV). However, as when taking RI readings, ensure you take all readings accurately and interpret correctly — it is easy for example to mistake lead at 10.54 keV with arsenic at 10.55 keV. Last on the agenda was the Raman spectrometer. The Raman was instrumental in the diagnosis of the smoke treatment of Ethiopian opal, detecting the tell-tale carbon peak at 1150 cm^{-1} indicating the treatment. The Raman is used in many industries, including pharmaceuticals, so you can even test aspirin (and Bear noted that you needed to take six after taking readings on andesine all day!). Bear's final advice to the delegates was that gemmologists must be innovative and, while using science as a rule, to think both inside and outside the box, and don't forget to consult someone more knowledgeable than yourself if you have doubts.

West African corundum

After a short break it was time for Dr Lore Kiefert FGA, Chief Gemmologist at Gübelin Gem Lab in Lucerne, Switzerland, to discuss a new find of ruby in Liberia, Sierra Leone and Guinea. The new rubies are found alluvially and are mined artisanally, alongside diamond and other heavy minerals such as tourmaline, quartz, andalusite, grossular garnet, staurolite and chrysoberyl. As diamonds are the primary focus of the mine, the other stones get overlooked. Much of the material found is not gem quality, and the pieces that are of gem quality are small. The rubies show distinct hexagonal zoning and are frequently included with rutile crystals. Polysynthetic twinning in three directions is often seen, with boehmite and diaspore at intersections. Star stones are quite common. One crystal contained a staurolite inclusion, previously unknown in corundum. The chemical composition of the stones shows the West African rubies have lower levels of titanium oxide, iron oxide, chromium oxide and gallium than those of marble-related rubies from Asia. The composition of West and East African rubies is too similar to tell them apart, so gemmologists are looking to the inclusions to aid in identification: for example, healed fissures and zircon inclusions are rare in West African material but found frequently in East African material, while staurolite inclusions are not known in East African



The most common microscopic features of these rubies are (left) twin planes in three directions (indicated by the lines on top of the cabochon-cut stone) and rutile crystal inclusions and (right) hexagonal growth patterns with silk. Magnification: 40×. Photo Lore Kiefert.

Gem-A Conference Special

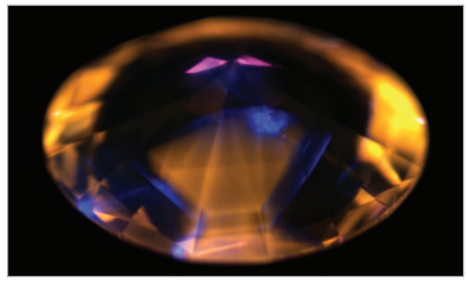
Conference 2012 (cont.)

rubies but are found in the deposits in the West. The form of included rutile also differs between deposits; it is thin in West African material and flat in Eastern material.

Lore concluded that although at present this is not a find of great commercial interest, there may be more potential and some interesting studies have been made.

Melee-sized synthetic diamonds

Thomas Hainschwang FGA of GGTL Laboratories followed next, with his presentation on the challenges of identifying recent generations of vivid yellow melee-sized synthetic diamonds. In collaboration with his research partner Franck Notari, Thomas has found the salting of natural parcels with synthetics to be widespread, with synthetics found in all parcels studied — volumes in the region of 3.4–5% in parcels of 1.5 to 2.5mm intense to vivid yellow diamonds. In parcels of diamonds smaller than 1.5 mm (to a minimum of 0.7 mm) and larger than 2.5 mm, far lower percentages of synthetics are detected. There are some exceptions: in one case a parcel of vivid yellow diamonds of less than 1 mm contained 25% synthetic diamonds.



An HIH Fe-Co synthetic diamond and its appearance under intense UV excitation. Orange luminescent cobalt-related sectors plus blue N3 related zones are visible. Photo Thomas Hainschwang.

Artisanal mining carried out in a river bed in Nimba County, Liberia, close to the border with Guinea. The miners look for diamonds and sapphires. On the right is Makhmout Douman, who supplied the Liberia samples. Photo: M. Douman, Arzawa Mineralogical Inc.

The fact that they are generally undisclosed is a cause for concern, especially since the synthetics are found consistently in parcels from diamond suppliers worldwide. One piece of good news is that so far no melee-sized colourless Chemical Vapour Deposition-grown (CVD) diamonds have been found in any parcels of natural stones. Thomas explained that whilst synthetic diamonds have been around since the 1950s, they have always been relatively costly to produce and so for years have not been as much of a threat. Now, however, industrial grade diamonds are being synthesized and treated in multi-step processes of irradiation and heat to produce attractive colours. These stones are far cheaper than their natural counterparts. For the sake of brevity we call such treated synthetic diamonds HPHT-grown irradiated high temperature annealed (HIH) synthetic diamonds. The bad news is that the testing process which identifies these synthetics is complex and not something your average gemmologist can can do. Four types of synthetic yellow diamonds are commonly observed: 1) As-grown HPHT Fe-Ni grown synthetic diamond; 2) As-grown HPHT Fe-Co grown synthetic diamonds; 3) HIH Fe-Ni synthetic diamond; and 4) HIH Fe-Co synthetic diamond. High pressure/high temperature (HPHT) diamonds can be grown as colourless, yellow to orange, and blue, and can be treated to green and pink to red. CVD diamonds can be grown as colourless or brown — a fast growth creates

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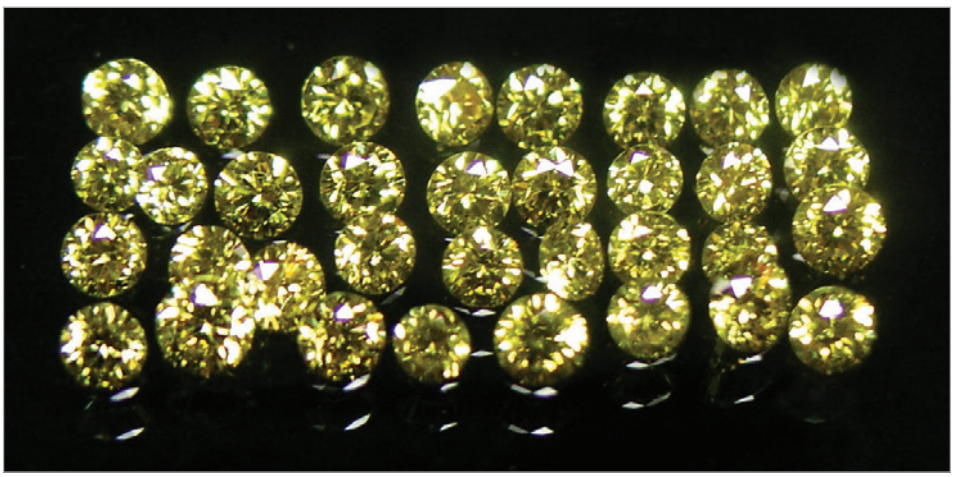
Conference 2012 (cont.)

brown stones — but can be treated to green and pink. Thomas informed delegates that both types of synthetics can contain pinpoint inclusions as well as fissures, and that HPHT-grown diamonds can show metallic residues and ash, snow or hair-like inclusions. Due to the fact that natural intense to vivid yellow diamonds pinpoints are very common and, considering the melee synthetics are usually of rather high clarity (VVS to VS), conclusive inclusions are not usually present. As-grown HPHT diamonds show little or no strain under crossed polars, although this is also true of certain natural strongly yellow coloured diamonds, as is the faint green fluorescence seen under seen in certain synthetics and many vivid yellow natural diamonds under UV excitation. Nevertheless there are many synthetic diamonds that can be identified using luminescence microscopy, based either on luminescence distribution and/or colour. In contrast some HIH synthetic diamonds show distinct strain similar to the strain along (111) which is well known in natural diamond. Thomas suggested that, with all this considered, we can use a combination of testing procedures including luminescence microscopy, infrared spectroscopy and PL spectroscopy to positively identify melee synthetic diamonds. One example of a conclusive test is the PL spectroscopy of Fe-Ni grown melee synthetic where often a 484 nm emission can be observed that consists of four components at 483.5, 483.7, 484.0 and 484.3 nm; this nickel-related feature is unknown in the PL spectra of natural diamonds. At the end of Thomas's talk it was noted by Harry Levy that due to the difficulty in positively identifying these vivid yellow melee diamonds many of the major jewellery houses have now stopped using them altogether.

Ruili jade market, where jade and money are closely linked. The price of Burmese jade has increased at a feverish pace over the past few years, prodded by the Chinese reverence for this stone and the Middle Kingdom's booming economy. © Richard W. Hughes.



The synthetic diamonds found after testing a parcel of melee diamonds. Photo Thomas Hainschwang.

Jade: between Heaven and Hell

After a hearty and delicious lunch break it was the turn of Richard Hughes FGA, author of the acclaimed *Ruby & Sapphire* and founder of the website of the same name, to tend to what Richard referred to as "the graveyard shift" — the first session after lunch. Richard was quick to point out to the attendees that he had a laser pointer and "wasn't afraid to use it", although I defy anyone to sleep through a lecture by Richard Hughes. A departure from science and graphs, Richard's presentation involved a story, complete with music, images and, of course, humour. This time it was the story of jade, the stone of heaven and hell, and a stone that here in the UK we tend not to appreciate as much as elsewhere in the world. In other locations jade is often the most expensive material and only coloured diamonds are more expensive. To put it into context, one single jade auction recently totalled $13.5 billion, which is more than all the fine jewellery auctions from the top auction houses for a year. In the past

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A Chinese dealer examining a jadeite boulder in Ruili, China, on the border with Myanmar's Kachin State. Huge quantities of Burmese jade flow through Ruili to China. © Richard W. Hughes.

decade jade has risen in value from ten to twenty times that of its previous market prices, and it is interesting to note that the price of nephrite now approaches that of jadeite in mainland China. There is one jadeite necklace that has been dubbed 'the doubly fortunate necklace', as everyone who has bought it has doubled their money when they have sold it. There is money to be made in jade, but when buying it rough it is a gamble. It appears that it is also a gamble just getting to the jade — when Richard travelled to the jade mines in 'little Hong Kong' in the rainy season (the only source of imperial jadeite jade in the world), instead of the estimated seven-hour trip that Richard had hoped for, it actually took a lie about being the son of a famous general, six trucks, several elephants, a heap of mud and three days to get to. Buying the jade rough is a gamble too — jade is formed with a thick oxidized skin, so the boulders are often bought 'blind'. One boulder that was bought for $7 was sold on for hundreds of dollars, while another boulder bought for $10,000 was deemed to be worthless. Boulders can be 'mawed', that is, a small window is cut into the boulder so you can see inside, but many dealers do not like to do this. Traditionally, bargaining for jade was done with concealed hand gestures so that you could strike your deal in secret, but this practice is no longer commonplace. Richard informed attendees that, as with all stones, the closer you get to the source the more likely you are to come across a fake, with the best fakes being "unearthed before your very eyes". There are several ingenious ways of faking jade; by coating white jadeite with green plastic, or by forming jade triplets — these are pieces of hollowed out jade with resin inside — with these sometimes even fooling the experts. A recent parcel of seven pieces of nephrite was found to be three pieces of natural nephrite and four pieces of clever glass imitation. The moral of Richard's tale for me was that dealing in jade is a gamble; a dangerous, beautiful and possibly fortune-destroying gamble.

The JTV experience

Jerry Sisk GG, co-founder and Executive Vice President of Jewelry Television (JTV) was up next. You may have read about the recent education alliance between Gem-A and JTV; Gem-A have produced a short introductory course on gemstones for JTV to sell online to their customers, a fantastic opportunity for American consumers who are already being educated by JTV to take their education

Jerry Sisk in Tanzania, April 2012, bringing gifts to the children supported by TanzaniteOne. © JTV.

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Conference 2012 (cont.)

Jerry Sisk with JTV's Senior Gemstone Buyer Jay Boyle (right). The rough is African ruby from Tanzania. © JTV.

one step further and learn more about the subject of gemmology and gem testing.

Part of the success of JTV has always been in the way it educates the consumer — an educated consumer makes for an educated buyer. We can all sympathize with this; I can assure you that my taste in gemstones and jewellery has certainly changed since learning about them, and my aspirations and price point have gone up considerably. The same is true not only for JTV's customers, but for those of us in the retail trade. Trust in the company is also a major factor of their success — in rare cases JTV customers will spend up to $50,000 on a piece of jewellery or a gemstone that they have not even seen. This is a trust that is well-founded — it is apparent that JTV is a forward thinking company that puts quality customer service first and foremost. Obviously $50,000 is not the normal selling price for goods sold by the company — the average price per piece of jewellery sold is $70–75 — but if you consider that the average customer purchases an item approximately 10 times a year, with over half a million active customers, this is big business. With over 5 million packages shipped a year and employing 1200 people, JTV are doing a lot right. One might question where a big business leaves the independent jeweller, but if you consider that JTV reaches 83 million homes in the US, the opportunity is there for the canny jeweller to reach the other 82.5 million households who are not already customers of JTV, and in whom JTV has already excited an interest in jewellery and gemstones. With interesting and unusual gemstones such as morganite and chrome diopside in the top eight stones sold, there is a real opportunity to sell to an educated and discerning customer at no marketing cost to the jeweller. Not only are JTV educating the customer, but also some of the 'traditional' jewellers too.

Smoke and mirrors

After a short break Joanna Whalley FGA DGA, Senior Metals Conservator at the Victoria and Albert Museum, discussed the setting techniques of Renaissance jewellers, particularly their methods of enhancing and imitating gemstones. We often think of treatments and simulants as relatively new features to the gem trade, but evidence of treatments, enhancements and simulation of gemstones exists from as early as 2000 BC. The Renaissance was a period of new discoveries; expeditions towards the end of the fifteenth century opened up new trade routes, and the increased supplies of metals and gems encouraged further developments in the arts of cutting, polishing and setting gems. Prior to the seventeenth century lavish gold work was popular. As time progressed the metal work became less ornate and simple frames for stones were fashioned, with the stones themselves becoming the centrepiece. Almost all of the settings seen from this period feature a closed back, and almost always conceal some form of enhancement. Bright reflective foils were frequently used in order to

A love or marriage ring made of gold, gold set with a diamond and a ruby. The diamond is set over a black backing and the ruby has been painted on the reverse with a red tint. Of German origin, circa 1500. © Victoria & Albert Museum, London.

Gem-A Conference Special

Conference 2012 (cont.)

'IHS' pendant made from enamelled gold, set with hog-back diamonds over a black backing. North European origin, circa 1580–1600. © Victoria & Albert Museum, London.

enhance colour and lustre. These foils were sometimes tinted in order to lend depth to natural colour, or to create a different colour entirely; for example, amethysts were once set over red-tinted foils in order to simulate spinels, a common practice which was outlawed in Paris by a Goldsmiths' Statute of 1355. After finding sixteenth-century recipes for the creation of coloured foils which used alloys of gold, silver and copper, Joanna set to work trying to reproduce them, closely following the methods described. The experiment proved successful, proving that it is possible to produce foils in a range of colours with a great degree of consistency. However, coloured gems weren't the only stones imitated, pearls were too — a paste was created by dissolving small, inexpensive pearls in citric acid and then reconstituting them to make larger pearls. Other recipes for the purpose relied on white cheese or even snail slime. The lustre of diamonds during the period was enhanced by the application of a black tint, creating a mirror effect. This black material is commonly mistaken for deteriorated foil, however, the evidence presented proved otherwise; portraits and jewellery designs of the time feature diamonds painted in black with white highlights, and certain treatises of the Renaissance clearly set out the process of setting diamonds with their black backings. It is only with the development of the brilliant cut that diamonds become the white (or colourless) sparkling jewels that we know. As is common in the gem trade we are always learning; in this case we are learning more about the history and of jewellery and gemstones, knowledge that can only help us as professionals in the future.

