

Gems & Jewellery

Oct 2015 / Volume 24 / No. 6



The Hope Spinel

Bejewelled Treasures:
The Al Thani Collection

Interview with Lawrence Stoller



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OF GREAT BRITAIN

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October 2015

The ins and outs of polished diamonds: surface damage

Grenville Millington FGA looks at surface damage in diamonds.

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Hope, Hertz and a red spinel

Jack Ogden FGA considers a large red spinel which recently sold at auction, the catalogue in which it appears and its remarkable author.



In pursuit of beauty

An interview with award-winning artist Lawrence Stoller, whose mega-sculptures reflect his passion for nature and beauty.

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Bumble Bee 'Jasper'

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Cover Picture

The Hope Spinel which recently sold at auction for a remarkable £962,500. Photo © Bonhams.

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rock, gem & bead shows 2015

24th/25th October Rock Gem 'n' Bead Newton Abbot Racecourse

31st/1st Oct./Nov. Rock Gem 'n' Bead Kempton Park Racecourse

14th/15th November Rock Gem 'n' Bead Cheltenham Pittville Pump Room

21st/22nd November Rock Gem 'n' Bead Brighton Racecourse

16th/17th January 2016 Rock 'n' Gem Show Mascalls School

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All other R&G Shows: Adults £4.50, 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



Gem-A
INSTRUMENTS

Gem Central: The use of basic gemmological equipment from a lab perspective

Thursday 10 December 2015

Guest speaker Stephen Kennedy will focus on the importance and use of traditional gemmological instruments for the everyday gemmologist; their advantages, limitations and when it's advisable to seek gemstone identification from a lab. Stephen will also provide some useful instrument tips and answer any questions. The talk will be followed by a Christmas tippie, mince pies and a **20% discount on all instruments from Gem-A Instruments**.

To book your place contact events@gem-a.com.

To be held at Gem-A Headquarters, 21 Ely Place, London EC1N 6TD

Doors open 18:00, talk starts 18:30

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Busy, busy, busy at Gem-A...

Welcome to the October issue of *Gems&Jewellery*. In this issue Grenville Millington looks at the ins and outs of surface damage on polished diamonds (page 8); Susan Stronge and Joanna Whalley of the Victoria and Albert Museum discuss some of the beautiful pieces in the exquisite Al Thani Collection (page 12); Jack Ogden takes a look at the history of the Hope Spinel, which recently sold at auction at Bonhams (page 20), and we talk to award-winning artist Lawrence Stoller about his breathtaking gem sculptures (page 22).

September is always a busy month for Gem-A, with shows in the US, UK and Hong Kong. The Gem-A team has been enthusiastically promoting Gem-A and our education and membership services at home and abroad at the Dallas Mineral Symposium, the Denver Gem and Mineral Show, International Jewellery London (IJL), the IRV Loughborough Conference and the Hong Kong Jewellery & Gem Fair. We are pleased to report that all shows were a great success, with Gem-A staff on-hand with practical demonstrations to encourage people to qualify their knowledge and to learn more about the gems they are handling. You can read the IJL report on page 19.



The results of the Gem-A AGM elections were announced on 26 August. Each candidate was selected for their contribution to the industry, whether that be as a tutor, an educator or an academic, or with experience in retail, management or governance. Joining existing Council members Mary Burland, Nigel Israel and Miranda Wells, are Kathryn Bonanno, former Vice-President of the American Gemmologists Association (AGA); Justine Carmody, premium jewellery and watch professional and former Member of the N.A.G. Educational Committee; Paul Greer, Managing Director of Bentley & Skinner; Kerry Gregory, former Secretary of Gem-A's South West Branch, ODL tutor and contributor to *Gems&Jewellery*; Alan Hart, Head of Earth Science Collections at the Natural History Museum; Alan Hodgkinson, President of the Scottish Gemmological Association, developer of the visual optics technique and author of the recently released *Visual Optics* and *Gem Testing Techniques*; Dr Jack Ogden, former Gem-A and N.A.G. CEO and former Secretary General to CIBJO; Richard Slater, jewellery dealer, valuer and former auctioneer, founding member and Chair of South West Branch since inception in 2001, and Trustee of the South West Trust; and Christopher P. Smith, President of American Gemological Laboratories (AGL), former Director of the Gübelin Gem Lab Ltd., Lucerne, Switzerland, and past Director of Identification Services for the GIA Laboratory in New York. Members of the Council will now work together to form a plan for the future of the Association.

In other news the latest issue of *The Journal of Gemmology* (Vol. 34, Issue 7) is out now, featuring articles on European freshwater pearls, Type Ib yellow to brownish yellow CVD synthetic diamond and Burmese amber from Hti Lin, as well as regular

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features What's New, Gemmological Brief, Gem Notes and Conferences. *The Journal* also features a comprehensive list of newly-published reading material in the New Media and Literature of Interest sections, and an extensive list of conferences, exhibitions and events around the world in Learning Opportunities. If you don't receive *The Journal* but want to read more, visit our website to find out how to sign up.

Looking forward we have the Gem-A Conference fast approaching. If you haven't already booked your place do so now — the cut-off for booking is Friday 13 November, and places on the visits and workshops are selling out fast. We have an exciting line-up of speakers scheduled; visit pages 15–18 for the full list of speakers and for details on visits and events.

And finally, if you have any comments or suggestions for *Gems&Jewellery* please email editor@gem-a.com — I'd love to hear from you!

Best wishes to all our members, friends and readers.

Georgina Brown, Deputy Editor

The editors would like to issue a sincere apology to Somewhere In The Rainbow for an error in the 'Bahia golden rutilated quartz' feature on pages 8–10 of the July issue of *Gems&Jewellery* (Volume 24, No. 4). This publication did not give proper credit to Somewhere In The Rainbow as owners of the piece shown in image 9 on page 10 (a fine 18 ct gold diamond and Bahia golden rutilated quartz bracelet, designed by Carol Levy Designs). We are deeply sorry for this oversight.

Gem News

KIMBERLEY PROCESS CRITICIZED IN NEW AMNESTY INTERNATIONAL DIAMOND REPORT

On 30 September 2015, Amnesty International launched a new report on the diamond industry, focused on the Central African Republic (CAR) where the trade continues unabated despite sweeping conflict.

The report reveals the “systematic failures to prevent the trading of conflict diamonds” and addresses “illegal and unethical practices across the sector”. The KP comes under fire for “hiding human rights abuses and illegality within the diamond trade”.

The report also highlights how abusive armed groups in CAR profit from the diamond trade and how diamond traders in the country and global trading centres profit from illegal and unethical activity, as well as stating that diamond-producing countries and those who trade in diamonds are failing to stop the smuggling of CAR’s diamonds into global markets.

Drawing on research in CAR, neighbouring countries, and diamond trading centres Antwerp and Dubai, the report also states that tax abuse by some international diamond traders means that companies make massive profits at the expense of human rights in poor diamond-producing countries.

ASSOCIATION FOR UK PEARL TRADE LAUNCHED

The start of 2015 saw the introduction to the industry of a fledgling national trade group, the British Pearl Association (BPA), which aims to promote UK pearls (both cultured and natural) and all pearl suppliers. The BPA represents pearl designer jewellers, craftsmen, pearl jewellery wholesalers and suppliers, galleries, internet retailers and traders.

Promoting the new association at IJL was founder and president Louise Tippey, who stated: “The BPA is a positive step forward for the pearl industry. We can bring greater specialist pearl support, advice and representation for the pearl trade.” Tippey, who is also the CEO of jewellery brand Pearls by Fleur, continued: “Before our inauguration we carried out a study to discover exactly what the needs were of all pearl suppliers and found a gap in the market. We are also aiming to increase consumer confidence in the pearl industry so that ultimately our

members will prosper. We would like to complement existing trade associations and bring our specialist knowledge of pearls.”

The BPA Committee includes a commercial and legal expert, a retail store advisor and business mentor, and an online retail advisor. The Association’s website offers members a product image showcase as well as a direct link to their own websites. Members will also benefit from promotion of their latest collections across the BPA’s social media channels and via press releases on the BPA news pages.

Future plans for the Association include the expansion of membership and compilation of an A–Z pearl glossary. “Members believe we should be the go-to destination for pearl education,” explains Tippey. “In the near future we plan to include seminars and educational activities. We received positive reactions from our visit to IJL, as well as from other international pearl bodies like The Cultured Pearl Association of America and from pearl expert Laurent Cartier.” Visit www.britishpearlassociation.com for more information.