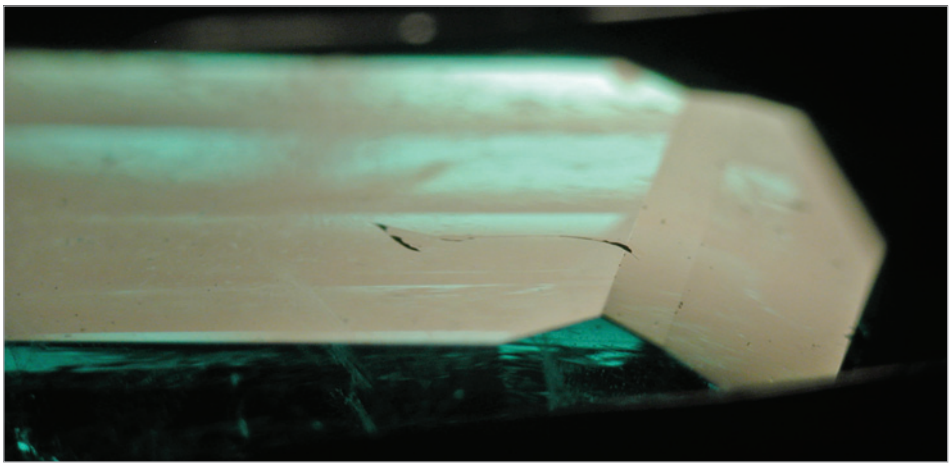
Passion and profits

Last but by no means least on the agenda was Ron Ringsrud GG, a dealer in Colombian emeralds, who gave us a view of the current state of the emerald industry from his perspective as a passionate gemmologist and connoisseur of these gems. Ron stated that after becoming gemmologists we become connoisseurs, highlighting the importance of education in the buying and selling of gemstones. The past two years have been very good for emeralds and therefore good for the dealers; emeralds (and Colombian emeralds in particular) are becoming more popular, with prices increasing constantly, possibly due to the rise of the Chinese demand along with the growing Indian middle class and their passion for emeralds.

Ron spoke about how flash effects in emerald are indicative of hardening filler or palm oil resin, however, the usefulness of seeking flash effects is limited because they are only visible in one of every five stones that have such substances. Ron instead emphasized looking at light reflected from the flat facets, a process which would consistently reveal any fissures that come to the surface. Too many surface-reaching fissures on the crown of an emerald are an

Gem-A Conference Special

Conference 2012 (cont.)



Despite the variety of emerald clarity enhancement materials and techniques, one diagnostic detail remains the same: the fissure opening. Seen in reflected light, like in this image taken at 15×, the fissure opening is easily visible. By counting fissure openings and estimating their depth, one can approximate the degree of clarity enhancement in an emerald, whether it be oil, resin or a hardening polymer. Photo Ron Ringsrud.

indication of too much clarity enhancement. Whether the enhancement is by oil or by hardening resin or polymer, the surface fissure openings are always visible, making them more useful than flash effects in determining the degree of enhancement in an emerald. Emeralds are not routinely colour enhanced, and this is actually a relatively rare procedure in higher quality stones. Any additional green coloration will be obvious from the fissures and therefore easy to spot.

Ron then explained in detail the evolution of the laboratory certificate determination of the degree of clarity enhancement in emerald. In 1998 the laboratories, rather than declaring 'evidence of clarity enhancement', began to state the degree of enhancement: none, insignificant, minor, moderate or significant. Inaccuracies were numerous in the early days of such certificates, as well as much overemphasis on residue in fissure openings. As the years went by and feedback from emerald dealers worldwide and industry leaders in Colombia created more of a sense of proportion regarding enhancement degrees, the certificates began to be more accurate. Now with emeralds riding a wave of popularity, there is a necessity for educating customers so that they have a good understanding of the rarity and fineness of emeralds, not only in the 'no enhancement' category but also 'insignificant' and 'minor' categories. An example was given of a connoisseur buying an expensive 10 ct cushion shape emerald that had a 'moderate' degree of enhancement, emphasizing how colour and transparency set the price, not the degree of enhancement.

Having a good sense of proportion includes being cautious — an example was given where a young gemmologist persuaded a customer that they had an Opticon-filled stone because the gemmologist was convinced that he saw a flash effect. The stone was in fact glass, proving yet again that we must always take our time to test stones thoroughly and, as Bear Williams mentioned, consult someone for a second opinion. While the discussion of enhancements may sound complex, emerald dealers in Colombia still buy gems with only loupe and tweezers, emphasizing the need for practice and knowledge.

Ron briefly took us for a slide tour of Colombia's emerald mines and informed us that for the first time many international companies are buying in to different opportunities in the famous Muzo region, which includes Muzo, Coscuez and La Pita mines.

After the final words of thanks from James Riley the 2012 Conference came to a close. As always, the staff at Gem-A hosted a highly successful and enjoyable event. The range of informative speakers and topics was delightful, with many delegates agreeing that it was the best Conference yet. It has left me wanting more, and I am looking forward to seeing what the 2013 Conference has to offer!

Sunday evening dinner

Almost 100 people attended the Gem-A Conference dinner on the evening of Sunday 4 November, hosted in the Wharncliff Suite of the Hotel Russell. Guests were invited to attend a pre-dinner drinks reception, before enjoying a delicious three-course meal. Attendees were also treated to impromptu speeches by Gem-A President Harry Levy, who toasted the guests, and by Dr Gaetano Cavalieri, President of CIBJO, who replied on behalf of the guests. The dinner was followed by dancing and revelry which continued long into the night. **J.R.**

Graduation Ceremony and Presentation of Awards

Monday 5 November saw students from around the world come together to celebrate their success in qualifying for The Gemmological Association of Great Britain's (Gem-A) Gemmology and Diamond Diplomas. The ceremony, held in the Livery Hall of the awe-inspiring Goldsmiths' Hall, London, celebrated the hard work of the graduates, as well as the work of tutors and Gem-A staff.

Diplomas were presented to students who had qualified in the Gemmology and Diamond Diploma examinations, with awards and prizes given to students who achieved exceptional results.

Award winner Rona Bierrum swept the floor by taking home a Distinction in the Diamond Diploma, the Deeks Diamond Prize and the Bruton Medal, as well as passing the Gemmology Diploma with Merit. Rona said: "This evening has been a great confirmation of all the hard work I've put in over the last few years. It's amazing to get it."

Timothy Li, who was also presented with a prize for his work during the Diamond diploma said: "I'm obviously very pleased to receive this prestigious award. When working with diamonds I believe it's important to be precise and detailed — you owe this to the people you are working for and for the customers who will buy the end product."

CIBJO President Dr Gaetano Cavalieri, Gem-A Chairman of the Board Cally Oldershaw, Gem-A CEO James Riley and Gem-A President Harry Levy.

Jonathan Tremblay, who was awarded the Christie's Prize for Gemmology, commented: "It was a great pleasure to get the Diploma, I'd like to thank the Gem-A and all the staff. Winning the award really topped it all off — so I'm very thankful for this."

Student presentations were followed by awards honouring those who have made a special contribution to both the Association and the trade. Antoinette Matlins, Bear Williams, Richard Drucker and Gem-A's James Riley were all made Fellows by Redemption, whilst Dr Tony Allnutt, Peter Dwyer-Hickey and Dr Roger Harding were made Honorary Lifetime Members of the Association. All were praised for their tireless work in research and teaching, and for innovations in the field.

The ceremony was bought to a close with a speech addressing Gem-A graduates by Dr Cavalieri, who stated: "I'd like to say how much of an honour it is to stand in front of all of you newly qualified gemmologists. I work in a lot of places, but it's a rare honour to be able to recognize all your hard work." Cavalieri continued: "Your passion for stones will become realized when you discover the stories behind these stones; the people who mine them, who cut them, and how they got there to begin with. These stories go hand-in-hand with the Ethical Standards and Corporate Social Responsibility that the industry is now setting. I look forward to seeing you all serve the industry in the way it deserves."

Dr Gaetano Cavalieri presenting Rona Bierrum with her Diploma certificate and medals. Photo © Photoshot.

JTV's Jerry Sisk, a speaker at the conference and a man who has been voted one of the top five influential people in the jewellery trade, said: "It's been a wonderful evening, as has the rest of the Gem-A Conference — and I'm deeply honoured to have been asked to speak at it." Sisk continued by saying: "I'm continually impressed by the professionalism of the staff and the approach to education. I'm amazed by the breadth and the scope of what Gem-A do. I don't know how many countries have been represented here this evening, but it's been a substantial number, so what Gem-A have here is something truly special and is not replicated anywhere else."

Seminars and events

Delegates were given the opportunity to attend sa number of exciting seminars and events in the days surrounding the Conference, including trips to the Natural History Museum and Tower of London.

Richard Drucker hosted two half-day seminars entitled 'Colour assessment of gemstones' on Saturday 3 November, where he discussed various colour grading systems. Delegates were asked to colour grade a variety of loose gems and then determine prices for the stones based on these assessments, to show how colour grading determines prices of gems.

Monday 5 November saw Maggie Campbell Pedersen host a seminar on the identification of amber, entitled 'Is it real? Identifying amber', where delegates were offered the chance to handle and examine various pieces of amber. Jack Ogden hosted the Monday afternoon seminar on the history of gems and gem setting. Jack took delegates on a journey through Byzantine, Medieval and Renaissance gems through to modern day, all of which was set against the magnificent backdrop of Goldsmiths' Hall.

Tuesday 6 November gave delegates the opportunity to visit the Natural History Museum for a tour of the Mineral Gallery, hosted by Alan Hart FGA DGA, Head of Earth Science Collections. Delegates also had the chance to visit the Crown Jewels at the Tower of London, hosted by David Thomas MVO, where attendees were given the opportunity to view the Crown Jewels in their own time. Amanda Good FGA DGA hosted the Tuesday evening Gem Central, which gave attendees the opportunity to test their gem dealing skills.

Alan Hart showing delegates mineral samples from the Natural History Museum's Mineral Gallery.

G.B.

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We would also like to thank **DG3** for their assistance with the Conference materials.

Gem news from Gary Roskin

Gary Roskin FGA takes us on a pearling trip to the Great American Guitar Show.

Flowing freeform art can now be translated easily into mother of pearl inlay using computer numerical controlled processes.

You may ask yourself what a guitar show has to do with *Gems & Jewellery* and pearling, but when it comes to mother of pearl inlay, there's really no place more fun to 'rock' out. Isn't it just the perfect excuse for a music-loving gemmologist to go to the Great American Guitar Show?

When luthiers (makers of stringed instruments) use fine woods to make beautiful stringed instruments, it is assumed that they will be decorated with inlay, whether this be made with hard-to-find exotic woods, ornamental hard stones, mother of pearl, ivories or horn. Fine acoustic and electric guitars will traditionally be accented by mother of pearl inlay. It is applied in several locations, including the body openings (sound holes, acoustic holes, f-holes, etc), up the fingerboard, in the headstock (where the tuning pegs are located), as well as running down and around the back of the instrument.

Early inlays were all hand crafted; first the design was carved out of mother of pearl, and then the cavity would be carved — the depression in which the mother of pearl would be inserted. After gluing, sanding and finishing the inlay was complete.

While the traditionalists still prefer to see inlay work done by hand, the use of power tools is now dominating the business, allowing for almost every guitar to sport affordable mother of pearl inlay. We are, of course, talking about the router. Hand-held electric routers became the tool of choice several decades ago, making it easier to create clean, smooth and uniform depth depressions in the wood, and then to cut out mother of pearl to fit. Within the past decade however, aided by Computer Numerical Controlled routers (CNC), luthiers have been able to create incredibly intricate inlay art.

Extravagant mother of pearl inlay adds not only beauty but value to the guitar. Would this design have been possible before the introduction of CNC routers?

An electric guitar by B.C. Rich featuring painted flames on the body with matching flames in mother of pearl inlay on the neck.

Artistic design

As the artistic talent of luthiers increased, the mother of pearl inlay design became more and more detailed. From the steady hand of a wood carver to the use of hand-held power routers and the latest use of CNC, we are increasing the capability to produce more intricate designs. Much to the chagrin of the purist, an artist's idea is no longer limited by the hand of the carver. The use of extremely fine carving routers, along with computer-aided accuracy, gives an artist the freedom to dream up practically anything.

Today an artist's design is scanned, digitized and uploaded into the CNC program. The digital artwork is then overlaid onto a fingerboard, body or headstock template, where the computer analyzes placement of frets, tuning pegs, and acoustic openings. The computer then writes a tool path and the cutting begins, first by routing out depressions in the wood, and then slowly carving out the exact design.

Is this cheating? On the one hand, it is certainly not created at the hand of the artist. On the other, working with mother of pearl is not easy, even for a machine. The stacked aragonite and calcite platelets, along with organic binding agents like conchiolin, really gum up the works. If you work the material too fast, the nacreous layers can break off into uneven edges (think of a damaged brick wall). Going slowly allows for the build-up of mother of pearl within the cutting edge of the tool. The router therefore needs to be continually monitored and cleaned in order to create smooth and accurate edges.

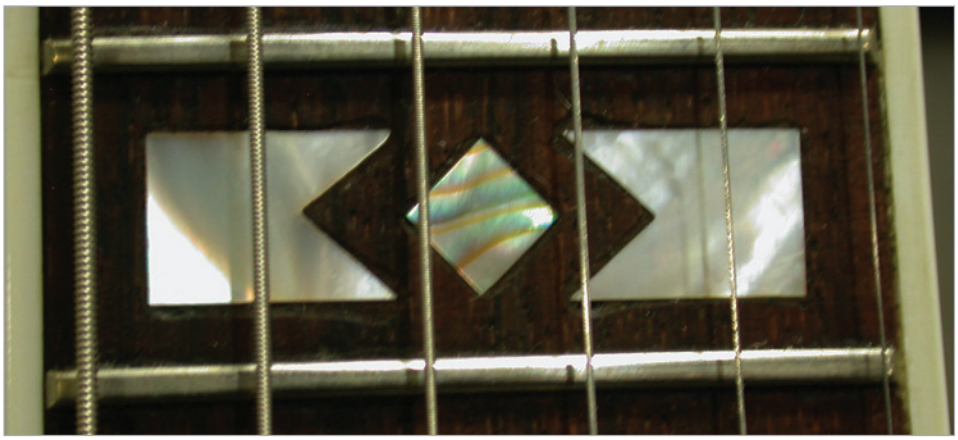
Once all of the pieces have been cut, the mother of pearl is placed into the wood like a jigsaw puzzle. The entire piece (wood and inlay) is then sanded down smooth, removing any excess glue, thus creating a single surface of mother of pearl and wood.

While certainly there is mass production of mother of pearl fretboard dots and bars, as well as mother of pearls arcs outlining acoustic soundholes and guitar bodies,

This beautiful Warrior Custom electric guitar by J. Dram features hand carved inlay and scrimshaw mother of pearl.

Gems and Minerals

Gem news from Gary Roskin (cont.)



Before CNC, hand held routers would carve out approximate sections of wood for inlay. This design has been produced using an early router. Note the excess cavity around the points of the mother of pearl 'flags'. The router outline is clearly visible, and would have been filled with wood and glue to fill the gap once the mother of pearl was in place.

there are still those special guitars being produced with unique and intricate inlay designs created by the luthier.

Not just the ordinary pearl list

Like the wood used by luthiers, the use of more exotic shells for what is called 'pearl inlay' has become the signature for fine guitar craftsmanship. There are well over a dozen expected choices, and for the gemmologist these stand out as obvious gem materials.

Beautiful intricate detail showing extremely fine separations between mother of pearl flower petals, seen here in the neck of a C.F. Martin guitar, with abalone trim at the edge and neck outline.

South Seas silver-lip (*Pinctada maxima*) from Australia is certainly top of the list of shells used in guitar manufacturing. This particular shell has not only been used for guitar inlay, but also for items such as buttons, hand-held fans, and pistol and knife grips. South Seas gold-lip (*Pinctada maxima*) from Indonesia and the Philippines, along with South Seas French Polynesian black-lip (*Pinctada margaritifera*) are also quite commonly used in finer guitars.

New Zealand's paua abalone shell (*Haliotis iris*), is certainly the most popular and colourful shell. It is curious to note that when speaking with guitar manufacturers, they refer to all mother of pearl inlay as 'pearl inlay', while abalone is known as 'shell' and not 'mother of pearl'.

Other more exotic shells include the wing shell (*Pteria penguin*), found in the Philippines, showing a highly iridescent pinkish-brown colour and the violet *Mytilus edulis*, the edible mussel found in southern France, the British Isles and the Atlantic coast (including Canada and the Northern US). There is also an Asian variety that is deep violet. The pen (*Pinna rudis*) from Indonesia shows a very curious chatoyancy. Its colour is typically mottled tan to dark purplish-brown, which some consider to be somewhat similar to tortoiseshell. The akoya (*Pinctada martensii*) is also used, especially when showing that classic pink rose overtone. Creamy shells are also used.

This C.F. Martin D-42 prototype shows a magnificent abalone mother of pearl floral inlay motif.

Last on our list (which is certainly nowhere near a complete list of shell used for mother of pearl inlay in guitars) is the green abalone (*Haliotis fulgens*) from California and Baja, Mexico.

All photos by Gary Roskin.

About the author

Gary Roskin is the author of *Photo Masters for Diamond Grading* and hosts the online gem news magazine *The Roskin Gem News Report*. For more information visit www.roskingemnews.com.

NEW Gem-A Workshops
Spring 2013

Our **NEW** range of workshops, held at our London headquarters, are designed to cater for all abilities — from our 'Understanding' workshops for beginners to our 'Investigating' and 'Advanced' options for intermediate and advanced levels. For more information or to book visit **www.gem-a.com**, call **020 7404 3334**, or email **events@gem-a.com**.

Understanding gemstones
Friday 22 February 2013

Covering all aspects of the most popular gems, you will learn about origin and lore, as well as the more practical aspects of their physical properties, including advice on care and caution. Tutor-guided practical sessions throughout the day will enable participants to become competent in the use of stone tongs and 10× lens.

Price Gem-A/NAG members and Gem-A students: £80
Non-members: £100

Understanding practical gemmology
Friday 8 March 2013

A workshop focusing on the practical aspects of gemmology, covering the effective use of all the readily available instruments and testers that you are likely to need. You will quickly learn the basic principles and techniques needed to use practical tools efficiently, under the guidance of our expert tutors.

Price Gem-A/NAG members and Gem-A students: £80
Non-members: £100

Understanding diamond simulants
Friday 22 March 2013

An important practical workshop for those considering entering the diamond market. Using basic observation techniques and readily available instruments such as diamond and combination testers, you will be taught to separate diamonds from all other imitations quickly and effectively.

Price Gem-A/NAG members and Gem-A students: £80
Non-members: £100

Investigating gemstone treatments
Friday 19 April 2013

This one-day workshop focuses on the common treatments currently present within the gemstone industry and their detection, using readily available instruments and techniques. Suitable for those of intermediate gemmological ability.

Price Gem-A/NAG members and Gem-A students: £80
Non-members: £100

Understanding gems

Gem-A
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In the pink

Jack Ogden gives a history of pink pearls.

The vibrant market for natural pearls in recent years has brought with it a growing interest in coloured natural pearls, with fine examples fetching ever-increasing prices at auction. A recent opportunity to look at an exceptional matching pair of natural pink pearls prompted a consideration of how pink pearls have been regarded in history. The pair of pearls were those recently published in the published in the GIA's *Gems & Gemology* (Spring 2010, p.5), under 'Lab Notes'. The weights are given as 37.85 ct and 35.72 ct, with measurements of 17.67 mm x 17.24 mm and 17.46 mm x 17.05 mm respectively. It is stated that: "While a single near-round natural freshwater pearl of such size is unusual in itself, a matched pair is truly remarkable". The pearls were also examined by the Swiss Gemmological Institute (SSEF), who agreed with GIA that the pearls were natural freshwater pearls from the Unio species of oyster. Their colours were described by the GIA as 'orangy pink with no overtone' and 'light pink with orient'.

One of the pair of natural, freshwater pink pearls showing sharp reflections and thus high lustre. Photo Jack Ogden.

In different lighting conditions the slight difference in hue between the pink pearls is exaggerated. Photo Jack Ogden.

Past perfect

Red or pink pearls have long epitomized beauty, rarity and great value. In his book *The Pearl: Its Story, Its Charm and Its Value* (1947), W.R. Catelle succinctly informs us that delicate light pink pearls are "rare and highly esteemed".

The earliest history of pink pearls is not easy to determine as there is frequent confusion with coral, either due to translation (such as with supposed Biblical references) and errors by observers (such as a nineteenth-century traveller's account of Tibetans wearing earrings with red pearls). We also find mentions of pink pearls in early writings from Marco Polo to Hindu and Buddhist myth.

A 1775 description of the British Museum mentions a showcase where among a number of fine pearls "is a very large and curious pink pearl, it is of great value". Possibly this was a conch pearl, but in his 1797 description of the Ceylon pearl fisheries, *An account of the pearl fishery in the Gulph of Manar in March and April 1797*, Henry le Beck recounts that "My servants found a reddish pearl in an oyster of this colour, yet such an event is very rare."

In many ways the modern history of pink pearls started in the mid-nineteenth century. In 1847 Queen Victoria had inspected "the magnificent diamond and pink pearl suite which Messrs Hunt and Roskell have just completed for her Majesty the Queen of Spain". One of the most famous freshwater pink pearls known is the so-called 'Queen Pearl', a beautiful 93 grain pink freshwater pearl that was found in Notch Brook, near Paterson, New Jersey, in 1857. This pearl was purchased by Charles Tiffany, the founder of Tiffany and Co, and a great connoisseur of pearls. He sold it via a Parisian

dealer to Empress Eugénie, the wife of Napoleon III, around 1860. She was a fashion leader of her time and her purchase may well have prompted the trend for pink pearls, so evident in the 1860s. For example, in 1862 Garrards exhibited a diamond pendant with a pink pearl centre at the International Exhibition, and at the 1867 Great Exhibition in Paris the jeweller André Massin exhibited a beautiful "pair of earrings shaped as rosebuds, whereof the bud was a pink pearl".

The 'Indian Pink Pearl', described as "one of the rarest precious stones in existence", was on public display in Ireland for a few days in 1869. Sadly, little is known about this pearl other than that it weighed 32 ½ grains and was half an inch long (1.25 cm) by "three quarters of an inch in circumference" (it is possible that diameter was meant). When a journalist from the *Pall Mall Gazette* interviewed the 'pearl king' Edwin Streeter at his Holborn premises in 1885 he was described as "gazing with rapture on a

The pinkish colour on this natural pearl on a seventh-century Byzantine earring has occurred whilst buried. Pearls can gain a coloured or iridescent surface over periods of time. Photo Jack Ogden.

Natural pearls come in a wide variety of colours — as this collection shows. Photo Jack Ogden.

Organics

In the pink (cont.)

The pair of earrings with natural freshwater pink pearl pendants. Photo courtesy of M.I. Jabir.

lovely pink pearl" and a year later another journalist reporting on the Colonial Exhibition referred to "the striking beauty of the pink pearl as distinguished from the white and black more commonly seen in ordinary wear."

The price of pink pearls

There is a range of information available about the prices of pink pearls in the past. In 1785 the Duchess of Portland was reported to own "one pink pearl, which is said to have cost her above 1200 guineas." In 1848 there was a court case revolving around a pink pearl shirt pin. This had been sold for £200, which was claimed to not be exorbitant because "it was a pink pearl, my Lord, a very rare thing, and not often seen". Hancocks offered a pink pearl necklace for sale at the Vienna Exhibition of 1873 at the "modest" price of £2000 — this was possibly a Scottish freshwater pearl necklace. Queen Victoria had a necklace of pink pearls that in 1889 were said to be worth £16,000 and in 1882 the press reported that an amazing parure of "large pink pearls set in diamonds, alternating with turquoises" had been made by a leading Parisian jeweller for a Russian Princess. The earrings in this parure each had a single pear-shaped pink pearl drop valued at 30,000 francs each — about £1,200 at that time — a huge sum in modern terms. By the early twentieth century pink pearls were so rare "as to have no fixed commercial value" according to one authority. Nevertheless we do have some cited values. A fine pink pearl stolen in 1913 had been valued at £150,000. In modern terms the cited value would be in excess of £10,000,000. Prices continued to rise. According to a 1921 press report "Indian Rajahs are always willing to pay enormous prices for [pink pearls]", and in 1930 an American magazine reported the discovery of a perfect saltwater pink pearl and suggested a value for this of $250,000 — several million dollars in modern terms.

It is not always clear whether the pink pearls cited above were saltwater or freshwater pearls. The best comparative evidence we have for pink freshwater pearls is the Queen Pearl, once owned by Empress Eugenie. In 1908 Frederick Kunz estimated that this single freshwater pearl would be worth $10,000 or more. This would be a vast sum of money in modern terms, probably around $1,000,000. It is salutary to reflect that the Queen Pearl weighed just 93 grains compared with the 151 and 143 grains of the pair of pink pearls mentioned at the start of this article. The present whereabouts of the Queen Pearl is uncertain, but a strong contender is a baroque pink pearl incorporated in the coil of a snake pin now in the Cooper-Hewitt Museum. The baroque shape was unexpected, but when the pin was taken apart the pearl was found to weigh exactly 93 grains. The pin had been in the collection of Dr Thomas Evans, a dentist, who had been given the pearl by Empress Eugenie. Kunz and Stevenson describe the Queen Pearl as spherical, but it is possible that they had not seen it and were relying on other sources.

In any case, history shows us that the price of natural pink pearls was high over the last century and a half and that the prices being realized now are by no means exceptional. Indeed compared with some historic prices they might even be deemed quite reasonable.

Further information

For a discussion on the possible whereabouts of the Queen Pearl visit www.internetstones.com/queen-pearl-paterson-pearl-freshwatermussel-dr-thomas-w-evans.html

rock, gem & bead shows 2013

19th/20th	January	Hop Farm, Paddock Wood, Kent	(Rock 'n' Gem)
26th/27th	January	Chepstow Racecourse, Chepstow	(Rock, Gem 'n' Bead)
16th/17th	February	York Racecourse, York	(Rock, Gem 'n' Bead)
2nd/3rd	March	Copthorne Hotel, Dudley	(Rock, Gem 'n' Bead)
9th/10th	March	Kempton Park Racecourse, London	(Rock 'n' Gem)
23rd/24th	March	Brighton Racecourse, Brighton	(Rock, Gem 'n' Bead)

Have you subscribed to the Rock 'n' Gem Magazine?
www.rockngem-magazine.co.uk

All Shows open

10am - 5pm Saturday • 10am - 4pm Sundays. All Shows are indoors with free parking, disabled access and refreshments

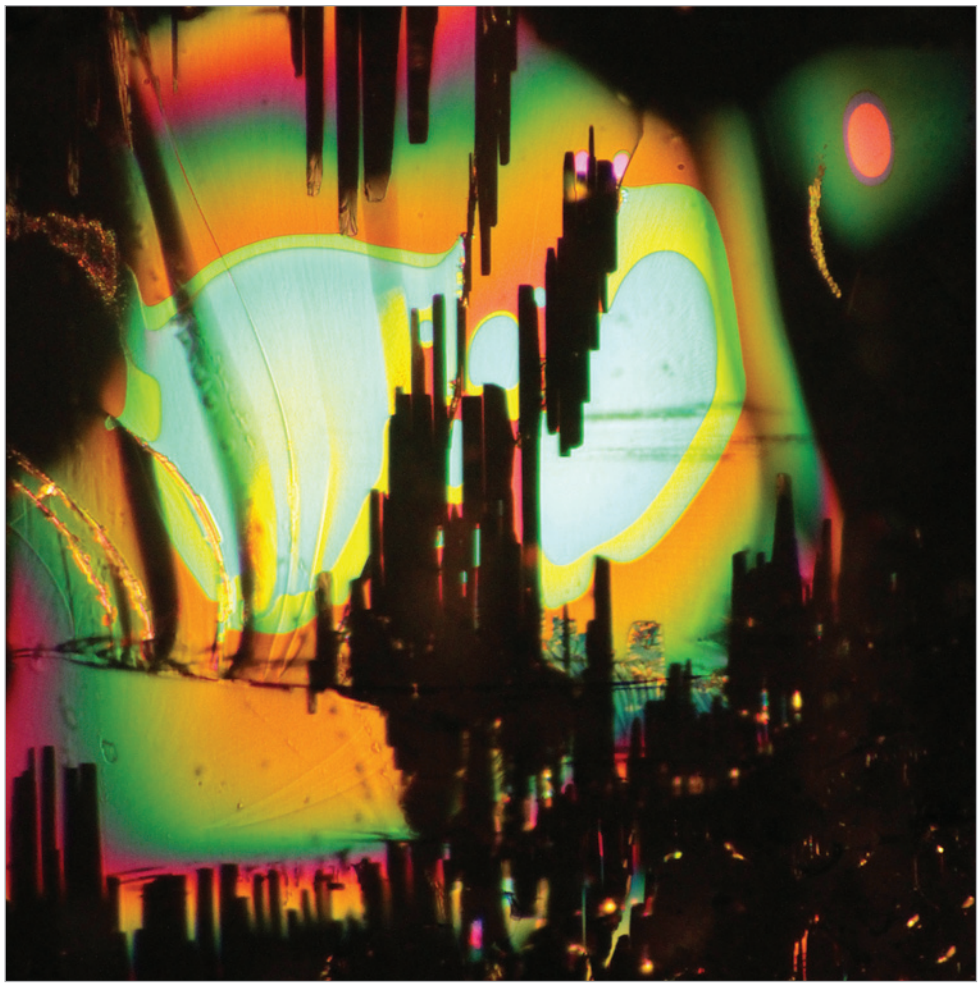
Admissions

Kempton Park Racecourse - Adults £5.00, Seniors £3.00 • Children £1.00 (8-16 years) under 8s free
All other R&G Shows: Adults £4.00, Seniors £2.00 • Children £1.00 (8-16 years) • under 8s free

For a list of all shows, directions, maps and exhibitors attending each show, go to
www.rockngem.co.uk info@rockngem.co.uk

Photo Competition

Winners 2012



Our congratulations go to the winners of the Gem-A 2012 Photo Competition: Tony de Goutière GG, the overall winner and winner of the 'Natural' category; John Harris FGA, winner of the 'Treated' category; and Tay Thye Sun, winner of the 'Melange' category. Michael Hügi FGA received an Honourable Mention. Unfortunately no suitable winner was found for the 'Synthetic' category.

As with last year's competition, there were four aptly-named categories: 'Natural' (for digital photos with minimal post-production work), 'Treated' (for digital photos with significant post-production work), 'Melange' (for gem-related images that don't fit the above categories) and 'Synthetic' (for computer-rendered images of gemstones etc). The winners were announced in November at the 2012 Gem-A Conference and their photos displayed during the Conference.

Gem-A would like to thank Maggie Campbell Pedersen FGA, Gary Roskin FGA and Dr Jack Ogden FGA for taking the time to judge the competition.

Winner: Natural Category, Overall Winner

Tony de Goutière GG — 'Photomicrograph of a thin-film inclusion in an aquamarine crystal specimen'.

A thin-film inclusion in an aquamarine crystal (possibly from Afghanistan) containing three immiscible liquids. These liquids move about when warmed to approximately 32ºC. The black needles are actually transparent growth tubes. Area photographed approximately 2.00 x 2.30 mm, using oblique illumination from two fibre optic lights.

Winner: Treated Category

John Harris FGA — 'Close encounters'.

The image shows two spectra from the o-ray and e-ray of a Mogok zircon, which have been altered to become an ellipse and applied to a gradient background. On a technical note, the main variation between the two rays is to be seen in the orange part of the spectrum. Here the two lines at 615 nm and 621 nm in the e-ray have strengthened and merged to become an additional dark band. This is evident in the ellipse at the bottom left in the picture. Other minor variations can also be seen.

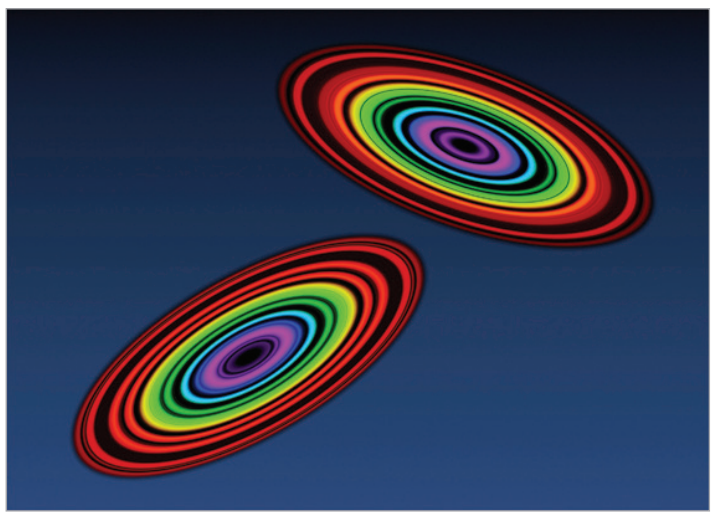


Photo Competition

Winner: Melange Category

Tay Thye Sun — 'The intense face of a miner making a last sales pitch, Tanzania'.

"Before we moved out from Winza, Tanzania, our jeep was crowded with miners wanting to sell, and the window became the focus point of sales." — Tay Thye Sun.

Honourable Mention

Michael Hügi FGA — 'Hematite platelets in sunstone, Potaninsky quarry, Russia'.