INAUGURAL NATIONAL ASSOCIATION OF JEWELLERS (NAJ) AWARDS ANNOUNCED

The NAJ — the body newly-formed by the unification of the National Association of Goldsmiths and the British Jewellers’ Association — has launched the first ever NAJ Awards, the winners of which will be revealed at an awards ceremony on

3 December during the 2015 Jewellery and Giftware Ball, hosted by the British Jewellery, Giftware and Finishing Federation Benevolent Society.

The categories for the awards are: Retailer of the Year, E-tailer of the Year, Designer of the Year, Service Supplier of the Year, Jewellery & Watch Supplier of the Year and Member of the Year. The judging panel has arrived at a shortlist of four companies or individuals per category; the shortlist is available on the NAJ’s website at www.naj.co.uk and voting by the membership will be open from 30 October.

HOPE SPINEL FETCHES A RECORD £962,500

A rare British-owned spinel sold for a record price of £19,710 per carat at Bonhams Fine Jewellery sale in London last month. Set in a nineteenth-century silver and gold brooch, the 50.13 ct octagonal-cut stone is the size of a small plum and of a similar colouring with a rose hue. It was bought by a private telephone bidder.

The Hope Spinel was part of one of the world’s greatest gem collections until its owner — London banker Henry Philip Hope — died in 1839. Until last month, it has not been offered for sale since 1917 at which time it sold for £1,060 — the equivalent of £80,000 today.

See Jack Ogden’s report on page 20 for a full account of the history of this exceptional spinel.

FANCY VIVID PINK DIAMOND UP FOR SALE

The largest Fancy Vivid pink diamond, estimated at US\$23–38 million, is to be offered for sale by Christie’s International in Geneva on 10 November. The type IIa, 16.08 ct, cushion-shaped stone, set as a ring with a double row of pavé-set white diamonds and small pink diamonds, will be featured in the ‘Magnificent Jewels’ auction. In the Fancy Vivid pink range, diamonds of even five or six carats are rarely encountered in the sale room and those over 10 ct are virtually unheard of. In almost 250 years of auction history, only three pure vivid pink diamonds of over 10 ct have appeared for sale.

“This 16.08 ct Fancy Vivid pink diamond comes to market at a time when great gems are mirroring prices achieved for masterpieces in the world of fine art. Collectors are looking to jewels as savvy investments that are both beautiful and can appreciate considerably in value over a relatively short period of time,” notes Rahul Kadakia, Christie’s international head of jewellery.



Events

SAVE THE DATE

27th INTERNATIONAL IJT2016 JEWELLERY TOKYO

International Jewellery Japan (IJT)

20–23 January 2016

Tokyo, Japan

The largest jewellery trade show in Japan, IJT is the gateway to expanding your business in Japan and Asia. Come and visit the team in one of the most beautiful countries in the world. Booth number TBC.



AGTA Tucson GemFair

2–7 February 2016

Tucson, Arizona, USA

Gem-A will be returning to the AGTA GemFair Tucson, to take part in one of the largest and most famous international gem shows across the globe. Gem-A will be joining the show to exhibit its range of educational and training courses, instruments, membership services and publications; come and visit us at booth 29.

Gem-A's Big Gem Bash

4 February 2016

Scottish Rite Cathedral, Tucson, Arizona, USA

We invite members, students and friends to join us at the Scottish Rite Cathedral for live music, drinks and catering with the return of our Big Gem Bash, a highly popular event in 2015. Be sure to reserve your place by emailing events@gem-a.com soon. Thank you to our sponsors JIBNA for their generous support of the Big Gem Bash.

62nd Annual Tucson Gem and Mineral Show (TGMS)

1–14 February 2016

Tucson, Arizona, USA

Gem-A will be extending its stay in Tucson to attend the TGMS. Following on from AGTA GemFair Tucson, TGMS is the Tucson Gem & Mineral Society's yearly show, inviting both gemmologists and mineralogists to come together for a number of exhibitions, workshops and events.

Baselworld 2016

17–24 March 2016

Basel, Switzerland

One of the largest watch and jewellery shows, Baselworld is the focal point of the industry, where all players showcase their creations and innovations. The show attracts everyone from designers and purchasers, to the global press and consumers. Come and visit the team at Hall 3.0 Stand A35.



Baselworld 2015, courtesy of Baselworld

GEM-A EVENTS

Gem Central: Speaker TBC

15 October

18:00–19:30, Gem-A Headquarters,
21 Ely Place, London, EC1N 6TD

Visit our website for more information.

Gem-A Conference 2015, incorporating 18th International FEEG Symposium

21–22 November

The Royal Institute of British Architects
(RIBA), Marylebone, London

Gem-A will host its internationally acclaimed annual conference at the Royal Institute of British Architects (RIBA), Marylebone. Welcoming speakers from across the globe, the Gem-A Conference has a reputation for tackling the most innovative and contemporary gem-related topics, whilst bringing together some of the leaders in the field for a weekend of networking and special events. It will include seminars from Richard Drucker, Eric Fritz and Alan Hodgkinson, as well as visits to the Natural History Museum, the Victoria and Albert Museum and the Tower of London.

Confirmed speakers include:

- Ilaria Adamo
- Jean Pierre Chalain
- Andrew Cody
- Jörg Gellner

- Grant Hamid
- Bill Larson
- Shane McClure
- Adolf Peretti
- Paul Rustemeyer
- Fabian Schmitz
- Martin Steinbach

For more information visit

www.gem-a.com/news--events/events/gem-a-conference-2015.aspx
or see pages 15–18.

Gem Central: The use of basic gemmological equipment from a lab perspective

10 December

Doors open 18:00, talk starts 18:30.

Gem-A Headquarters, 21 Ely Place,
London, EC1N 6TD

Guest speaker Stephen Kennedy will focus on the importance and use of traditional gemmological instruments for the everyday gemmologist; their advantages, limitations and when it's advisable to seek gemstone identification from a lab. Stephen will also provide some useful instrument tips and answer any questions. The talk will be followed by a Christmas tippie, mince pies and a 20% discount on all instruments from Gem-A Instruments. To book your place contact events@gem-a.com.

OTHER EVENTS

Canadian Gemmological Association (CGA) Conference 2015

16–18 October

The Terminal City Club, Vancouver, British
Columbia, Canada

Gem-A is proud to be a Diamond Sponsor of the CGA's annual conference 2015. A long-term partner association with Gem-A, the CGA is one of the primary gemmological trade associations in North America with a superb reputation gained from 60 years of effective training and support of Canadian gemmologists.

Now in its 26th year, the CGA annual conference brings together the wealth of gemmological talent in Canada to meet with speakers and delegates from around the world.

To find out more about the CGA and their upcoming conference, please visit the CGA website at www.canadiangemmological.com/index.php/about/conference?id=105.

The ins and outs of polished diamonds: surface damage

Grenville Millington FGA looks at surface damage in diamond in the sixth instalment of his series on polished diamonds.

Most of the features we have looked at so far have been due to natural causes — even diamonds that have been cleaved during setting present a natural face. The stones depicted in this article, however, have all suffered surface damage after polishing.

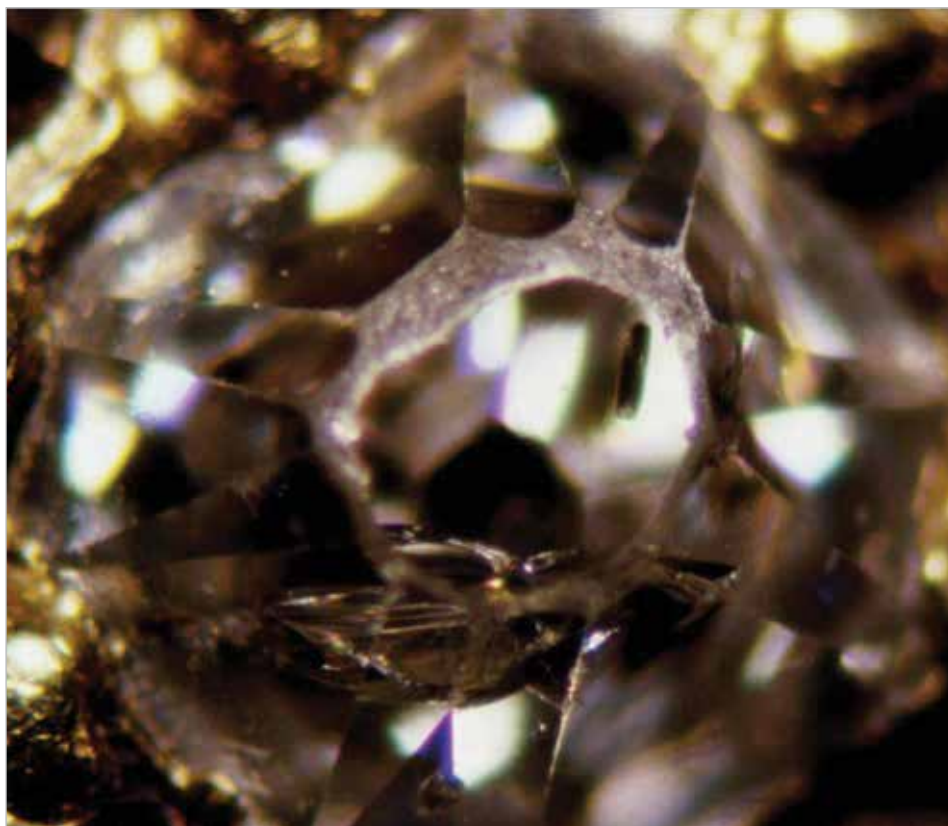
Diamond is often quoted as the hardest natural substance (sometimes, wrongly, as the hardest of substances). However, even diamond can be worn away whilst being used as jewellery, although it is very commonplace to examine a piece of jewellery that may be 100 years old or more and not find any trace of wear on the diamonds present. Having said that, I once examined a three-stone diamond ring that was probably less than 40 years old that had quite noticeable abraded facets — the