Tiny euhedral crystals of hematite are regularly arranged within a brownish feldspar crystal, reflecting the light with strong interference colours. The lamellar structure of the feldspar gives rise to the intriguing granular appearance of the image. Magnification 115×, glass fibre optic illumination.

Gem-A Calendar

January 2013

13

GEMMOLOGY CATCH UP DAY
Gem-A South West Branch
BRLSI, Queen Square, Bristol
A chance to practice your practical gem testing skills. A range stones will be available to test from traditional and easy to newer, rarer and more difficult stones. Perfect for whether you are a student or a seasoned gemmologist wanting to practice your skills. Refreshments are included and will be provided throughout the day. Price is £15 for non-members and £12.50 for members and students. For more information or to book contact Eve Symes at eve@vidan.co.uk, or Kerry Gregory at kerry@gemmologyrocks.com

14

FROM MINE TO JEWELLER, WITH GARY ROBERTS FROM RUBYFAIR
Specialist Gem Central
Gem-A Headquarters, London
Gary will discuss his experience of setting up a fair trade gem mine in Africa and will discuss the struggles faced when trying to establish an ethical trade route from mine to jeweller. Gary will also summarize the mining process, gem cutting, and export, as well as his experience of the ethical gem market in the UK and overseas. £10 admission for non-members, £5 admission for members.

21

WORKING IN APPRAISALS
Gem-A Career Service
Gem-A Headquarters, London
Steven Jordan FGA DGA will be on hand to give guidance on a career in appraisals.

To book, please contact events@gem-a.com.

23–26

INTERNATIONAL JEWELLERY TOKYO
Tokyo, Japan
Come and visit us at Booth A3-32.

25

SGA BURNS SUPPER
Scottish Gemmological Association
The annual Burns Supper will be held at the Tusitala Restaurant, Edinburgh. For more details and to book, please visit www.scotgem.co.uk/Burns%20Supper%202013.htm

February

4

CAREER SERVICE
Gem-A Headquarters
Topic to be announced.

5

LAPIS LAZULI, WITH DR JANA HORAK
Scottish Gemmological Association
Dr Jana Horak is the Head of Mineralogy & Petrology at National Museum Cardiff.
For further information, please visit the SGA website at www.scotgem.co.uk.

5–10

AGTA GEMFAIR TUCSON
Tucson, USA
Join us at Booth 29. Members of the Gem-A team will be on hand to answer your queries.

7

COLOURLESS WITH CONFIDENCE
Gila Room, AGTA GemFair, Tucson, USA
Claire Mitchell and Andrew Fellows will give a presentation on diamonds and simulants and how to easily distinguish them.

* For details of Gem-A workshops or to book

Gem-A Calendar

18

ADVANTAGES AND DISADVANTAGES OF FILTERS
Gem Central
Gem-A Headquarters, London
Andrew Fellows will discuss the advantages and disadvantages of filters, taking into consideration the Chelsea Colour Filter, jadeite filter, tanzanite filter, and dichroscope.

22

UNDERSTANDING GEMSTONES*
A one-day gem workshop
Gem-A Headquarters, London
A workshop giving you the perfect introduction to the fascinating world of gemstones. Covering all aspects of the most popular gems, you will learn about origin and lore, as well as the more practical aspects of their physical properties.

March

1

UNDERSTANDING DIAMOND GRADING*
A one-day gem workshop
Gem-A Headquarters, London
This specialist workshop focuses on the key aspects of diamond grading, giving a unique insight into the 4 Cs of cut, colour, clarity and carat weight, as well as diamond certification.

4

CAREER SERVICE
Gem-A Headquarters
Topic to be announced.

8

UNDERSTANDING PRACTICAL GEMMOLOGY*
A one-day gem workshop
Gem-A Headquarters, London
A workshop focusing on the practical aspects of gemmology, covering the effective use of all the readily available instruments and testers that you are likely to need.

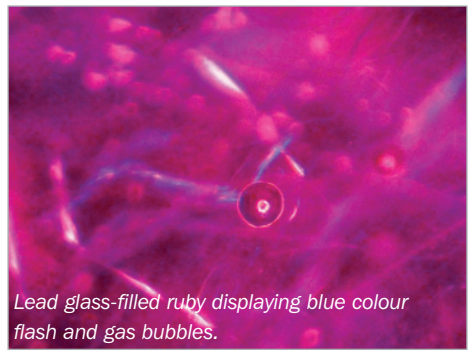
19

UNDERSTANDING DIAMOND SIMULANTS*
A one-day gem workshop
Gem-A headquarters, London
An important practical workshop for those already working in or considering entering the diamond market. You will look at the key differences between diamond and its simulants, and how to recognize them as loose stones or in mounted jewellery. Participants will be taught to separate diamonds from all other imitations quickly and effectively, thus preventing costly purchase errors, and allowing informed purchases to be made.

April

19

INVESTIGATING GEMSTONE TREATMENTS*
A one-day gem workshop


Lead glass-filled ruby displaying blue colour flash and gas bubbles.

Gem-A headquarters, London
A workshop focusing on the common treatments currently present within the gemstone industry and their detection, using readily available instruments and techniques. Treatments covered will include glass filling and heat treatment of corundum (ruby and sapphire), laser drilling and fracture filling of diamonds, and diffusion treatments.

22

FOCUSING ON MAGNIFICATION
Gem Central
Gem-A Headquarters, London
Andrew Fellows will discuss the use of the 10× loupe and microscope.

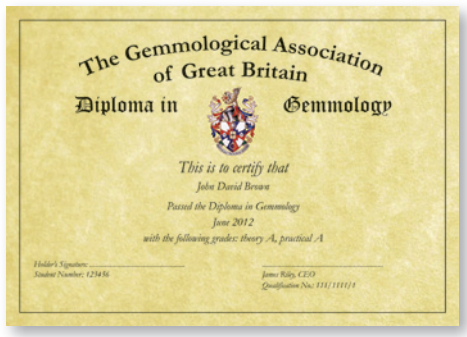
go to **www.gem-a.com** or email **events@gem-a.com**

In the news

James Riley rounds up the latest news and views from Gem-A.

Accreditation

In November we received the news that after our tri-annual review of our qualifications by the UK standards agency Ofqual, the Gemmology Diploma had been accredited at level 6 – the Ofqual equivalent of an undergraduate degree. The Diamond Diploma has been given level 5, an equivalent to a Higher National Diploma (HND), while the Gemmology Foundation sits at level 4, the equivalent to an advanced A-Level. This is of course excellent news as it makes the Diploma the highest level gemmology qualification in the world outside a university. Having said that there aren't exactly many universities out there doing pure gemmology. Often a slice of mineralogy and geology are put in there — both very relevant but in my view diverting the student from the commercial aspects of the genre. Many of you may have noticed a more commercial bent to Gem-A in recent years and this is quite deliberate. While we enjoy charitable status we are a provider of educational services and our efforts should aim to deliver a surplus (we are not allowed to make a profit). This commercial view extends to our courses where we aim to make the study of gemmology relevant to the market place. Sometimes we are criticised for not including sales techniques in our courses unlike our competitors. Those of you with long memories will remember that ultimately we are a child of the NAG whose excellent JET 1&2 programmes cover the areas required for a retail salesman. The Gemmology Diploma always was and still remains a stepping stone beyond that. For those of you overseas I can heartily recommend it. Recent posts on social media have questioned the validity of Ofqual's accreditation in relation to a degree with regards to the amount of work involved. Well, they take many factors into account such as the occupational outcomes of someone with the qualification and its relevance to the job market. Naturally the Diploma scores very highly here. However someone said to me that they had done the Diploma in six months (they actually completed it in 18 months — I did check). The point is this, however: conceivably you could complete a degree course in that time period if you just went to lectures and seminars. I added up my active study time of my degree in History and, at certain points it was 5 hours a week! Our courses,


The Gemmological Association of Great Britain

Diploma in Gemmology

This is to certify that

John David Brown

Passed the Diploma in Gemmology

June 2012

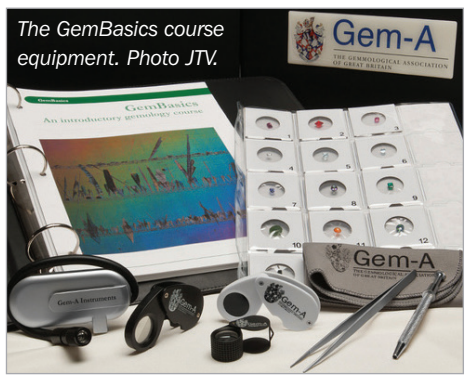
with the following grades: theory A, practical A

just like degree courses, require self-study and general reading around the subject. You can pass (just) with the bare minimum, but I would question if it makes you a good gemmologist. This is a discipline where one learns every day for the rest of one's life.

Another social media post asked if all FGAs were now degree holders. The answer to this is no, as Gem-A is not a degree awarding body. Nor can the level 6 accreditation be backdated, although as far as Gem-A is concerned all Diploma holders are equal. Remember it is only comparatively recently that these courses had to be accredited at all. There will be many I'm sure who will tell you the course was tougher in the old days — memorizing RIs and SGs for a start!

GemBasics

The end of October saw the launch of our new GemBasics course which we have created in collaboration with JTV in Knoxville, Tennessee. It proved so successful that it sold over 200 in just a few days — creating a frantic rush to the printers and equipment manufacturers. While this course will not be relevant for most members, it is a starter for someone new to the world of gemmology. It is completely rooted in online study and may be taken at the student's own pace. On completion the student receives a Statement of Achievement and is allowed to use the designation Coloured Stone Associate. This course will be available in the UK from January 2013, once it has been modified to British English — talk about two countries separated by a common language!



The GemBasics course equipment. Photo JTV.

Gem-A News and Views

Lost in translation

Speaking of lost in translation, many will be pleased to know that the Diploma is available in French, Chinese (both Traditional and Simplified) and Japanese. We plan to add Thai, Spanish and Portuguese in the next few months though naturally these things take time.

Shorthand for status

A few months ago someone in the US asked if there was any way of showing that someone was both an FGA and a DGA without trotting out all of the initials, in particular with regard to recognition by US insurance companies and recognition of expert qualifications. After a number of suggestions — all rejected — we compromised on the notation 'FGA+'. I would urge individuals to be proud of both their qualifications but if you see this designation in North America, you'll know what it means.

Name-calling in the gem market

Harry Levy FGA discusses a topic recently aired on Gem-A's MailTalk.

A question often asked by gemmologists and jewellers is "What is the correct name of a gemstone and what is its correct value, either unset or in a piece of jewellery?" Most of us focus on this on the basis that there are clear, true and unique answers. We seem to have the notion that if there is a question there must be an answer, and more than that, there must be a correct answer. Our society in general works on this notion and our educational system is geared to support this. For example after an exam, a common response might be "Did I get the answer right?" If we did not have such a system then communication itself would become problematic.

Another concept I would like to mention is that in English, we use synonyms extensively, although anyone who has studied linguistics will know that there is no such thing as a true synonym. We may use words interchangeably but each has their own specific meaning and nuances. Having said that I, like others, will continue to use synonyms. Thus something can be correct, true, real, right, actual, veritable and so on. I use such words interchangeably, sometimes because I need a nuance of meaning and, at times, for linguistic style.

So to elaborate: in arithmetic the question "What does 2 + 2 make?" has a correct unique answer: 4. If I ask what is the most common colour of tourmaline, green may be an answer, but there are others, so there could be more than one correct response. The answer to the question "Is there life elsewhere in the universe?" at present is that we don't know, but we assume that there is a correct answer which we may learn in the future. However, to the question asking whether the Mona Lisa painting by Leonardo Da Vinci is a beautiful painting, there may be no correct answer that satisfies everyone, but one kind of answer could be accepted within a group.

A gemstone by any other name

Thus in the gem world we understand that a purple quartz is an amethyst, and that a yellow quartz is not a topaz; and it would be wrong to call the former, say, a purplite. The need to have correct names for our gemstones is a convention that is powerfully motivated by the desire that the consumer should not be confused by a variety of names for the same stone. We would not be able to communicate effectively if we produced other names at will, and there is always the danger that some names will resemble terms already in use and again confuse as to what the stone is not. Thus 'rubellite' (a red tourmaline) makes the stone sound as if it is a type of ruby, which it is not. More recently we have been debating a new term 'emeryl' which could suggest the stone to be a type of emerald, and thus could be valued as an emerald, whereas it is a yellow beryl, and which already has the varietal name 'helidor'. Much green beryl is called emerald, but we have agreed that in those green beryls that contain significant chromium, emerald is the legitimate name. Those who want to call certain yellow beryls 'emeryl' claim that it has small amounts chromium and thus is a type of emerald. This is a somewhat spurious argument, because if two substances have some properties in common, it does not necessarily make them subsets of each other. We do not claim that green tourmalines are a type of emerald because they are both green.

Let me get back to linguistics, because that is where the arguments inherently lie. One of the reasons that English works is due to the way that we use nouns, whose meanings are in some respects vague. Thus we all know what 'street' means, yet no two streets are the same. To pick out a specific street we give it a proper name. A related example in the context of gems is as follows: I have a parcel of about 100 pieces of 4 mm round faceted amethysts and had to pick out a matching pair, but could not do this because they were all different shades of purple. So is 'amethyst' a noun or a proper name? Most would want to claim that it is a noun, as it covers many shades. If we wish to differentiate between all these shades of colour, we would have to change our concept of amethyst from a noun to a proper name. Thus we can call a particular diamond the 'Star of India', but we do not call all diamonds by a proper name. It would be impractical. So it would with our amethyst. We can pick out pale ones, dark ones, or even lavender coloured ones, but we do not give them new names. This all means that we do not have something called the 'real' or 'correct' name for gemstones, but we do have conventionally accepted names (nouns), for without such conventions we would have problems in communication.

That is why we are so vigilant in our nomenclature and terminology. Historically we have given certain names to our gems, and if someone comes out with a new name, especially one that is too similar to an accepted term, we try to prevent this as it is potentially confusing. We have classified our stones into certain types, such as beryl and corundum, and we then create subsets and divisions within each group when necessary. As I have said above, an attempt is being made to

make 'emeryl' a subgroup of emeralds, whereas it would be more correct to make it a subgroup of beryl. I am sorry if I have been somewhat technical and abstract in what I have written so far, but I have merely tried to explain how we expect our language to function.

Value

As far as the consumer is concerned, it does not make much difference what terms are used in our nomenclature — every discipline has its technical language. What does concern the consumer, however, is value and consistency, because that is when there is interaction with the trade and terms can become commercially significant. To discuss value in more depth is beyond this article, besides, my knowledge of economics is rather pragmatic.

On a simplistic level one could consider the value of a gemstone in terms of its labour cost and its aesthetic value. The labour costs consist of those involved in mining, cutting and generally bringing the stone to market. Thus travelling and running an office will all add to this cost. In most cases two stones mined in close proximity to each other will have the same labour costs, but could eventually sell for vastly different amounts. This difference comes from what I call its aesthetic and cultural value. This is the final appearance of the stone and, importantly, its rarity and desirability. The aesthetic value is often increased by marketing, but this in turn can be offset by competition.

Take the example of 'Paraíba' tourmalines. They are beautiful stones, but when discovered, they were mined by just one group, meaning that this group was able to control the market. By claiming that there were very limited amounts, they could (and did) offer them at several thousand dollars per carat, as opposed to a few hundred dollars which the best of other tourmalines could command. The reaction of many dealers was not to touch them at these high prices until market experience determined a price for them. Sources other than Paraíba in Brazil were then found in Africa, with tourmalines of similar appearance and chemical composition. These were not marketed by just one group, so they sold at much lower prices. In consequence, those handling the stones from Paraíba went to the laboratories to find ways in which to differentiate between the various localities and, after much lobbying, have managed to maintain the original high values for their stones.

There is no correct answer as to what is the real value of a gemstone. The old caveat that the price of a stone is what someone is willing to pay for it does work in many situations. But if there are a large number of similar stones available, unless there is some sort of order and stability in the system, the consumer, not being able to reliably compare prices, will tend to be prudent and not buy the stone at all.

Rarity

Rarity plays an important part. In the world of art we do not ask the 'true' or 'correct' price for a Picasso. Dealers see what such similar paintings have sold for in the past to set a value, but as soon as there is a significant change at an auction, the prices of all such paintings can change. In the gemstone world similar factors operate. Natural pink diamonds of a large size are very rare. If such a stone comes to auction it is in the interest of dealers who hold such stones to bid as high as possible, and any new price achieved will revalue the stones they already stock.