owner said she never removed the ring (and I suspect she was a keen gardener!).

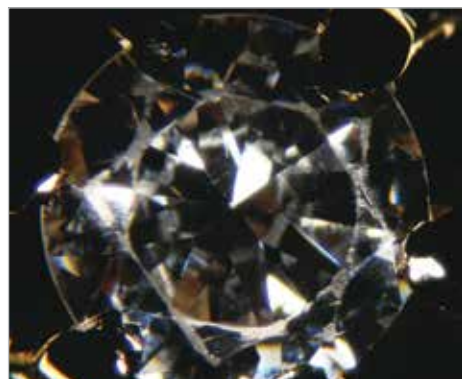
The first stone we are looking at was set in a ring (rings are obviously more prone to abrasion than other jewellery forms). We can tell from the style of the mount (not visible in the photo) and the cutting style/proportions of the diamond that the ring and stone date from the middle of the nineteenth century (1).

The photo shows the rather small table facet that is heavily abraded on its edges. The dark area within the table facet is the very large culet. The table edge abrasion depicted here is quite unusual in its extent and obviously is testament to the sustained usage of this piece of jewellery. Lesser damage can be seen along the other facet edges, although even this amount is as much as we generally expect to see on a 'worn' diamond. Such facet edge wear presents a more even surface appearance than that seen on diamond imitations, such as that on the cubic zirconia shown in 2. This surface difference is difficult to put into words but is noticeable to an experienced viewer.

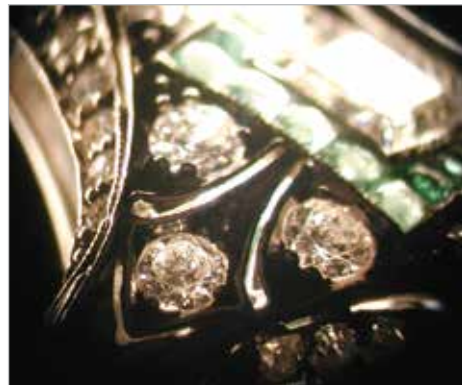
The diamonds shown in 3 are also unusual. The ring depicted had set diamonds and



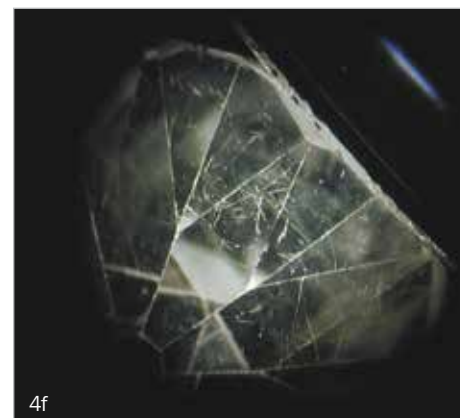
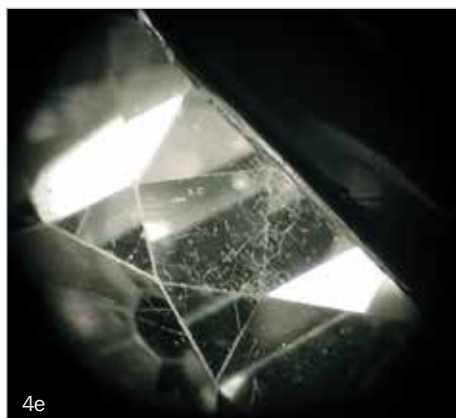
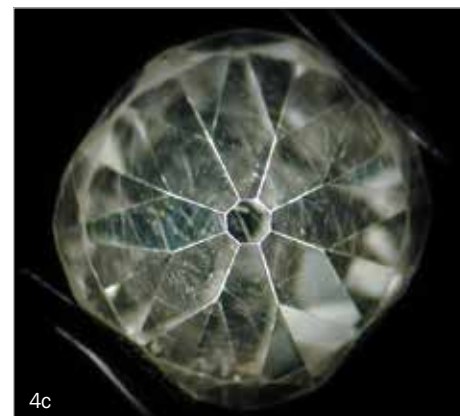
1: Facet edge abrasion on a diamond cut in the nineteenth century, magnification approx. 40×.



2: Facet-edge abrasions on a cubic zirconia.



3: Small brilliant-cut diamonds in a ring showing abraded facet edges, magnification approx. 50×.



emeralds and probably dates from the 1940s. The photo shows three brilliants, modern-cut, set in a fancy triangular formation that forms part of the shoulder of the ring. The emeralds, in a millegrained channel, showed very little wear, but these shoulder diamonds all exhibited distinct abrasion to the facet edges all around the table and star facets (again, much more than is expected). These stones, however, were set well into the mount and had protective metal ridges around them. I can only assume that these diamonds were originally set into an eternity ring (or half-eternity) perhaps, which would then be more susceptible to everyday wear. Even so, as they are of 'modern' proportions — meaning from around 1918 — it doesn't give them much time to accumulate the amount of abrasion that they display. It's a mystery!

Returning to older cut diamonds, look at the pair shown in **4a**. These two cushion-shaped, old-cut diamonds were taken from a pair of earstuds whilst the settings were being repaired. They were a good match and the one was perfectly as expected, but the other showed worn facet edges, (**4b**).

As this sign of wear only appeared on one of the pair, we assume that this one had been previously mounted in a ring and

then been worn for many years in order to produce this amount of abrasion. But how do we explain the pavilion side of this diamond (**4c**)?

Obviously, the lower parts of cut stones mounted into rings receive no wear and tear in the normal manner, in contrast to the crown sections, but this stone displayed equal wear on top and bottom. So had this stone been girdle-set, into what is called a 'spectacle-setting'? Another look at the surface of this diamond shows other abrasions in the form of scratches (again, not frequently seen on diamond surfaces, other than occasional single scratches). The photo in **4d** shows the table of the diamond and **4e** shows an area between the table and girdle.

These strangely oriented short scratches are also visible on the pavilion (**4f**). The more you look at these photos the more you doubt whether any normal wear and tear process could have formed these abrasions — certainly not the earstud the stone had just come out of. It's another mystery!

Apart from abrasive situations that could damage a diamond surface, the other candidate is heat. Some people do throw their diamond rings into a fire, although not usually by choice! But many diamonds are

4: (a) A pair of nineteenth-century-cut diamonds, cushion-cut, about 0.65 ct each. The worn facet edges are seen on the crown (b) and pavilion (c). Scratches can be seen on the table facet (d) and side facets (e) and (f). Magnification approx. (b) and (c) 30×, (d) and (e) 50×, and (f) 40×.

Diamond is often quoted as the hardest natural substance (sometimes, wrongly, as the hardest of substances). However, even diamond can be worn away whilst being used as jewellery...



5: Diamond, 0.22 ct showing completely burned surface, magnification approx. 15×.

left in situ in their jewellery mounts whilst those mounts are repaired and this may involve soldering of new claw tips and so on. If the blowtorch flame brings the diamond up to around 800°C then the surface of the stone will start to be burned. Sometimes this will encompass the whole of the stone, as in **5**. This milky-coloured, semi-matt surface is permanent, but the diamond can be re-polished if the size makes it economically viable, otherwise it ends up in a parcel of broken/damaged stones that most workshops keep. If this burning occurs during a repair process then the diamond is usually replaced. More commonly, an affected diamond is only slightly burned, which will mean a very slight milky surface occurring, or if the heat has been uneven then just a portion of the stone might be damaged, as seen in **6** and **7a**. Closer views of the surface under overhead illumination reveal the mottled, slightly irregular surface of the partially burned diamond (**7b** and **7c**).



6: Less severe burning across the surface of this 0.14 ct diamond, magnification approx. 40×.

Photo **8a** shows a different view of the 0.36 ct diamond, under overhead illumination and **8b** is a closer shot of the mottled surface damage.

When I looked at this diamond (**8a** and **8b**) I naturally thought there was something on the surface, so I removed it from under the microscope and gave it a brisk rub across the table/crown. I then returned it to the microscope and viewed it using darkfield illumination (**8c**). These marks looked like insect legs, but I imagine that they are scratches that have been applied with enough force to induce minute, multi-cleavage fractures (similar to the 'bearding' phenomenon). How have these been produced? Maybe someone noticed the burned surface and applied a diamond-tipped 'burr' — setters use very small 'burrs', which are pointed or shaped hardened steel cutting heads used like a drill bit, for cutting the setting bearings.

Other than that, it's a mystery! ■



7a

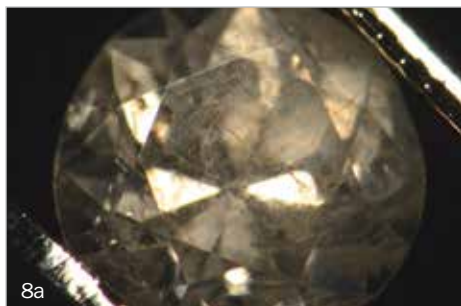


7b

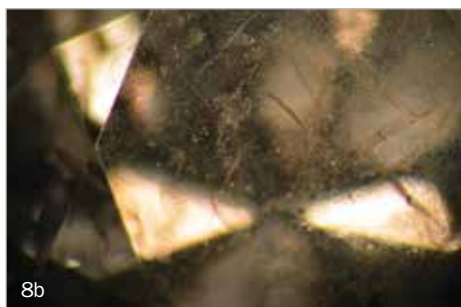


7c

7: A burned 0.36 ct diamond showing the burned surface on the left side (a), and the pitted, mottled surface of the partially burned table (b) and surface (c). Magnification approx. (a) 20×, (b) and (c) 80×.



8a



8b



8c

8: Further views of the 0.36 ct diamond shown in 7a-c. The diamond under overhead light (a) and a closer view again under overhead lighting showing the mottled surface (b); scratches on the table under darkfield illumination. Magnification approx. (a) 30×, (b) 80× and (c) 100×.

North and South

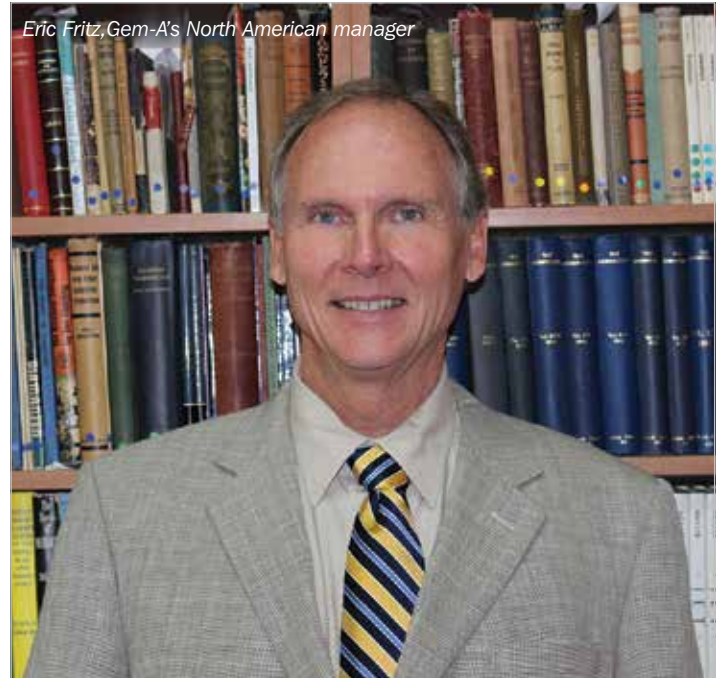
Eric Fritz FGA reports on Gem-A's latest activities in the US.

Late summer was a busy time for Gem-A in the US. July brought Gem-A staff Lizzie Gleave and Claire Mitchell to join me at Jewelry Television (JTV) in Knoxville for its annual Gem Lovers' Conference from 22–24 July. The dream team of three (myself included, of course!) presented 16 workshop sessions in two days to an attentive group of jewellery collectors, JTV customers and industry professionals. Lizzie presented a workshop on easy tests to separate similar-looking gemstones using the polariscope, spectroscope, loupe, Chelsea Colour Filter and dichroscope. A beneficial workshop to both Gem-A and those attending; most of the attendees had never been exposed to any of the tools that gemmologists use all the time. The positive response was overwhelming. Attendees were also treated to an introduction to the Crown Jewels delivered by Claire Mitchell, which the group received with enthusiasm and wonder.

My presentation centred around GemBasics — a joint initiative between JTV and Gem-A. Conceived to provide basic gemmological education to those new to gemmology and to those with an interest in gems, GemBasics is a great way to introduce retail counter staff to the exciting world of gemmology. The majority of the time was spent introducing the loupe; as gemmologists, we often take for granted the amount of information gained solely by observation. Sharing the world of magnification with those who have never seen or know what to look for is a real treat, one I equate to children opening presents, complete with smiles and amazement. Gem-A's relationship with JTV continues to go from strength to strength — a relationship initiated by Jack Ogden and later fostered by James Riley. We continue to work closely with JTV and were blessed by grand southern hospitality while in Knoxville. JTV has generously signed up as Platinum Sponsor of our annual conference in November; on behalf of all at Gem-A I would like to thank those at JTV for their friendship and support. Gem Lovers was a wonderful event and we are proud to be part of it.

The National Association of Jewelry Appraisers (NAJA) completed its mid-year conference in Washington D.C. from 8–11 August. An outstanding array of speakers brought continuing education to one of the premiere associations for appraisers in the world. NAJA has over 700 members worldwide with an attendance in Washington of over 120. Gem-A sponsored the opening day lunch, as well as exhibiting and selling its quality gemmological instruments. Throughout the four days there was a lot of interest in Gem-A's world-renowned courses. Time was spent explaining to delegates Gem-A's aims and objectives, and what we are currently doing both in North America and worldwide. The biggest challenge is not only introducing ourselves to the gemmological world abroad, but letting them know that Gem-A is here to stay.

During the conference Danusia Niklewicz FGA presented an outstanding programme on hallmarks, with a second presentation on Russian forgeries. A lifetime study and record of common to obscure marks on silver as well as jewellery was an incredible highlight. Cigdem Lule FGA, of GemWorld International, presented an interesting perspective on lab reports. Lule entreated to the group that the gemstone and its intrinsic beauty should be the priority. In today's world people are interested only in the lab report



Eric Fritz, Gem-A's North American manager

or 'paper'. A heated discussion followed as most of the group shared the feeling. The country of origin drives pricing — a factor which can often add zeros to the bottom line of an appraisal report. The group discussion shared cases where a report did not state what was desired, and the stone was then sent to another lab where a different origin was declared. The previous report would be trashed. With this in mind, gem reports continued to be an area of concern throughout the conference.

Duncan Parker FGA provided a humorous approach to how the auction world operates, as well as practical advice for all of us to look like jewellery experts. Gloria Lieberman of Skinner Auctioneers also spoke on how estate jewellery is valued and represented at auction houses.

Eric Hoffman captivated the audience with his presentation on jade. Many gemmologists struggle with jade; they encounter problems with evaluating quality and any treatments applied. Examples of the finest quality jade were shown, and Hoffman shared with delegates auction values of jade, including one particular auction where a 27-bead necklace sold for over US\$27 million... yes, US\$1 million per bead. Hoffman argued that the best jade might surpass even red diamond in value.

Suffice to say there was a diverse range of quality and informative talks at the NAJA conference, with talks on the ExCel treatment of emeralds and Art Nouveau versus Arts and Crafts period jewellery also featuring. I could go on, but the next set of conferences and shows awaits. Stay tuned for the November/December issue of *Gems&Jewellery*, which will include reports from the recent Dallas Mineral Symposium and Denver Gem and Mineral show, and the Canadian Gemmological Conference to be held during mid-October.

Until next time...Eric ■

Bejewelled Treasures: The Al Thani Collection

Susan Stronge and Joanna Whalley FGA DGA discuss the fascinating Al Thani Collection, exhibiting at the Victoria and Albert Museum from 21 November 2015–28 March 2016.