In the market of commercial stones, we treat stones to improve their appearance, for example turning a pale coloured sapphire to one of a more fashionable blue. The reason that heated sapphires generally fetch lower prices than similar natural unheated ones, is not that they are of a worse quality, but because there are many more of them on the market. Similarly lead glass-filled rubies are worth much less than untreated ones, again partly because they are far more common.

Trade influence

The prices of diamonds in the market are commonly related to the Rapaport price list for polished diamonds. This is a list based on the prices dealers have paid in the Bourses, and changes are based on demand and availability. There has always been a conundrum for me with this list: does Rapaport reflect prices or does he determine prices? Perhaps the answer is different in different places. In the UK for example he determines prices. There are other price lists available, but no one (to my knowledge) has sued a dealer for using the Rapaport list claiming that it is wrong, incorrect or untrue.

Value revisited

To a dealer the price of a piece of jewellery is often considered as a sum of the price of its parts. The dealer will calculate the price of the diamonds, the price of coloured stones, the price of the metal and the price for making the article and simply add these up. If buying, they will ignore the construction price and give a scrap price for the metal. To a dealer in such articles, or a valuer, the provenance of the piece can be of greater value than the sum of the parts. Thus if an article is of Cartier origin, the price could be significantly higher than a similar piece made by some other manufacturer. This reminds me of a story of a collector who boasted of having a Picasso and a Stradivarius, but then confessed that Picasso had made the violin and Stradivarius had painted the picture!

All this shows that value is not a unique property, but the greater the abundance of a gemstone, the easier it is to have a consensus. Several years ago I could only laugh when participants of Gem-A's MailTalk questioned the price asked for a rather large piece of ruby rough, demanding that the seller should be sued and punished for the excessive price he was asking. I would never have paid such a price and, if my advice was asked, I probably would have said not to make the purchase, not because the price was wrong as such, but because it would be difficult to find anyone else who would pay that cost price.

As to the question of the value of an 'emeryl', I think that giving it such a name could confuse a consumer relatively new to gems into thinking that it is some sort of emerald; he or she would probably believe that its value would be similar to that of an emerald of similar weight and clarity. Having said that, if enough people do buy at these asking prices, then that will determine their value.

My father always taught me that a gemstone was just a stone until someone bought it — then it became a gem!

The Journal of Gemmology

Summary of two articles to be published in *The Journal of Gemmology*.

Colour change spinel*

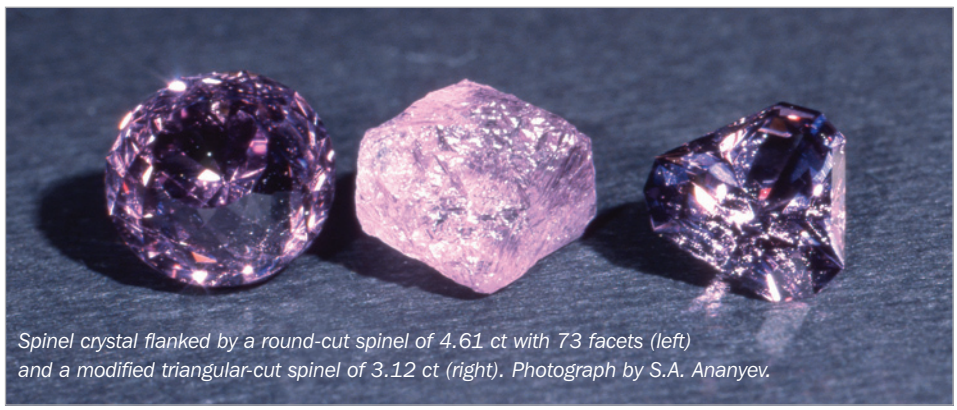
Summary of 'Morphological and gemmological features of gem-quality spinel from the Goron deposit, southwestern Pamirs, Tajikistan' by S.A. Ananyev and S.I. Konovalenko.

In 1989 two Russian geologists, S.A. Ananyev and S.I. Konovalenko, discovered gem-quality spinel in the upper reaches of the Goron river in the southwestern Pamir Mountains in Tajikistan. The geology of the area was quickly published, but the gemmological features of the spinel have not been described in full until now.

The spinel typically occurs as transparent octahedral or twinned crystals with a stepped growth structure and which measure between 3 mm and 20 mm across. These crystals can be manually extracted from the softer chlorite host rock. All crystals have homogeneous colour which varies depending on the light, and so may be pink or violet, but many show a colour-change effect. Most of the crystals appear a violet-pink colour in daylight but become pink in incandescent light. Similar colour-change spinel is occasionally found in Tanzania, Sri Lanka and Madagascar. The dominant cause of colour is ferrous iron but titanium, chromium and manganese are also present.

Their refractive index is 1.732 ± 0.002 and specific gravity 3.592. The gem-quality spinels are generally free of inclusions, but some contain tiny round grains which appear to be spinel. Other inclusions appear to be cavities formed as a result of dissolution of earlier existing mineral inclusions.

The Goron spinels have good transparency and take a good polish, but the inaccessibility of the site and lack of infrastructure in the area have seemingly precluded any commercial development. **J.O.**



Spinel crystal flanked by a round-cut spinel of 4.61 ct with 73 facets (left) and a modified triangular-cut spinel of 3.12 ct (right). Photograph by S.A. Ananyev.

* A summary of an article to be published in *The Journal of Gemmology*, 2012, **33**(1–4): S.A. Ananyev and S.I. Konovalenko, 'Morphological and gemmological features of gem-quality spinel from the Goron deposit, southwestern Pamirs, Tajikistan', 15–18.

Journal Files

Undisclosed CVD diamonds†

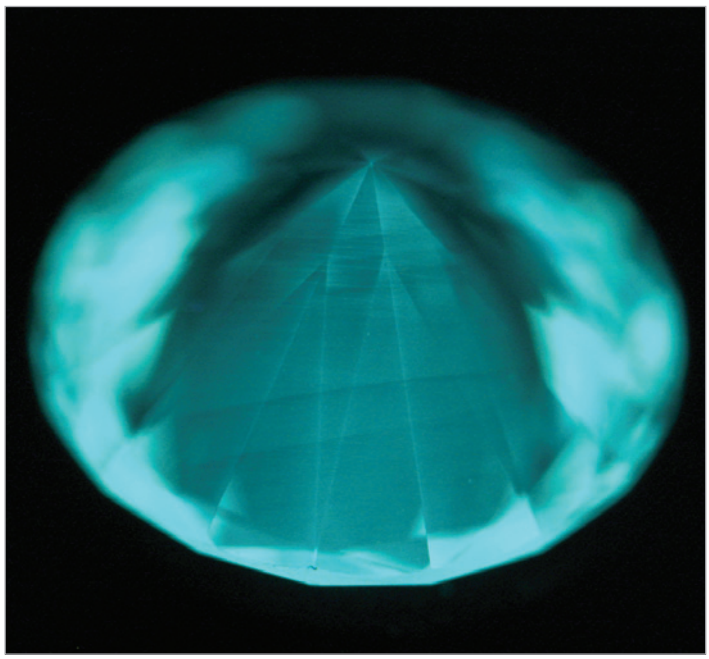
Summary of the paper 'The identification features of undisclosed loose and mounted CVD synthetic diamonds which have appeared recently in the NGTC laboratory'.

Between February and July 2012 63 synthetic diamonds produced by the Chemical Vapour Deposition (CVD) process were detected by two of the laboratories of the National Gemstone Testing Centre (NGTC) in China. These synthetic diamonds had not been disclosed as such and were submitted to the laboratories both loose (49 examples) and mounted (14 examples). All were cut as round brilliants and none were laser inscribed to disclose their synthetic nature.

The stones were all in the G-J colour range and weighed between 0.24 and 0.60 ct. Their clarity grades were VS2 or better and the few dark irregular inclusions were similar to the dark inclusions in natural diamonds and are probably non-diamond carbon. Analysis did not detect any metal elements such as nickel, iron or cobalt, and the stones were not attracted to a magnet.

Although identified as Type IIa diamonds, these stones did not show the tatami structure typical of type IIa natural diamond between crossed polars. Under long wave UV (LWUV) some were inert, others fluoresced very weak greenish blue; under short wave UV (SWUV) almost all showed weak to moderate greenish yellow fluorescence. In any one stone, the fluorescence was stronger under SWUV than LWUV. No obvious phosphorescence was seen. When viewed in the DiamondView™, the diamonds displayed bluish-green fluorescence and noticeable blue phosphorescence, with characteristic layered growth striations.

Vis-NIR and infrared spectroscopy provided no definitive proof of synthetic origin, although distinct absorption lines such as 415 nm lines (found in many natural diamonds) were not observed. The conclusion was that photoluminescence (PL) spectroscopy at low temperature and DiamondView™ fluorescence images were critical in separating these CVD synthetic diamonds from their natural counterparts. For identification of mounted synthetic diamonds, PL spectra were more useful because the current DiamondView™ fluorescence imaging system is most effective if there is access to the pavilion of a stone — seldom possible with mounted diamonds. **J.O.**



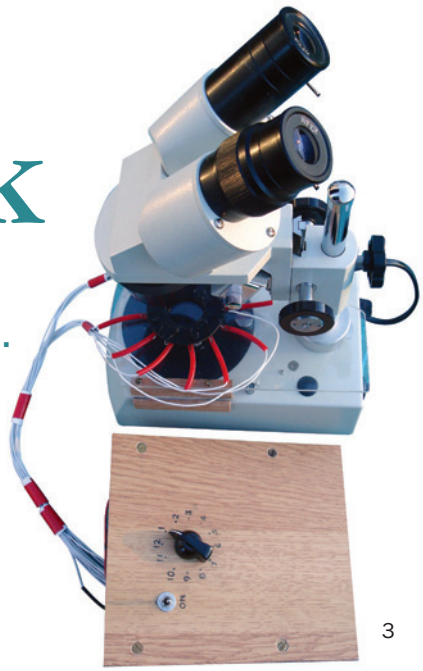
DiamondView™ fluorescence image of a CVD synthetic diamond showing layered growth striations and bluish-green fluorescence.

† A summary of an article to be published in *The Journal of Gemmology*, 2012, **33**(1–4): Zhonghua Song, Taijin Lu, Yan Lan, Meidong Shen, Jie Ke, Jianhui Liu and Yubing Zhang, 'The identification features of undisclosed loose and mounted CVD synthetic diamonds which have appeared recently in the NGTC laboratory', 45–48.

Instruments

Making light work

Harold Killingback BSc FGA discusses his design for an additional option for lighting a specimen under a microscope.



3

Introduction

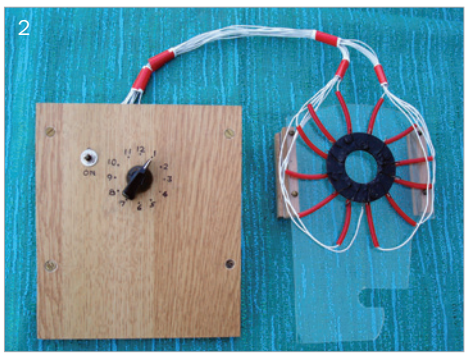
When using the microscope, gemmologists are trained to vary the direction and type of lighting[1]. The usual sources are bright field, dark field and top illumination, and a fibre optic lamp may also be used to give side lighting from single points. In order to examine the stone with side light coming from different directions, one must either move the fibre optic source and/or rotate the stone. However, it would be simpler to make the light source do the work by surrounding the stone with a number of lights which could be switched on sequentially. The author has made such a device, described here.

Description

The development of super bright white light emitting diodes (LEDs) provides the opportunity to make a compact multi light source device. Shown in **1** is an assembly of 12 LEDs, each with a typical output of 1800 mcd (luminous intensity), with a viewing angle of 22º [2]. The device is mounted on a polycarbonate base and wired to a control panel fitted with a 12 pole rotary switch and an on/off switch (**2**). Under the panel is a 9v battery as well as a holder for interchangeable resistors.

The assembly, mounted on a microscope, is shown in **3**. For details, see Apparatus.

1



2

Results

An oval green zircon measuring 9.17 mm x 7.48 mm x 4.18 mm and weighing 2.64 ct, is shown in **4**, as seen through the microscope, with light coming in at approximately 4 o'clock (**4a**), 7 o'clock (**4b**) and 8 o'clock (**4c**). It is lying on the polycarbonate base plate, so there are no tongs obstructing the illumination. The stone has not been moved between shots. The images serve to show how different the views are, especially considering the small angle between **4b** and **4c**.

The same stone is shown in **5a** in the same orientation, as viewed with conventional dark field illumination, while **5b** shows the effect of bright field illumination. Note the different direction of the light and dark bands in **5b**, compared with the bright lines in **4**.

Conclusion

These images are intended to show that the LED assembly is capable of easily and quickly providing information supplementary to that which is obtainable by use of the traditional sources. I stress that this is an additional approach, not an alternative one. By leaving the stone in the same position for the observations, comparison between views is facilitated. The device is simple and easy to make but needs, of course, to be constructed to suit individual microscopes. Therefore, rather than moving the stone or a fibre optic lamp, I found it easier to 'make light work'.

Reference

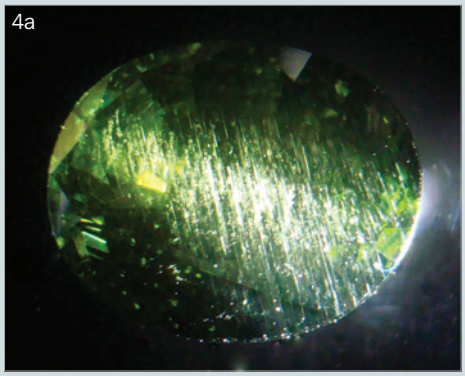
1: Gem-A Foundation Course, 2009, 2–14
2: Maplin catalogue. www.maplin.co.uk
3: Lamarre, C., 2002. Light emitting diodes as light sources in portable gemmological instruments. *Journal of Gemmology,* **28**(3), 169–174

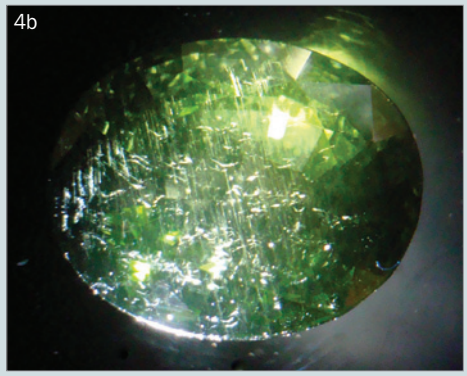
About the author

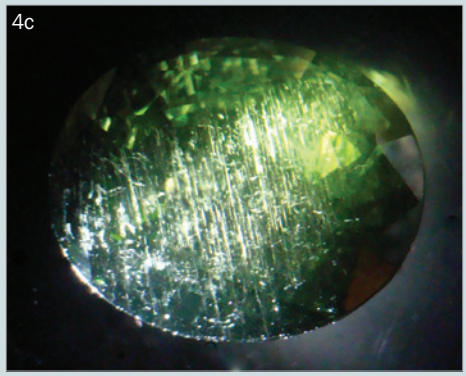
Harold Killingback BSc FGA worked as an engineer for most of his life. After developing an interest in gemmology late in life he obtained his Diploma in 2002 at the age of 77. Harold has contributed several papers to *Gems & Jewellery* and *The Journal of Gemmology*, particularly on asterism.

He hopes that this article will encourage readers to develop his idea, which is a first attempt. He suggests that results, suggestions and queries be shared on MailTalk.

Instruments

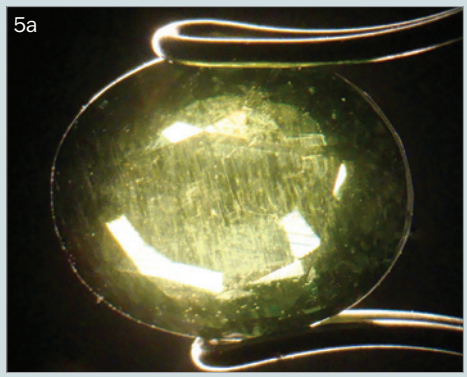


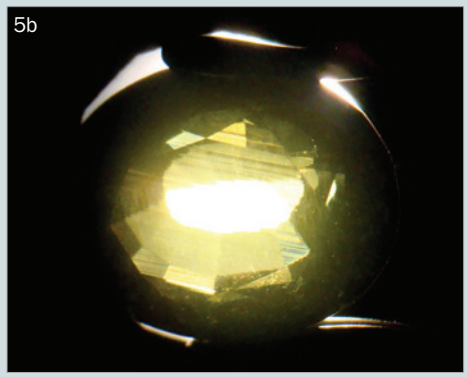




1: The circle of 12 LEDs, viewed from underneath.
2: The apparatus and control panel.
3: The apparatus mounted on the microscope.
4: A zircon mounted on the microscope with illumination from the following directions: (a) 4 o'clock, (b) 7 o'clock and (c) 8 o'clock.
5: The zircon under (a) dark field illumination and (b) bright field illumination.