The Victoria and Albert Museum's Autumn India Festival includes a scintillating exhibition of jewellery and jewelled objects. Bejewelled Treasures: The Al Thani Collection presents a selection of more than 100 objects from the collection formed by His Highness Sheikh Hamad bin Abdullah Al-Thani of Qatar, with three important additional loans from the Royal Collection Trust. These spectacular pieces, made in India or inspired by India's sophisticated jewellery traditions, range in date from the early seventeenth century to the present day.



2: The 'Agra Diamond' — a cut-cornered, rectangular mixed cut, fancy intense pink diamond of 28.2 ct.

Collection include the 'Agra' and 'Arcot II'. The Agra diamond, a 28.2 ct fancy intense pink diamond, has a delicate and tranquil appearance that belies its supposed past history (2). Popular legend claims that it was acquired by Babur, the first Mughal emperor, after his invasion of India in 1526. Another story states that the diamond was seized from the Mughal treasury in Delhi during the 1857 uprisings by English army officers. They apparently hid it in a horse's fodder, planning to smuggle it inside the animal on a ship bound for England. However, the first verifiable appearance of the Agra diamond is actually in 1844, when a diamond merchant called George Blogg sold it at auction in London. It is likely that he invented the connection to Babur in order to increase its allure.

The 'Arcot II', a flawless 17.2 ct type Ila Golconda diamond has a more reliable history (3). Records confirm that this gem was one of a pair given by Muhammad Ali Wallajah, the Nawab of Arcot and loyal ally of the British, to Queen Charlotte in 1767. The term 'Golconda', with its romantic associations, is often applied (perhaps wrongly) to diamonds that have Type Ila characteristics but no firm provenance — in this case the term is fully justifiable. The Nawab of Arcot controlled the famous



1: Brooch designed by Paul Iribe and made by Robert Linzeler, Paris, 1910. Carved Colombian emerald with diamonds, sapphires and pearls in platinum.

Famous diamonds, jades made for Mughal emperors and a jewelled bird from an eighteenth-century throne are shown with objects from nineteenth-century princely collections that reveal the influence of Western techniques and gem-cutting on the work of Indian jewellers. Jewels from leading European houses like Cartier demonstrate the impact of India on Art Deco jewellery in the early twentieth century (1), and the creations of JAR in Paris and Bhagat in Mumbai show that cross-cultural exchanges continue to inspire contemporary jewellers.

Readers of *Gems&Jewellery* may be particularly interested in the magnificent unmounted precious stones in the opening section of the exhibition that evokes the legendary treasury of the great Mughals. The remarkable diamonds in the Al Thani



3: The 'Arcot II' diamond. A brilliant-cut, pear-shaped, D colour, internally flawless type Ila diamond of 17.2 ct.



4: Polished and engraved spinels on a necklace of cultured pearls with a dyed green beryl bead. The largest spinel weighs 202.67 ct, the other spinels weigh 612.59 ct in total.

diamond mines of Golconda, and the provenance is clear. As is so often the case with historic diamonds, the Arcot II has been re-polished several times (losing over 6 ct in the process) in order to improve the brilliance and clarity, and to suit the European preference for perfect symmetry.

Other loans from the Al Thani Collection include several large and significant carved emeralds from Colombia of the size and quality that reached the Mughal court. Early sources — notably Egypt and, to a lesser extent, Austria — had produced emeralds that were relatively small and heavily included. However, after Spain's conquests in South America during the early sixteenth century, trade in the gems was revolutionized. The newly emerging Colombian emeralds were rich in colour, occurred in greater sizes and had greater clarity. This coincided with the development and expansion of the Mughal empire. Its immensely wealthy rulers keenly collected these striking new gems.

The exhibition also includes necklaces of imperial spinels (4), and the famous 352.5 ct

'Timur Ruby' (that is actually a spinel), on loan from the Royal Collection.

These very large stones of beautiful colour highlight a little-known aspect of Mughal gemmology. The way in which their precious stones were valued and classified differed radically from the traditions of the subcontinent.

In India, a body of ancient Sanskrit texts on gemmology is known collectively as 'ratnashastras' — the word 'ratna' may be applied to any precious thing or elite within a given class, but is specifically used here to refer to precious stones. In these treatises, diamond was regarded as the most important of a group of nine stones that also included pearl, ruby, sapphire and emerald, with four 'semi-precious' stones. The Mughals, on the other hand, valued spinels above all other stones, including diamonds, although they amassed huge stores of precious stones of all kinds. They favoured the spinels of deep red hue and considerable size that came from Badakhshan, a region now straddling Afghanistan and Tajikistan. Highly skilled specialists in the royal workshops engraved the titles of the emperors in minute inscriptions on the finest stones.

The imperial goldsmiths also created a new style of jewellery that has left a legacy to the present day. They combined the sophisticated techniques of the subcontinent with enamelling, an innovation from Europe.

The craftsmen used 'kundan', meaning pure, refined gold, to set their stones in

gold jewellery and other jewelled pieces, a method that had been used across India for centuries. Elsewhere, gold at this level of purity — 24 carats — is rarely employed in any other form of jewellery-making because it is considered too soft and malleable for most purposes. However, exactly these properties, combined with a unique ability to bond to itself by pressure alone, are exploited in kundan jewellery to magnificent effect. Gems may be secured directly into inherently fragile enamelled gold objects and also into the surfaces of other gem materials — even naturally brittle emeralds. The technique allows stones of all sizes and shapes to be set with the greatest delicacy (5).

In the Mughal workshops, the goldsmiths used kundan to set stones, but also embellished their jewellery with enamelling. The technique seems to have been introduced to India from Europe in the late sixteenth century, either by the few European master craftsmen working in the imperial workshops or, perhaps more likely, via the Europeans in the Portuguese settlement of Goa on the western coast of India. In any case, the technique was quickly mastered and transformed by the Mughal goldsmiths. By the mid-seventeenth century, enamelling of extraordinary quality was being produced in the court of Shah Jahan in colours inspired by the hardstone inlays of his white marble monuments, not least the Taj Mahal. In jewellery, flowers of

5: Turban ornament, probably Jaipur, c.1875–1900. Diamonds in gold and silver, enamelled on the back and with large pendent spinels.





6: Mughal, eighteenth century pendant, front (left) and back (right). Gold, set with a large sapphire, rubies, emeralds and diamonds in kundan settings, pendent pearl. The back of the pendant is enamelled.

translucent red and green enamel are set against a pure white ground. The floral style and the colour scheme gradually spread to workshops across the provinces of the empire (6).

The combination of a jewelled front and enamelled back is still seen today in Indian gold jewellery made in the traditional style.

The major Rajasthani centres of Jaipur and Bikaner are particularly famed for the use of a distinctive flame-red enamel that derives directly from the Mughals, and requires great skill to achieve the very best colour.

The quality and craftsmanship of these pieces from the Al Thani Collection demonstrate the enduring skills of

goldsmiths in the Indian subcontinent, while revealing the complex origins of the techniques used. The exhibition perfectly complements the South Asian and jewellery collections on permanent display in the V&A.

Bejewelled Treasures: The Al Thani Collection, sponsored by Wartski, will run from 21 November 2015 – 28 March 2016 at the Victoria & Albert Museum. Gem-A is hosting a trip to Bejewelled Treasures: The Al Thani Collection as part of the events surrounding the Gem-A Conference 2015. See pages 15-18 for more information.

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ABOUT THE AUTHORS

Our thanks go to Susan Stronge, Senior Curator in the Asian Department, and Joanna Whalley FGA DGA, Senior Metals Conservator, at the Victoria and Albert Museum, for the article.

Bejewelled Treasures: The Al Thani Collection by Susan Stronge, with Joanna Whalley and Anna Ferrari, is available from V&A Publishing, price £25.



Visit to the Al Thani Collection Tuesday 24 November 2015

As part of the Gem-A Conference 2015, Gem-A are hosting a visit to the Victoria and Albert Museum to view the exquisite Al Thani Collection.

Join the curators of this fascinating collection for a private 30 minute presentation, then enjoy access to the exhibition, featuring spectacular objects drawn from a single private collection. Price is £25.00; priority is given to Conference attendees.

Download a booking form from our website or see pages 15–18.



Gem-A

THE GEMMOLOGICAL ASSOCIATION
OF GREAT BRITAIN

Gem-A Conference 2015

Saturday 21 and
Sunday 22 November

Incorporating the 18th International FEEG Symposium

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Gem-A will host its internationally acclaimed annual conference at the Royal Institute of British Architects (RIBA), Marylebone, incorporating the 18th Federation for European Education in Gemmology (FEEG) Symposium. Welcoming speakers from around the globe, the Gem-A Conference has a reputation for tackling the most innovative and contemporary gem-related topics, whilst bringing together some of the leaders in the field for a weekend of networking and special events.