All images Harold Killingback.





Apparatus

A resistor is required in series with a LED to limit the current flowing through it and so to prevent its overheating. The value of the resistance is determined by the equation:

$R = (V_s - V_f) / I_f$

Where: V_s is the supply voltage,
V_f is the forward voltage drop across the LED, specified as max. 3.6 V.
I_f is the forward current, measured in amps. 100 mA is the maximum for this LED.

After applying these values (chosen for the 5 mm Super Bright LEDs), I calculated that R = 54 ω. This is, however, based on the maximum conditions. Conservatively, I used a 180 ω resistor, mounted in such a way that other values could easily be substituted. Note that dark stones may require a stronger illumination, obtainable by using a smaller resistance, although its continued use would shorten the life of the LEDs.

A more sophisticated current limiting circuit for use with various voltages was described by Claude Lamarre[3] but isn't necessary here.

The cathode connection of an LED is the shorter of the two wires and the flange at the base of the plastic capsule is omitted at the edge where this wire emerges. I chose to place this flat against the washer so that the steel could act as a heat sink. The power dissipation required however is only 100 mW. The cathode leads are soldered to the washer, which is connected in turn to the common terminal of the rotary switch. The anodes are connected separately to the 12 poles of the rotary switch.

It is my understanding that white LEDs are simply blue LEDs with the addition of phosphor(s). The spectrum, unlike that of white fluorescent tube lights, is continuous, though strong in the shorter wavelengths. Other LEDs could be used however — blue, green, yellow or red versions (each with sharply defined wavelengths) are available, as well as ultraviolet. The high power Lambertian diodes might be suitable if needed, but much more heat would have to be dissipated.

The LEDs are mounted on a steel washer (thus preventing the light from shining upwards), measuring approximately 26 mm (inner diameter) and 54 mm (outer diameter), with a thickness of approximately 2 mm. The washer is screwed to a piece of polycarbonate, cut to suit my Gem-A student microscope. The assembled equipment is shown mounted in **3**. Wooden side pieces prevent sideways and downward movement and a slot embraces the column, thus stopping longitudinal movement. The device is thereby kept centred on the optic axis of the microscope. The assembly can be lifted above the side constraints and then detached from the column via the slot. Note that the polycarbonate plate is cut back to allow access to the switches for dark field and top illumination. The dial controlling the dark field shutter and the diaphragm control lever can be accessed by raising the LED assembly. It is envisaged that normally these controls would be left set for dark field illumination.

Gem-A Photographic Competition

The 2013 Competition is now open!

All Gem-A members are invited to participate. Once again there are four categories in which an image may be submitted:

1 **Natural**
Digital photograph (including photomicrography) with minimal post-production work (may include basic cropping, contrast and minor hue/saturation adjustments).

2 **Treated**
Digital photograph (including photomicrography) with significant post-production work (such as background manipulation, HDR, and contrast masking).

3 **Synthetic**
Computer-rendered 3D models of gemstones, crystals, crystal structures, images from microtomography, etc.

4 **Melange**
This category includes any gem-related image that doesn't fit in the above and may include such things as photos of a spectrum, a scanning electron microscope image, mining, cutting, etc.

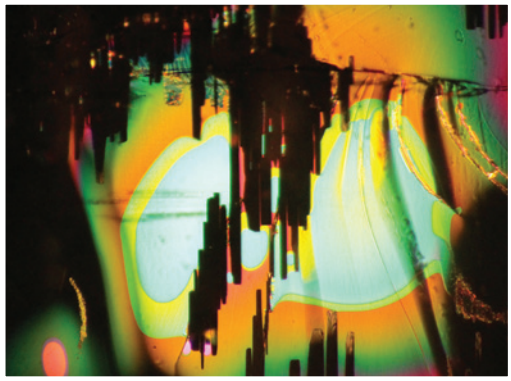
To enter

Please send a low-res version of your photo to editor@gem-a.com. Entry forms and full details of the competition, including copyright information and Rules of Entry, can be accessed at www.gem-a.com/membership/photographic-competition.aspx or call Amandine on +44 (0)20 7404 3334.

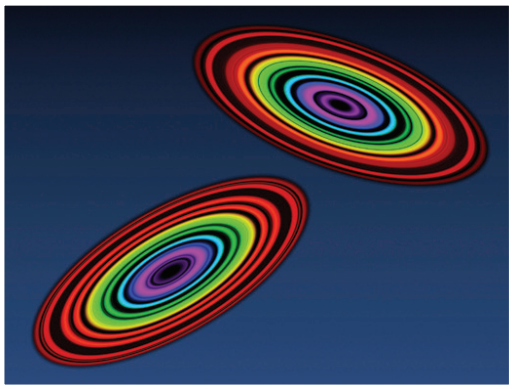
Closing date: 28 June 2013

Winning entries will be announced at the Gem-A Conference 2013 and feature in *Gems & Jewellery*.

2012 Photographic Competition winners



Overall winner and winner of Natural category:
Tony de Goutière GG



Winner of Treated category:
John Harris FGA

Winner of Melange category:
Tay Thye Sun

See pages 22-23 for more information on the 2012 winning entries.

The Archduke Joseph

A report by Miles Hoare on the recent sale of the remarkable Archduke Joseph diamond.

© Tony Falcone, courtesy of Christie's Images Ltd 2012.

For those of you who follow Gem-A's Facebook page you would have noticed us carrying on about the Archduke Joseph. Naturally, we were, like many others, looking forward to the sale of one of the world's most magnificent diamonds which went to auction at Christie's in Geneva on Tuesday 13 November. The stone, which eventually sold for just over $21 million, is one of the highest grossing colourless stones of all time, setting a new world record for the price per carat for any colourless stone.

The origin of the stone is unknown — with most reports attributing its discovery to the 'Golconda' mines in India, where the famous Koh-i-Noor (now part of the British Crown Jewels) and Hope Diamond (currently in the Smithsonian Institution in Washington) originated. In fact Golconda, near Hyderabad, was the trading centre, not the mining area itself. The certainty of a Golconda origin is contested by many who still hold that this origin is merely a hypothesis. What we do know is there is no real reported history of the stone before the nineteenth century. Rough diamonds often yield only about half their weight when cut and polished, so the original rough here may well have been anything up to 150 ct.

So why has this stone attracted so much attention? Not only is this magnificent 76.02 ct diamond internally flawless — as noted by Christie's auctioneer Jean Marc Lunel, who said: "The Archduke Joseph is prized because it boasts the highest quality of shape, colour and clarity that can be found in any diamond" — but it also takes its name from a previous owner, the Archduke Joseph August (1872 – 1962), a prince of the Hungarian line of the Habsburg dynasty and a descendant of the emperor Leopold II, son of the Empress Maria Theresa. The mention of the Empress Maria Theresa may serve as a reminder of the famous 'Florentine' diamond — one of the great gems of history and for many years an heirloom of the Habsburgs. Whereas the Florentine had a slight yellow tinge, the Archduke Joseph is a colourless gem.

It is believed that the Archduke passed the diamond to his son, Joseph Francis (1895–1957). In 1933 it was deposited with the Hungarian General Credit Bank in the presence of a State Counsellor. In 1936 it was sold to a European banker and locked away in a safe deposit box in France, where it fortunately remained undiscovered during World War II. Subsequently, the whereabouts of the stone remained a mystery until it came up for auction in London in June 1961. At the time it was believed to be the largest unmounted fine quality diamond ever to have been auctioned in Great Britain, but it was withdrawn from sale when the bidding stopped at £145,000. It came up for sale again at Christie's in Geneva in November 1993 when it sold for $6.5m (£4m).

In this most recent sale the diamond was sold to an anonymous buyer. "My understanding is that this stone is going to a museum," said the Chairman of Black, Staff & Frost who sold the stone. "I believe it will probably end up being the centrepiece for an entire exhibit. And deservedly so!"

Side view of the Archduke Joseph. © Tony Falcone, courtesy of Christie's Images Ltd 2012.

Recent Events

Orient Express

James Riley reports on tropical climes and certain times of day during his recent trip to Hong Kong, China and Japan.

Yellow Pagoda, Wuhan.

Striking a gong

Attractive it may sound but glamorous it is not. Two Far Eastern trips interspaced by the Gem-A Conference is a recipe for insomnia. One of the more pleasurable aspects of overseas trips however is seeing students studying our courses and being able to encourage them face to face, as well as sharing their delight in being awarded their diplomas.

Every year the Gemmological Association of Hong Kong (GAHK) holds its annual dinner on the 31st floor of the Gloucester Tower in Central, Hong Kong. Gem-A graduates are invited to attend and are presented with their certificates in fine surroundings, watched by the great and the good of the Hong Kong jewellery industry. It's the sort of event that is both uplifting and depressing. It's fantastic that a trade pulls together to celebrate those just starting off on their careers, but the thought of trying to emulate it in London is humbling. Having just tried to achieve this at the Gem-A Conference, believe me when I say that we are a fragmented industry in the UK. We wonder why in the past our trade has not been as successful as the Far East. Their associations are coordinated with each other. Importantly, industry leaders give up their evening to pay to have dinner with someone they don't know. For one night only, local rivalries are put aside for something which overrides such considerations: the future. We would do well to take a leaf from their book.

My congratulations and thanks go to Louis Lo and the board of GAHK for hosting a highly successful evening, which also highlighted the work they are doing with the Hong Kong government on consumer information with regards to diamonds and jade. Together with Miss Connie Lau, CEO of the Hong Kong Consumer Council, I presented the awards to students and this was followed by speeches. It had come to my attention that the press release for the dinner was written beforehand, and apparently I was to give an "amusing and witty speech". No pressure then ... I leave it to the attendees to decide whether my eleventh hour offering succeeded in satisfying the brief.


Wuhan: James discussing London's diamond trade.

Recent Events

Late October saw the 20th anniversary conference of the Gemmological Institute of China (GIC), part of the University of Geosciences, Wuhan — our largest teaching centre in China. Having started off with only a hazy idea of where Wuhan lies on the map, I was amazed to find that this is one of China's largest cities, situated in the mid-reaches of the Yangtze River.

I was attending a two-day conference featuring speakers from all over Asia, as well as token representation from the UK and USA. Happily I counted representatives from over 15 Gem-A teaching centres! With the help of my translator, I gave a very potted history of London as a diamond centre. Conducted predominantly in Chinese, it was amusing to see numerous individuals wonder if their conversational Mandarin was up to a presentation. What is staggering is the level of research going on in China, very little of which we are getting to see outside the country. I hope in future months you will start to see more articles in the *Journal of Gemmology* from this source.

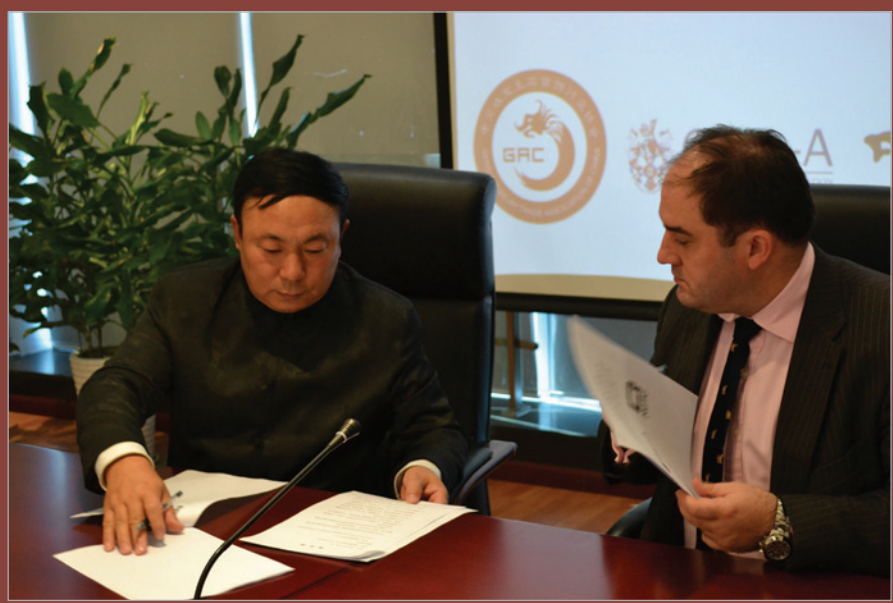
It was again gratifying to present over 50 diplomas to successful students, accompanied by the soundtrack of *The Magnificent Seven*. Never have I felt less like 'Big Chris' — I suspect Elmer Bernstein didn't have this in mind when he wrote that rousing score. At a gala dinner the following evening the Americans were again in town as GIA signed an agreement to teach alongside our courses with the University. Proof again (if any were needed) that these two organizations can coexist. Perhaps there will be a merger between the GIC and GIA — GICA anyone?

From Wuhan to Beijing, and a meeting with the Gemmological and Jewellery Association of China (GAC) and the National Gems & Jewellery Technology Administrative Centre (NGTC). For many years both parties have sought to work more closely with each other. An agreement was signed whereby Gem-A courses will be taught by the NGTC in Beijing, Shenzhen and Shanghai, while Gem-A will continue to promote gemmological education throughout China. I hope next year to welcome representatives of the NGTC to London and open lines of communication around the world. China employs over two million in the jewellery trade, so for Gem-A

Top, L-R: Jessica Han, Director of International Liaisons at GAC, Sun Fengmin, Vice President of GAC and NGTC, James Riley and Dr Yang Lixin, Director of NGTC.

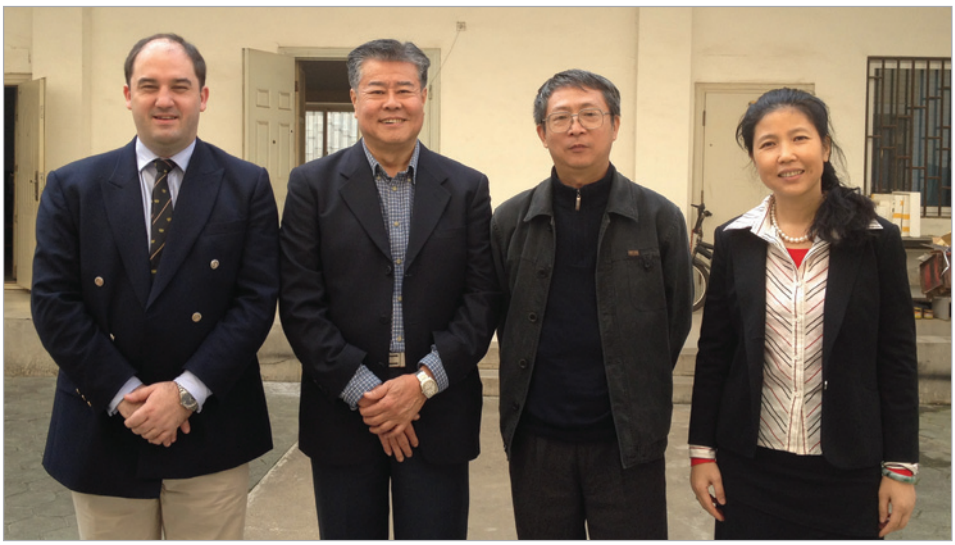
Left: Wang Weiwei, Executive Deputy President at China Gems, and James Riley.

Below: Sun Fengmin and James Riley signing agreements.



Recent Events

Orient Express (cont.)



L-R: James Riley, Tay Thye Sun, Professor Yuan FGA DGA and Professor Li Liping FGA DGA, Head of Courses at China University of Geosciences, Wuhan.

to be taken seriously it is imperative to work with the government bodies.

Following this, looking at how we can make ourselves more aware of what is happening in this large market, Gem-A also concluded an agreement with *China Gems* magazine to circulate its two English editions to Gem-A members and to share and translate key articles from other publications. My thanks to Sun Fengmin for his hospitality and our Gem-A Ambassador Jessica Han for arranging these meetings. However I cannot end this brief report on China without extending my thanks to Tay Thye Sun from Singapore — without his assistance my trip would have taken a lot longer than it did.