SATURDAY 21 AND SUNDAY 22 NOVEMBER

Gem-A Conference

Jarvis Auditorium, Royal Institute of British Architects (RIBA), Marylebone, London

Located in the heart of Marylebone, near to Regent's Park and Oxford Street, this architecturally significant venue was opened in 1934 as the headquarters of RIBA.

SATURDAY PROGRAMME		SUNDAY PROGRAMME	
09:00–09:30	Registration, tea and coffee	09:00–09:30	Registration, tea and coffee
09:30–09:45	Welcome and introduction	09:30–09:45	Welcome and introduction
09:45–10:30	Jörg Gellner — 'A 'Rap List' for pearls'	09:45–10:30	Andrew Cody — 'The astonishing world of opals'
10:30–11:15	Jean Pierre Chalain — 'Retrospective views on the identification of the HPHT treatment at the SSEF'	10:30–11:00	Tea and coffee break
11:15–11:45	Tea and coffee break	11:00–11:45	Grant Hamid — 'The corundum conundrum: weaving a path through the corundum maze'
11:45–13:00	Adolf Peretti — 'Commercially important origins of ruby and sapphire and colour grading (pigeon's blood and royal blue). <i>Film: Cutting of a Mozambique ruby: experience of a lifetime</i>	11:45–13:00	Breakout session
13:00–14:15	Lunch	13:00–14:00	Lunch
14:15–15:00	Ilaria Adamo — 'Demantoid garnet: identification, occurrences and origin determination'	14:00–14:45	Martin Steinbach — 'Asterism: gems with a star. From heaven to you — fascinating and brand new'
15:00–15:45	Paul Rustemeyer — 'Colour zones and growth phenomena in tourmaline crystals'	14:45–15:30	Fabian Schmitz — 'Natural vs. synthetic quartz: an overview of differences, colour reasons and identification'
15:45–16:15	Tea and coffee break	15:30–16:00	Tea and coffee break
16:15–17:00	Bill Larson — 'Gemstones and Gem mining in San Diego County, California'	16:00–16:45	Shane McClure — 'Tales from a gem lab — the sublime to the ridiculous'
17:00–17:15	Closing	16:45–17:00	Closing

SATURDAY 21 NOVEMBER (EVENING)

Gem-A Conference Dinner

Florence Hall, Royal Institute of British Architects (RIBA), Marylebone, London

Drinks reception for 18:30, dinner for 19:15

Saturday's programme will be followed by a drinks reception and a three-course dinner where you can relax and enjoy the company of friends old and new. Dress code is smart/casual.



MONDAY 23 NOVEMBER

Seminars

Gem-A Headquarters, Ely Place, London

Three practical seminars will take place at Gem-A Headquarters in London.

Guest seminar hosts:

🕒 **Richard Drucker FGA GG, President of GemWorld International Inc.**

09:30–12:00 (morning session) and 14:00–16:30 (afternoon session)
'Coloured stone grading and pricing workshop'

🕒 **Alan Hodgkinson FGA DGA**

10:00–12:00 (morning session) and 14:00–16:00 (afternoon session)
'Visual optics'

🕒 **Eric Fritz FGA DGA**

10:00–12:00 (morning session) and 14:00–16:00 (afternoon session)
'Natural (and not so natural) pearls'

MONDAY 23 NOVEMBER (EVENING)

Graduation Ceremony and Presentation of Awards

The Mermaid Conference & Events Centre, Puddle Dock, Blackfriars

Arrive at 17:45 for registration, 18:30 start

Graduates of the Gemmology Diploma, Diamond Diploma and FEEG graduates and their families are invited to attend the 2015 Graduation Ceremony and Presentation of Awards. The ceremony will be followed by a drinks reception for graduates and guests in the River Rooms.

Guest speaker: Harry Levy FGA, President of Gem-A and also of the London Diamond Bourse



TUESDAY 24 NOVEMBER

Private viewing of the Natural History Museum's mineral collection

Natural History Museum, London

09:45–12:00

Explore this breathtaking collection with a private viewing, hosted by Alan Hart FGA DGA, Head of Earth Sciences Collections.

Book soon; places are limited at this popular event and always sell out quickly.

Private viewing of the Crown Jewels

Tower of London, Tower Hill, London

Times TBC

You will be taken on a tour of the Tower of London, one of London's finest landmarks and steeped in history, finishing with a private viewing of the Crown Jewels. You will be able to stop and admire each piece on this relaxed and fascinating tour.

Book soon; places are limited at this popular event and always sell out quickly.

Bejewelled Treasures: The Al-Thani Collection

Victoria and Albert Museum, London

From 09:00

Join the curators of this fascinating collection for a private 30 minute presentation, then enjoy access to the exhibition, featuring spectacular objects drawn from a single private collection, including Mughal jades and a rare jewelled gold finial from the throne of Tipu Sultan. Read about this scintillating exhibition on pages 12–14.



The closing date for booking is **Friday 13 November**.
No bookings will be taken after this date.

CONFERENCE BOOKING FORM

The Conference will be held on Saturday 21–Sunday 22 November at the Royal Institute of British Architects (RIBA), located in Marylebone, London.

Event	Date	Price	No. of tickets	Total
CONFERENCE				
Members and Students rate				
Price for two-day Conference attendance (not including Saturday evening Conference dinner)	Sat 21 Nov and Sun 22 Nov	£250.00		£
Price for one-day Conference attendance (not including Saturday evening Conference dinner)	Please specify: Sat 21 Nov OR Sun 22 Nov	£135.00		£
Saturday evening Conference dinner only	Sat 21 Nov	£75.00		£
Non-Members rate				
Price for two-day Conference attendance (not including Saturday evening Conference dinner)	Sat 21 Nov and Sun 22 Nov	£295.00		£
Price for one-day Conference attendance (not including Saturday evening Conference dinner)	Please specify: Sat 21 Nov OR Sun 22 Nov	£150.00		£
Saturday evening Conference dinner only	Sat 21 Nov	£75.00		£

SEMINARS AND VISITS

Monday seminars

Please note: priority will be given to Conference attendees. Sessions are repeated in the afternoon; please indicate which session you would like to attend.

Morning session OR Afternoon session with Richard Drucker	Mon 23 Nov	£25.00	£
Morning session OR Afternoon session with Alan Hodgkinson	Mon 23 Nov	£25.00	£
Morning session OR Afternoon session with Eric Fritz	Mon 23 Nov	£25.00	£

Tuesday visits (Please only choose one event as timings clash. Priority given to Conference attendees.)

The Natural History Museum (NHM) mineral collection, NHM	Tues 24 Nov (morning)	£25.00	£
Private viewing of the Crown Jewels, Tower of London	Tues 24 Nov (time TBC)	£45.00	£
Bejewelled Treasures: The Al-Thani Collection, V&A Museum	Tues 24 Nov (morning)	£25.00	£

TOTAL

Total amount payable £

YOUR DETAILS

Student number: _____ Dr/Mr/Mrs/Miss/Ms/Other _____ Name: _____
 Address: _____
 Email address: _____
 Name of guests (if applicable): _____
 Please indicate any special dietary requirements: _____

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- ☐ Cheque (must be drawn on a British bank in sterling and made payable to Gem-A)
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Amount £ _____

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Cancellation policy: Cancellations received prior to Friday 30 October 2015 incur a cancellation fee of £30. We regret that no refund can be given for cancellations received after this date.

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International Jewellery London



IJL's 60th Diamond Jubilee Edition kicked off on 6 September with a rousing start. Hosted in the iconic Olympia Grand for the second year running, the UK's biggest and most dazzling jewellery event was better than ever; featuring over 550 exhibitors comprising (amongst others) jewellery designers, stone dealers and associations, who came from over 38 countries to meet, network and trade with visitors. To celebrate the show's Diamond Jubilee, the organizers planned several surprises, including a Late Night Shopping Event on the Sunday and an additional Catwalk Show featuring a unique 'Diamond Blaze' scene.

Over on Gem-A's new-look stand, which was adorned with stunning photomicrographs showing the beautiful internal worlds of several gems, the Association showcased its range of gemmological courses and services. This year Gem-A also featured a practical demonstration area, with staff demonstrating the use of the spectroscope, loupe and the microscope, enticing passers-by into taking a deeper look at gems. Many faces stopped by to visit Gem-A; some were new and current ODL students who wanted to meet the team and share their excitement at imminently starting their courses, and some were friends of the Association. Many were simply curious about Gem-A's courses and wanted to know more about the study of gemstones.