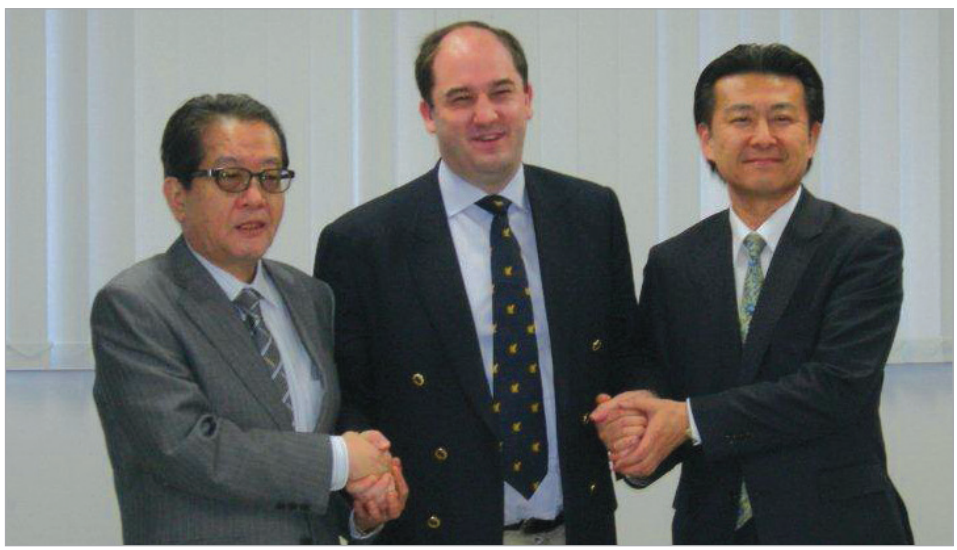
The second leg of my Far Eastern odyssey took me to the Land of the Rising Sun. Japan has been an important market for Gem-A for almost 40 years. The recent completion of the Diploma course notes in Japanese has prompted a concerted effort by the Japan Gem Society (JGS), our collaborators, and the Japan Jewellery and Craft School (JJCS). This will involve exhibiting at the International Jewellery Tokyo (IJT) show in January 2013, but will also see teaching resumed in Osaka and Fukuoka with practical facilities available at JJCS's other locations. The course will also be available online in Japan.

My visit to Tokyo coincided with the 3rd JGS symposium on diamonds. This had been devised by Yasukazu Suwa, whose book *Diamonds: Rough to Romance* (written with Andy Coxon), you may be familiar with. Suwa's passion is diamonds, but not the traditional 4 Cs. He is interested in a stone's beauty and it was a refreshing change to look at stones and decide (without a loupe) which one we preferred. This is often not the most 'valuable' — something which stone dealers have been saying for years but which both the consumer and often the student fail to realize or even take an interest in. I have also judged a stone by whether it 'talks' to me, and Suwa exemplifies this standpoint.

We were also treated to a lecture on synthetics, made all the more interesting by the fact that there was a synthetic diamond manufacturer present. For those of you who attended our conference and listened to Thomas Hainschwang or read the Around the Trade musings of Gem-A President, Harry Levy and think that synthetics are not a major issue — think again. They really are a hot potato in the Far East. Surely it's only a matter of time before we see them in large numbers in Europe.

Congratulations to Akira Ito and the team at JGS for a fantastic day and thanks to our Gem-A ambassador Ayako Naito for shepherding me around Tokyo

During my 'express' visit to the orient I have seen two Imperial palaces, 2000 year old Buddhist and Shinto temples, eaten snake and a 'river fish' of dubious origin, and also travelled on the Peak Tram. After all this I have learnt that in Hong Kong they do still "fire off a noon day gun", and that only "Mad dogs and Englishmen go out in the midday sun."



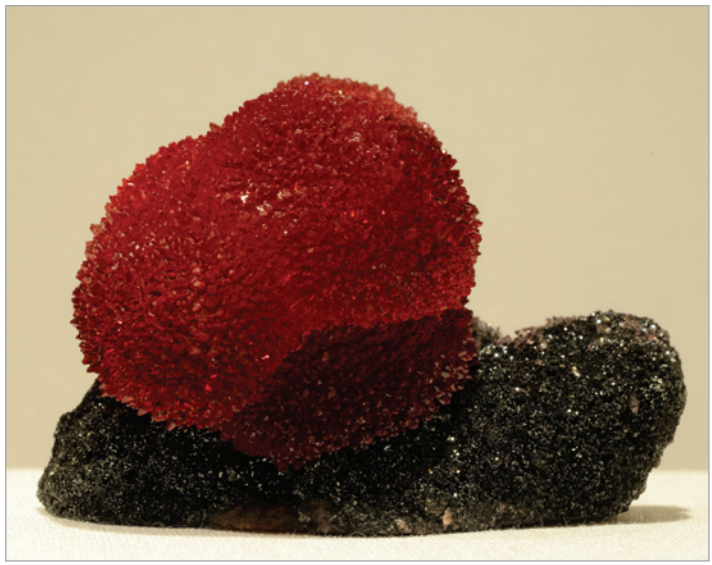
L-R: Hiroshi Tsuyuki, Executive Officer at JJCS, James Riley and Akira Ito, Chairman of JGS. Photo Sayuri Fujii.

The Munich Show

Andrew Fellows FGA DGA reports on this year's successful show.

This year's Munich Show was held between 26–28 October at its regular venue at the Munich exhibition centre. The Munich Show is the largest and most prestigious mineral show in Europe, regularly attracting in excess of 1200 exhibitors from all over the world, and over 50,000 visitors. If there's a gem or mineral in existence then it will be available somewhere in the cavernous halls of this show — the only problem is in remembering where you initially saw something.

The theme this year was 'African Minerals', and this was evident from the showcase of museum-quality exhibition pieces on display — all available for a high price. Not all the pieces were so highly priced as to appeal only to the avid collector; specimens of all types and from all areas were available, with all price ranges and tastes catered for, from gems and jewellery through to minerals, rough crystals and fossils — even complete dinosaur skeletons. For me, the highlights of the show were a unique display of rhodochrosite crystals forming on black matrix material which resembled a snail, and a beautifully terminated and colour-banded tourmaline crystal measuring over 30 cm in length. Other tourmalines present included liddicoatite from Madagascar — a rare form of calcium tourmaline found predominantly in rare-element pegmatites, exhibited by Anton and Rudolf Watzl.



Rhodochrosite snail. Photo © The Munich Show.

Liddicoatite, showing obvious colour banding. Photo © The Munich Show.

The Gem-A booth was conveniently located at the entrance to the centre, ensuring a constant flow of people passing and visiting the stand. We were also fortunate enough to be positioned between two testing laboratories, so people dropping off gems or jewellery for testing could be enticed into discussion about the merits of being able to perform a certain level of testing on stones themselves. Visitors from all over Europe and further afield were present, showing the international appeal of the Gem-A Diploma course and gemmology in general, and there was always opportunity to make new contacts throughout the gem and mineral world. By the end of the show almost all of the GI equipment had been sold, making it a successful and enjoyable show all round.

The Munich Show lived up to its expectations and reputation as being one of the leading shows in Europe, and I for one would definitely recommend it to anyone with a mineralogical or gemmological interest — just remember to set yourself a budget!

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The GJX Show 2013, Tuscon Booth 1006 & 1106

Advertorial

The jet set

One of Britain's traditional jewellery materials, jet, made an appearance at the IJL show last September. W Hamond, presented by C W Sellors, has launched a range of jewellery incorporating this attractive organic gem material and are trying to free it from its usual Victorian mourning jewellery associations. Here Jennie Higgins of C W Sellors provides some background to this fascinating gem.

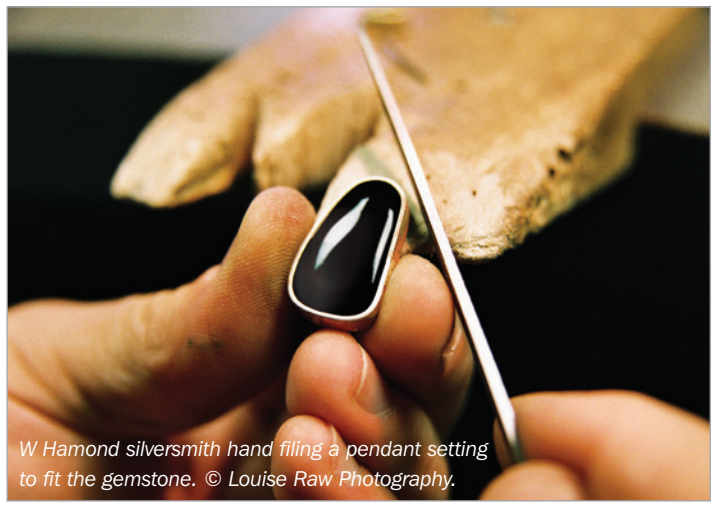
It's not always the far flung corners of the world where you'll find stunning gemstones. Here in Britain you can find a beautiful, intense gem that's long been a head turner. That gem is Whitby jet, which has been transformed into desirable jewellery for hundreds of years.

The jet is found along a short stretch of majestic coastline at Whitby, a traditional fishing town in Yorkshire, England. The beauty of jet cannot be denied; it has an unrivalled black appearance, a mirror-like polish, is light in weight and feels warm to the touch. Its timeless appeal and elegance design still attract visitors to the area today.

Jet comes from the Araucaria tree (also known as the Monkey Puzzle tree) which, over 180 million years, has been transformed into the material jet which we know now. Mining for the jet in the Whitby cliffs is not permitted and the only way to source the stone is through the local community who comb the beaches for it when it washes ashore or is eroded from the cliffs.

Queen Victoria is credited with starting the fashion for wearing Whitby jet as mourning jewellery after the death of her husband, Prince Albert. Having been regarded for many years now as a 'sad' gemstone, jet is now enjoying a renaissance.

A piece of rough Whitby jet. Photo C W Sellors.



W Hamond silversmith hand filing a pendant setting to fit the gemstone. © Louise Raw Photography.

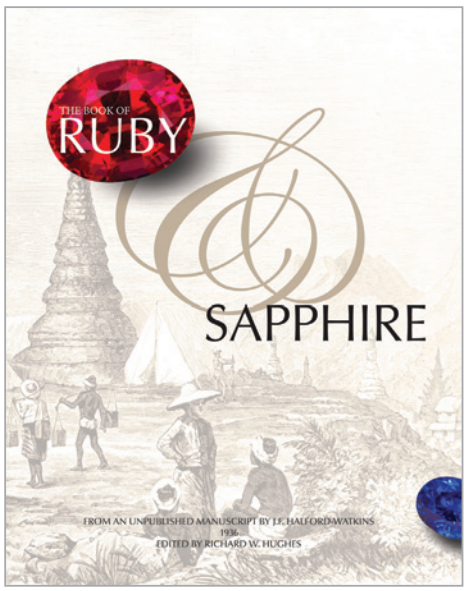
Thanks to advances in technology, the designers and craftsmen who use jet today combine a thorough knowledge of traditional jewellery-making skills with modern techniques — including the use of Computer Aided Design (CAD) and precision laser cutting. The crafting of jet itself is labour-intensive; it is made by hand as it cannot be mass produced on machines.

About W Hamond

W Hamond offer a wide selection of antique jet jewellery, some of which dates back to the time of Queen Victoria. These original pieces sit alongside beautiful contemporary designs, skilfully handmade by W Hamond's modern day team of craftsmen, who combine stunning Whitby jet with silver, gold and platinum. Combining modern and traditional techniques to produce their jewellery, W Hamond are lifting Whitby jet to new levels of design and popularity. Each piece of rough Whitby jet is hand-selected and skilfully shaped and polished to gradually reveal its unique inky-black mirror-like features. W Hamond also combines jet with a colourful selection of gemstones to offset its unique appearance, and designs and collections such as their 18 ct diamond and Whitby jet range have proved extremely popular. For more information visit www.whamond.com.

Book Shelf

The Book of Ruby and Sapphire



J.F. Halford-Watkins,
edited by Richard Hughes, 2012
RWH Publishing
Hardcover, 434 pp.
ISBN 0-9645097-0-2
Price: £85*

* Signed copies are available to purchase at this price from Gemmological Instruments.

A review of *The Book of Ruby and Sapphire*, by J.F. Halford-Watkins, edited by Richard Hughes FGA.

Among the varied volumes and manuscripts in the library of the Gemmological Association of Great Britain there lay a manuscript by the gemmologist John Francis Halford-Watkins, the unpublished draft of a book on 'Precious Corundum'. It had been discovered by Patrick Streeter while he had been researching for his book on his great grandfather, the jeweller and gem dealer Edwin Streeter, published in 1993. Patrick's reference to the manuscript was noted by Richard Hughes during his own research for *Ruby and Sapphire* (1997) and Ian Mercer (Director of Education) and Michael O'Donoghue (Honorary Librarian) at Gem-A supplied him with a photocopy. Over the following years Richard set about editing the manuscript "as if we were living in Britain during the 1930s and the manuscript was plopped onto our desks" and set about sourcing illustrations. Over ninety illustrations were referred to in the text, but there were just 31 with the manuscript and the quality of some was too poor to be used. Similar illustrations "sympathetic with the original time period and the intentions of the author" were gradually assembled. The result of this labour of love is *The Book of Ruby and Sapphire*, by Lieut. Col. J. F. Halford-Watkins, edited by Richard W. Hughes, 2012.

It is a copious volume written in the tone that one might expect from a 1930s military man, and is extremely detailed and comprehensive. Halford-Watkins was involved in diamond mining in South Africa before moving to Mogok, Burma, where he lived for several years, first as deputy-agent of the Burma Ruby Mines and then as a director of Ruby Mines Ltd, before passing away in Mogok in 1937.

The 25 chapters range through the early history of corundum, through physical properties, internal features, sources, mining, imitations, synthetics, cutting, setting and assessment. There are appendices on the nomenclature and means of identification of corundum and an extract from the diaries of George Streeter (Edwin Streeter's son) when he accompanied the military expedition to the Mogok ruby mines in 1886–7.

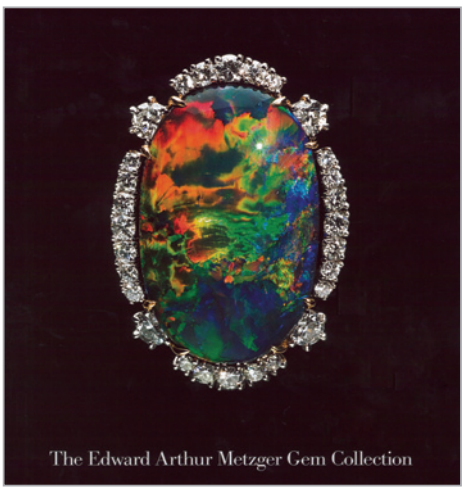
Obviously there are aspects that are now out of date; the manuscript was completed more than 75 years ago and much has happened in gemmology over that period. Also Halford-Watkins was a practical man, not a historian. However, this book is still a marvellous record, providing information not available elsewhere. It is a must for all who are smitten by the history and romance of gems, and by all who want a more complete picture of the enticing world of sapphires and rubies. More pragmatically, it is a fascinating historical record of gem mining and the gem trade in what was then still a corner of the British Empire. It is also a good practical guide. For example, when explaining how to judge a ruby, the author says: "Fine forceps should always be employed for holding the stone, as the fingers interfere with the light entering and the proper illumination of the interior. The forceps should never be of brass (or gold plated), as they will reflect yellow light, but should be of steel or silver plated, while black forceps are ideal for all purposes."

It is hardly surprising that Richard Hughes was drawn to edit and publish this manuscript. Halford-Watkins writes in a drier style than his editor, but both share a huge and infectious enthusiasm for gemmology, and rubies and sapphires in particular.
In the obituary of Halford-Watkins, published in the *Gemmologist* magazine in January 1938, the writer recalls the first letter sent by Halford-Watkins to that magazine as "a revelation of intimate knowledge and enthusiastic love of gems such as we had never before encountered". Our grateful thanks must go to Richard Hughes for making Halford-Watkins' knowledge and enthusiasm available to us all today.

J.O.

Book Shelf

The Edward Arthur Metzger Gem Collection



William A. Bassett PhD and Elise A. Skalwold BSc FGA GG, 2012
Herbert F. Johnson Museum of Art
Hardback, 415 pp.
ISBN: 978-1-934260-14-2

This delightful and beautiful book catalogues part of Cornell University's Edward Arthur Metzger Gem Collection.

In an introductory paragraph the authors note that Edward Arthur Metzger's original aim was to produce an "eminently readable coffee-table book" which should give readers a contemporary experience, a book they reach for over and over for entertainment, and as a reference source; this is certainly what this stunning volume has achieved.

It provides a comprehensive reference of some of the collection's gems, jewellery (including a few watches) and ornamental materials. Gems are grouped by species with a variety of stones represented, many of which are of supreme quality, not only in beauty but also in rarity and size. There is a chapter which solely covers 'exotics', including phophophyllite, benitoite and rhodochrosite, to name but a few.

Each chapter begins with a brief background of each species. The gems have been listed under the original organization of the collection, and detail weight dimensions and additional information such as localities, treatments, date of acquisition, etc. The photography is exquisite (as one would expect from such world renowned photographers).

Unfortunately the photos are not arranged in numerical order, but this does not spoil the enjoyment of the book, and a reference list is given in numerical order in the index to refer to.

I thoroughly enjoyed delving into this wonderful book which has opened my eyes to this truly amazing amazing collection. The only downside is that I have been left wanting more — I would have liked to have known more about the man himself and the background to the collection. Perhaps this could be considered for a future publication? **C.M.**

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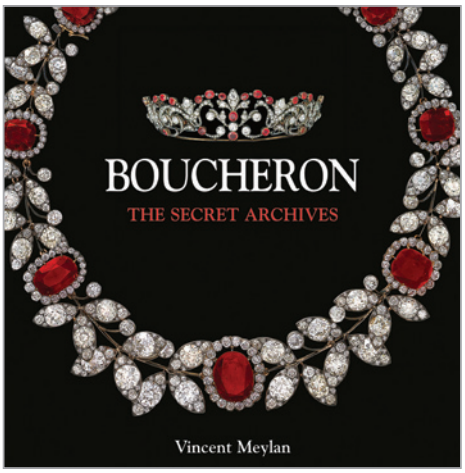
Boucheron: The Secret Archives



Vincent Maylan, 2012
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ISBN: 978-1-851-49667-9
Price: £49.95

Recent years have seen a plethora of magnificent books charting the history, art and clientele of many of the great jewellery houses, including Cartier, Tiffany and Van Cleef & Arpels. These have now been joined by another work on Boucheron.

This lavishly illustrated volume traces the house of Boucheron, from Frederic Boucheron's first shop in Paris, opened in 1858 on largely borrowed money, through to his rapid success leading to his move to the prestigious Place Vendôme in 1892, as well as discussing the Boucheron empire in the modern world. The book also traces Boucheron customers, from the Parisian women of the night to international royalty, and his creations as shown in photos and design drawings. Maylan's quest into the world of Boucheron — a quest he likens to an archaeological excavation — began when he was shown almost 200 order books covering the years 1858–1960 for Boucheron, Paris, and for shops in London, New York, Moscow and Biarritz. Here were the names of the great, but not always the good. Czars and courtesans, maharajas and mistresses, even a Romanian aristocrat supposedly descended from Dracula. Boucheron's gem buyer, Thierry Robert, then showed Maylan a volume with the intriguing title *Pierres et Perles — Références*, a book that listed all the important stones that had passed through Boucheron hands since the start of the twentieth century up until 1981, with coloured drawings, weights, and details of who bought and sold them. In its pages were many famous gems, such as the 471 ct sapphire once owned by Queen Marie of Romania and the Wittelsbach-Graff diamond.

What makes this book interesting is not just that Maylan had unprecedented access to the Boucheron archives, but that he writes with a light though erudite touch about the House of Boucheron and its clients, with little of the sycophantic style that blights many of the volumes on the great jewellery houses. It is a highly readable book. Original correspondence is quoted where relevant, and not just from the Boucheron archives. Thus in the section dealing with Boucheron jewels bought by Katia Dolgorouki, Tsar Alexander II's lover then wife, Maylan quotes some very private correspondence between the two lovers, which I won't repeat here, but which (quite literally) adds some flesh to their passionate relationship. Maylan is also an expert on the history of royal families, an expertise which allows him to be honest — for example, the late Queen Mother "spent her life 'in the red'", and [that] the beautiful Princess Fawzia, first wife of the Shah of Iran, constantly complained that she was "bored". From his opening chapter in which he describes Boucheron's first customers, the Parisian ladies of the demi-monde, as "beautiful, lighthearted and dangerous" to the anecdote about selling million dollar jewellery to a Middle Eastern prince in his concluding section, Maylan interweaves jewels, the people who bought and sold them and the contents of the amazing Boucheron archive. For a gemmologist the interest lies in the more tangible gems, and this book certainly won't disappoint. Maylan is a historian, not a gemmologist, but the jewels speak for themselves and the hundreds of illustrations show an amazing range of gems; from jewellery set with gems, fine designs for jewellery set with gems, and the rich, famous and notorious wearing gems.

J.O.

Letter to the Editor

De Beers detection and verification instruments

Placing diamond on DiamondSure™ sensor.

It was noted in your article 'Hong Kong 2012' (*Gems & Jewellery*, Autumn 2012, 34–36) that you mentioned the De Beers' Detection and Verification Instruments — such as the DiamondSure™ and the DiamondView™ — are no longer marketed and distributed via the GIA. While this is accurate, I'd like to inform you of how we are now handling sale and distribution of these instruments which are vitally important throughout the diamond industry.

The sale and distribution of the verification instruments will be handled by the De Beers Groups' International Institute of Diamond Grading & Research (IIDGR), an institute solely devoted to diamonds, their comprehensive analysis through diamond grading and research into diamond technology. The IIDGR is confident direct sale, distribution and support services will benefit the end-user by streamlining these processes to enable quick delivery of any verification instrument purchase. The overall customer service experience will be enhanced through direct contact with the developers and manufacturers of the instruments.

Owners of the DiamondSure™ and DiamondView™ instruments will continue to work directly with the De Beers Group for after-sales technical support. Product support, technical service and warranty repairs which have always been provided directly by scientists and engineers at the De Beers Group will remain unchanged.

For more information on the sales and distribution of these products, or to contact the De Beers Group, please visit: www.IIDGR.com.

Regarding your point about the robustness of the tip of the DiamondSure™, I'm sure that one of our scientists would be delighted to discuss this with the view to increasing the reliability and robustness of the instrument. I hope that this clarifies the situation.

Jamie Clark, De Beers Group

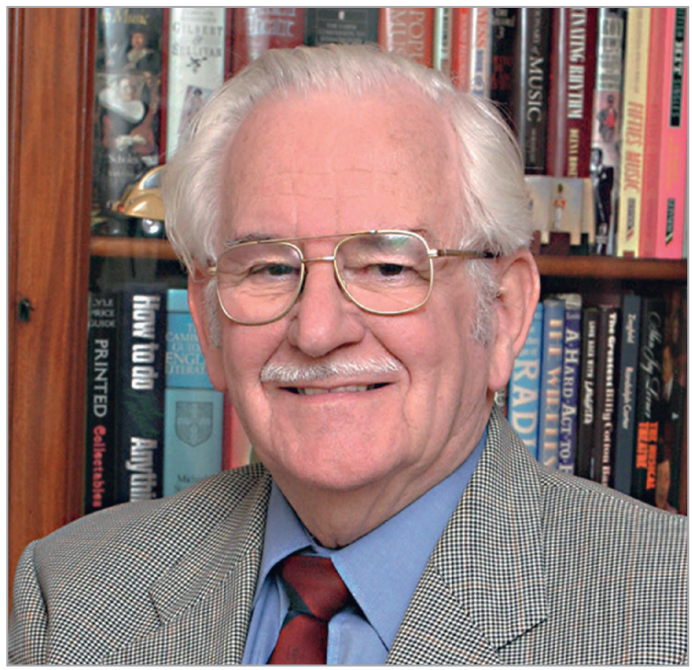
Photos © De Beers Group

DiamondView™ in use.

Obituary

Keith Wallis FGA

It is with great sadness that we announce the death of Keith Wallis FGA, who passed away on 19 September 2012. A long-standing member of the Association, Keith obtained his Diploma in 1977. He began his working life studying architecture and later moved into building services. As export manager of a major air conditioning company Keith travelled extensively, allowing him the opportunity to further his knowledge and experience of gemstones from around the world. After retiring, Keith devoted his time to writing about gems and travelling to gem fairs and conferences. His popular book *Gemstones* was first published in 2006, with a second edition appearing in 2011. A comprehensive and useful guide, the book is a firm favourite amongst gemmologists and students alike. Keith was also a contributor to *Gems & Jewellery*, and his article entitled 'The Rainbow of Africa' was published in the Spring 2012 edition (24–25). Keith endeavoured to make gemmology more accessible to the public, and was involved in the development of low-cost evaluation and testing instruments and techniques for gemmology students. He will be greatly missed.



Keith Wallis. Photo courtesy Antique Collectors' Club.

Stone Scoop

Jewel of the nail

Jack Ogden reports on some curious anecdotes from around the trade.

Several books dealing with curious facts note the rather extraordinary case of King Victor Emmanuel's toenails, one of the more eccentric examples of organic gems. The earliest reference to this that I can find is in *The Indian Mirror* from 16 June 1878, as quoted by Sourindro Mohun Tagore in his *Mani-málá* and *A treatise on gems* published in 1879. According to *The Indian Mirror,* "The late King Victor Emmanuel [Victor Emmanuel II, king of Sardinia and later king of Italy who died in 1878] had many peculiarities, one of which may be related in a few words. It appears that each year His Majesty had allowed one of his toenails to remain uncut through the year, and on New Year's Day he cut off this projecting nail which was always about an inch in length. A jeweller cut and polished this piece of nail, which acquired the appearance of the stone known as a 'cat's eye' and framed it in a rim of gold set round with diamonds. Each year the king presented this jewel to his mistress, the Countess Mirafiori, who already possessed fourteen of these novel ornaments. The fifteenth had been cut by the late King on the 1st January 1878 and, as His Majesty died on the 9th of that month, the jeweller had not had time to polish and mount it. It has since been conveyed to the Countess by King Humbert [Umberto I]."

King Victor Emmanuel II

Other nineteenth-century newspapers add a bit more detail, but I haven't found the original account pre-dating *The Indian Mirror* story.

No mean feet

Remarkably, King Victor Emmanuel is not unique. In September 1985, *The Weekly World News* (a USA publication renowned for its sensationalist and often bizarre news) published a story about the toenail jewellery produced by Jerry Clark of DeWitt, Iowa. Each year he "carefully cultivates the growth of his two big toenails all year and then slices them off with a hacksaw just before Christmas". With these clippings he makes necklace pendants for his relatives and wife, but admits: "My wife thinks it is the most horrible thing she has ever seen." A photograph shows Jerry at work on one of his creations, and one of a necklace of these 'ornaments'. This suggests that the story is a true one, even though it was repeated almost word for word in the same newspaper in 1990. Whether the beautiful Countess Mirafiori (formerly Rosa Vercellana or 'La Bela Rosin') appreciated her gift more than Shirley Clark of DeWitt, Iowa, is unknown.

Western fakes

In the west we have sometimes had a rather chauvinistic, if not racist, attitude to the trustworthiness of some more eastern suppliers of gems. It may thus help to redress the balance by noting some old accounts of Western skullduggery.

Four hundred years ago the records of the East India Company, based in London, had a problem with red spinels. These gems were greatly coveted by the Indian rulers, and European traders profited greatly from this. However, not all were what they seemed. Early in 1614, the East India Company noted that many of its agents in India were offering spinels for sale that were actually imitations — this was, they said, bringing the Company into discredit and even threatened to disgrace England. Almost a hundred years earlier the writer of an Indo-Persian text complained that emeralds being brought by European traders from the west (probably from the then recently discovered Americas) were being mixed with imitations. The same document also notes that "The recognition of yellow sapphire is exceedingly difficult because the infidels in Europe grind crystal and fire it and cut it [i.e. make glass imitations]." Nevertheless, good gemmological training sorted right from wrong regardless of nationality. As that note about fake yellow sapphire added: "To distinguish it is not easy for everyone, but any connoisseur of jewels knows it well."

Spell bound

At the Australian Gemmological Association Conference dinner in Sydney earlier this year I had to make a short speech. I thought it an ideal opportunity to report on a recent Gem-A Board meeting, at which the Board devoted several hours to discussing whether it would now make sense to drop one of the 'm's in the English spelling of 'gemmology'. Reducing it to one 'm' would bring it into line with the American spelling and simplify things with our international education. The Board reached a momentous decision: yes, in principle, one 'm' should be removed. There was a look of total shock around the room in Sydney (much as there was when I repeated this story at the Chicago GemWorld Conference). Calm was restored when I went on to explain that despite a further two hours of discussion, the Board could not reach agreement as to which of the two 'm's should be removed, and so, for now anyway, both will be retained.

J.O.

Rare coloured gemstones

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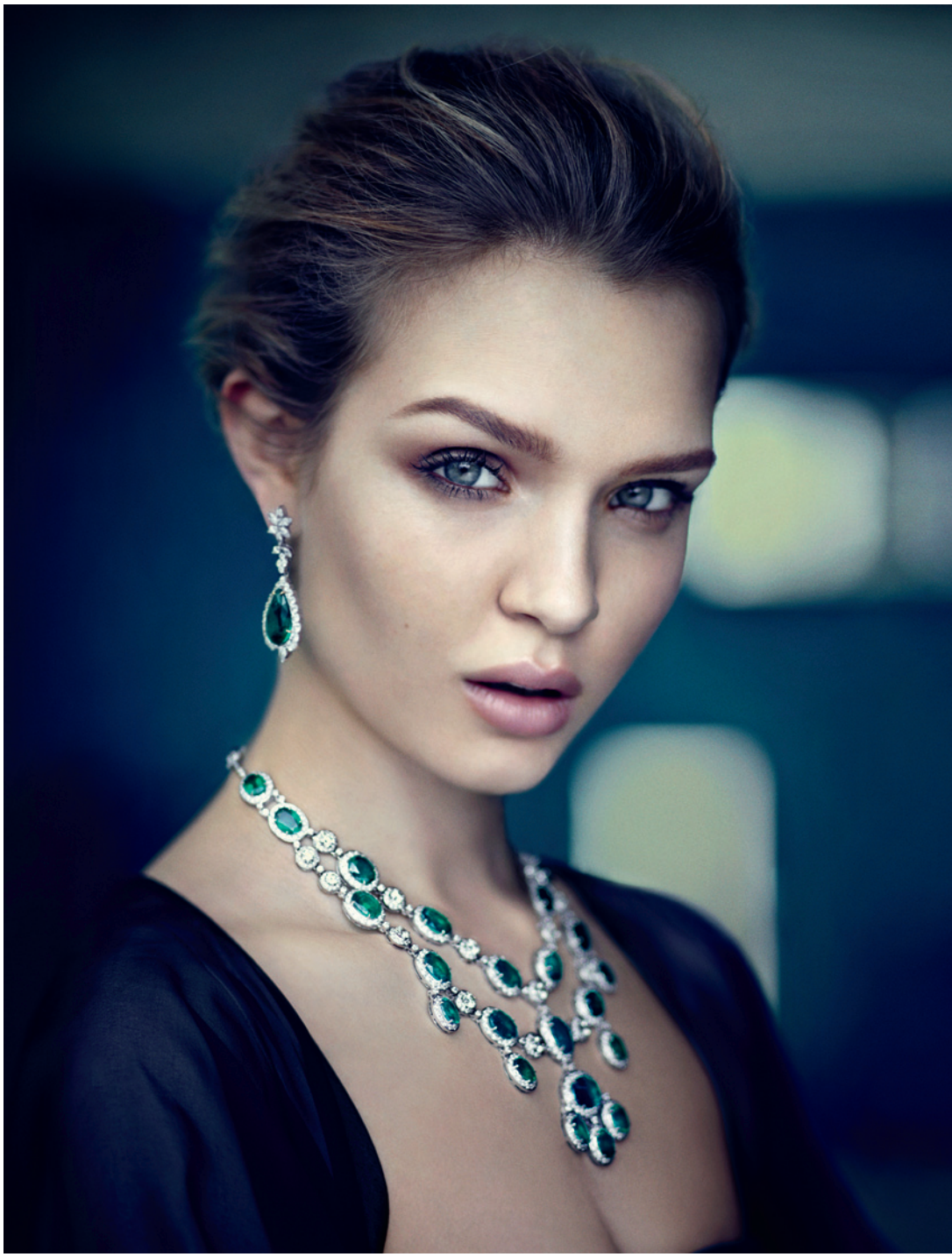
Josephine wears The Gem Palace Zambian Emerald Jewellery. For more information about our emeralds please contact us on +44 (0)20 7518 3400 or visit *www.gemfields.co.uk*



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