Show favourites Claire Mitchell and Andrew Fellows also offered two practical seminars to the trade: 'Stimulating Simulants', which focused on the range of synthetic and simulant materials that are available on the

gem market today, and 'Cornucopia of Colour', showing the range of colours and colour effects that can be seen in gemstones. These seminars gave attendees a taster of some of the facets of the Gemmology Foundation course, which resulted in several sign-ups for the course.

Closing on 8 September, attendees and exhibitors unanimously concluded that the show had been a great success. Sam Willoughby, event director, said: "We are delighted with the results achieved at IJL's 60th Diamond Jubilee Edition and would like to thank everyone involved in making this year's event such a resounding success. IJL just seems to get better and better each year. Our Diamond Club visitors have commented on the wealth of first class exhibitors, as well as the array of innovative, industry information shared through the seminar programme and the jewellery trends brought to life on the Catwalk." ■



2015 GEM EMPATHY AWARD WINNER

Frankfurt-based designer Marina Jacob Design has won Gem-A's 2015 Gem Empathy Award with her stunning 'Crushed Ice' ring, featuring white gold, 33 baguette diamonds and a 13.83 ct green beryl.



Marina's winning piece: 'Crushed Ice'.

The Award is presented annually to the IJL exhibitor displaying, in the opinion of the judges, a single piece or collection of jewellery that makes captivating use of one of more gemstones, and provides accurate ethical descriptions as well as displaying creativity and imagination.

This year, Marina Jacob captivated the judges' attention with her beautiful pieces. Celebrated as a unique and pioneering artist across Frankfurt, Marina's designs use portraits and paintings of her clients to create truly personalized pieces of jewellery. Marina said: "I was and still am absolutely overwhelmed and value this appreciation greatly. Especially because Gem-A so clearly recognized the very essence of this design, which harks back to the roots of our profession: to stage the precious gifts of our planet in the most beautiful way, allowing people to fully enjoy them. And to do so in such a technical quality that enjoying them can last for generations."

Gem-A Gemstone and Diamond tutor Claire Mitchell commented on the winning piece, saying: "Marina's design was sublimely unique and matched pure measured precision with stunning conceptual design. The visual appearance of the 'Crushed Ice' ring harmonized its name and character, reflecting the precise, yet beautiful form of icicles or snowflakes. The colour of the 13.83 ct green beryl with a turquoise hue and the cool white-gold gave it an icy, arctic feel and the use of baguette diamonds and superb metalwork formed into points with sharp straight lines like stalactites of ice erupting from its surface."

On behalf of Gem-A we would like to congratulate Marina on winning the Award.

Photo courtesy of Marina Jacob Design.

Hope, Hertz and a red spinel

Jack Ogden FGA DGA considers a large red spinel, catalogued in the Hope Collection in 1839 and recently sold at auction, the catalogue in which it appears and its remarkable author.

Henry Philip Hope's collection of gems is best remembered for the superb blue diamond which bears his name, now in the Smithsonian Institution in Washington D.C. This 'matchless' diamond was just one of over 750 gems and pearls in the Hope collection when its catalogue was published in 1839. These gems ranged from exceptional specimens to minor ones, even some uncut stones. After Hope's death and an inevitable drawn-out legal squabble between heirs, eight of the finest gems in the collection came into the possession of Henry Thomas Hope, one of three nephews. One of these gems was the blue 'Hope' diamond, another was a large, octagonal red spinel weighing 50.13 ct (1, 2). After passing down through two further generations, the blue diamond was sold in 1901 to pay off gambling debts, whilst the remaining gems in this group were sold at auction in London by Christie's in 1917. The spinel was bought by a dealer for £1,060, came into the possession of Lady Mount Stephen and then passed down to the latest owner who recently sold it by auction at Bonhams, London, on 24 September, fetching an incredible £962,500. Prior to auction the spinel was examined by the SSEF laboratory in Basel which pronounced it to be from Tajikistan.

The current weight of the spinel is remarkably close to that given the best part of two centuries ago in the Hope catalogue — 199.5 grains. That is a shade under 50 old carats or just over 51 modern metric carats. If the stone has been repolished at all in the last couple of centuries, this has been minimal. Hope's catalogue described the spinel as "An extraordinary fine and large ruby balais [an old name for red spinel], of an octagonal shape and of a fine light claret colour, very spread, beautifully cut, and free from any flaw or defect. Considering its extraordinary size and its great perfection, it may with propriety be called a matchless gem." The drawing of the gem from that catalogue is shown in 3. The description is both accurate and adulatory; a combination that could hardly be bettered by a modern auction house. Such descriptions are typical for the gems in the Hope collection and reflect the knowledge and skills of the catalogue's author, the gem dealer Abraham



1: The handwritten note accompanying the spinel.
Photo © Bonhams.

Hertz, better known as Bram Hertz. The catalogue descriptions and preambles reveal his ability to weave considerable gemmological knowledge into descriptions to best please the collector. How many, if any, of the gems had been sold by Hertz to Hope is unknown.

Consider what Hertz says of spinel in general: "The primary form of the spinelle is the regular octahedron, which is sometimes modified by a single plane on each of its edges, leading to the dodecahedron; it is also frequently found in twin or maced crystals, but does not appear to be subject to the modification, consisting of rounded planes, so frequent in the diamond. In colour it is found of all shades of red, from rose colour through every variation of scarlet and crimson to purplish and violaceous. In hardness it is inferior to the sapphire and oriental ruby, but it is readily distinguished from the latter by its crystallization. The



Photo © Bonhams

specific gravity of spinelle is from 3.5 to 3.8, and by chemical analysis it is found to consist principally of alumine, united to magnesia, and Vauquelin states it to contain chromic acid. Spinelle usually occurs in distinct crystals, which are either detached in alluvial soil or imbedded in the more ancient and lamellar limestones. The best for the lapidary are those which occur associated with the sapphire and Oriental ruby in the sand of rivers in Ceylon and the East Indies, and Pegu [Burma].” Pretty comprehensive for 1839.

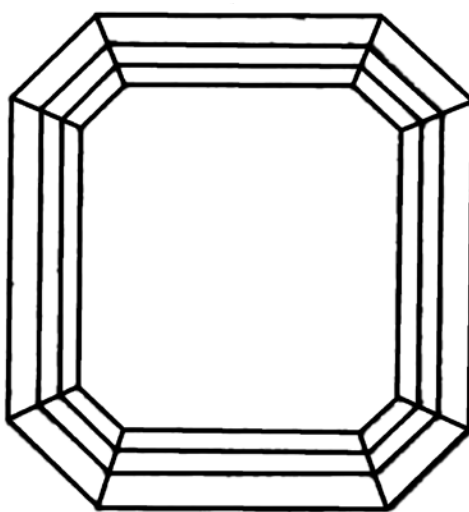
Hertz’s descriptions of the gems are well-worth reading. For example, he describes one blue sapphire as “Of a very fine velvet-blue colour, resembling the flower of the bluebottle found among the corn. It is of the purest and of a most charming hue, having, moreover, the advantage of displaying its beautiful colour equally as fine by candle as by day-light, a quality which is rarely met with in a sapphire.” The bluebottle flower was another name for what we call the cornflower. Sadly space here forbids quoting further examples of Hertz’s almost poetic descriptions, but we can mention a few snippets that might be of particular interest to the gemmologically inclined. Hertz distinguishes between natural and ‘burnt’ pink topaz and explains that “There are naturally pink-coloured topazes, but the ordinary pink topazes are altered by heat.” Early studies of polarization (long before plastic sheets of polarizing filter were available) made use of thin slices of tourmaline, and Hertz notes that “The best specimens for exhibiting the polarization of light are those of a deep brown colour, from St. Gothard and from Spain, and the bottle-green varieties from Brazil.” It is also worth observing that, like some other early writers, he includes green, brown and yellow colours for amethyst, as well as the usual purple. The term ‘green amethyst’ might make some modern gemmologists spit blood — it is not just a modern aberration.

The catalogue is all the more remarkable considering that Bram Hertz was still relatively young when he wrote it. Bram Hertz was born in Hanover in 1794 and had moved to London by mid-1832 when we first hear of his gem dealing. He must have been successful. He dealt in diamonds from the drawing room of a rented house in Argyll Street, near Oxford Street, London, and also collected a wide range of art, ancient and otherwise, that was housed in



2: *The Hope Spinel, weighing 50.13 ct.*
Photo © Bonhams.

his ‘Museum of Fine Arts’ in Argyll Street and in another house around the corner in Great Marlborough Street. He sold his art collection in 1856 with the intention of “leaving England in search of a warmer climate”, but was still dealing in diamonds from Argyll Street in 1859 when he went to court to prevent The Union Bank of London from carrying out building work



199 1/2 Gr

3: *Drawing of the large red spinel as published in Bram Hertz’s 1839 catalogue of the Hope collection of Gems.*

that would reduce the light entering his dining-room. He maintained “[That] it was impossible to judge of the quality or water of a gem if the light did not fall upon it in a proper direction... and his dining-room was the only room in his house in which he enjoyed a proper light for his business, and if diminished or obstructed, his business of a diamond-merchant could not be properly or safely carried on there...” Hertz seems to have left London soon after the case and probably went back to Germany, to Frankfurt, where his wife had been living when she died in February 1892. In the notice of her death in *The Pall Mall Gazette* she was described as Hertz’s widow, so it is highly unlikely that, contrary to some recent supposition, Bram Hertz was the ‘Hertz and Company’ of Paris from whom Edwin Streeter purchased the Agra diamond in 1891/2. If alive then, Hertz would have been about 98 years old — quite an achievement for a man who 40 years earlier had been described as in poor health and “remarkably fond of tobacco”. ■

Note: The author’s research on Bram Hertz will be included in his detailed re-examination of the history of the Agra diamond in the upcoming second edition of Beyond Extravagance: A Royal Collection of Gems and Jewels, in press.

In the pursuit of beauty

This issue we speak to internationally-acclaimed, award-winning artist Lawrence Stoller, whose mega crystal sculptures reflect his passion for nature and beauty.



'Spectrum' — pink tourmaline, carnelian, citrine, chrysoprase, blue chalcedony, amethyst and rose d'France, on bronze.

When did you take up lapidary art and what led you to it?

I didn't know what 'lapidary' was until about five years after I started doing it. In 1983 all I knew was that I wanted to cut crystals, and so I asked my friend Glenn Lehrer, a jeweller at the time, if he would show me how he cut the crystal pendant he was wearing. I was fascinated with the stones — I couldn't keep my hands off of them — and over time I figured out how to transform them from raw earth to transparent charms.

How and where did you train to do this work?

Because there was no 'Harvard University of Lapidary', Glenn and I spent our days doggedly figuring out how to cut and polish crystals. When I started out, quartz for objects had been cut primarily in Germany for hundreds of years, but no one was cutting crystals in their natural shape and form. We were the first to do this. There was no market for cut crystals at the time; when we first showed at the Tucson Gem and Mineral show in 1984, no one had ever seen cut quartz crystals and as a result we didn't sell anything... I just assumed that because I thought they were so fascinating, that others would as well, and eventually a market slowly developed.

Some years later Brazilian dealers would come into my show room and look at what I was doing for hours on end. It didn't take long before they began cutting crystals in Brazil — a natural evolution of the industry.

For us it took lots of trial and plenty of

error; formulating tools and techniques to cut crystals measured in kilos instead of carats. Our intensive work together culminated in the creation of 'Bahia', the 'megagem' sculpture that hangs as the centrepiece at the Gemological Institute of America's premises.

Did you begin with crystals or gemstones?

Although I cut gem material such as topaz, aquamarine and opal, I have never had an interest in cutting traditional faceted gemstones. I was attracted to crystals as life forms, and followed where the cutting of the natural shape would lead me,



Lawrence with 'Holy Smoke' — 425 kg smoky quartz point on bronze.



'Window to the Stars' — pentadodecahedron on lighted bronze base.



'Coral Reef' 7 ft long coffee table — white amethyst geode on sculpted bronze base.



'Effervescence' — carved optical double terminated quartz on chrysocolla and bronze base. Stone weight 1 lb, sculpture height 15 inches.

avoiding humanly pre-determined shapes that might denude the crystal's life force.

What came first, the small works (like jewellery) or the monumental pieces?

Whilst I enjoy working pendant-sized pieces, they are merely 'sketches' — like an idea on paper before a major work is done. Sometimes a big idea can be born from the process of creating a pendant. My

I enjoy working with most types of transparent crystals, including quartz, tourmaline, topaz, aquamarine... the list goes on. If it is beautiful I want to work with it.

adventurous self is drawn to working with the great 'ancient ones' of earth, the larger crystals. I have had the privilege to work with some of the largest transparent crystals to come from the earth. The work of enhancing these old growth crystals preserves and presents them for future generations, rather than the common practice of cutting them into smaller, more commercial objects. On the other hand, I also enjoy the beauty and ease of working in small sizes.

Why did you eventually specialize in crystals — what is their particular appeal for you? What are the main practical issues with working with crystal?

I enjoy working with most types of transparent crystals, including quartz, tourmaline, topaz, aquamarine... the list goes on. If it is beautiful I want to work with it. Quartz crystals are most intriguing to me because of their size, massive transparency, interesting inclusions and their unique piezoelectric

property of moving electromagnetic energy.

While small stones have sparkle, the large crystals allow you entry into another world — I want to get inside these creatures!

I have identified over the years that there are four distinctly different fields of study that access the bounty of crystals: mineralogy, technology, art, and metaphysical and healing applications. Each of these fields highlights fascinating aspects of this inorganic life form. Having immersed myself in the study of these fields I find that they each have their

'Elements at Play' — Madagascar smoky point on lighted bronze base.





'American Express 11 Tears Memorial' — sculpted 11-sided quartz hendecohedron with stainless steel frame and cables. Over 600 lb stone weight suspended from a 35 ft ceiling. Permanent installation in the American Express lobby, NYC, NY.



'Ballet' — optical citrine quartz on bronze base. Stone weight 1.3 lbs, sculpture height 11 inches.



'Light as a Feather' — carved citrine on lighted bronze base. Stone weight 3.2 lbs, sculpture height 24 inches.

own perspective, language and focus, and there are core properties that run through them all. Beauty in the end is the singular common denominator. I go into greater detail on these topics in my first (coffee table) book *Frozen Light — The Eternal Beauty of Crystals*, published by Earth Aware Editions.

You mention to me that 'the impact of the force of beauty is not to be underestimated'. What do you mean by that?

Over the past several years I have assembled a few hundred more images of recently finished works for a second book whose working title is *Initiating Beauty*. Beauty is a force that not only is pleasing to the eye, but also can instantly transform those who encounter it with jolting physiological and emotional impact. Beauty is a force of nature with its own gravitational pull.

This book delves deeper into how crystals are encoded with beauty and how it is released into the world. I define beauty as 'being enraptured in appreciation that unexpectedly transforms you'.

What percentage of your business is commission-based? Do these tend to be the bigger pieces? Are those customers private individuals or corporate (or both)?

All the pieces I make are 'one-off' — they are always different and unique. I make to order when a client wants a certain type of piece in a particular size and price range, but the

interpretation of the end result depends on the inherent destiny of the crystal, and what I do to address that piece's specific needs to bring it to its 'highest' finished state. I also do a fair amount of custom work for collectors and dealers where they send me their piece and ask me to enhance them. And I do my own works from rough I buy on a regular basis.

My clients are: mineral collectors, tax collectors, healers, dealers, gurus, electro-physicists, psychologists, newlyweds, dead heads, museums, hotel lobbies, living rooms, alcoves, night stands, shamans, psychics, doctors, decorators, gifters, meditators, mystics, babies, mothers and others.

When did you establish Crystal Works and how has the business grown in that time?

Lawrence Stoller – CrystalWorks Inc. was established in 1983 and we currently have a team of seven, including a bronze foundry for the metal work that accompanies most pieces. Projects can take from days to years to complete. I usually have 10 projects going at a time. My greatest single achievement is that I am able to go to sleep at night, get up in the morning, and in between I do what I want to do, which is to bring more beauty into the world.

Visit crystalworks.com to see more of Lawrence's breathtaking pieces. ■

All photography in this feature by Gary Alvis.

Quartz: the fabled gemstone for gemmologists and artists

Fabian Schmitz FGA discusses quartz and its appeal to the fields of both science and art.

Many varieties of quartz are present in both jewellery and artistic environments. The word 'quartz' comes from the German word 'quarz', from the Middle High German 'twarc', which most likely originated from similar words in Slavic languages meaning 'hard', e.g. Czech 'tvrdý' and the Polish 'twardy'.

WHY QUARTZ?

On one hand the microcrystalline aggregates are perfect for carving and show unique textures — something different to the 'standard' transparent gemstones. On the other, the transparent to translucent quartz varieties can play host to inclusions which make them rare, and can seem like a 'window' to another world. Is this all that makes quartz so prolific in the public arena?

Quartz can be found almost everywhere and can be compared to other minerals under many conditions in the geosphere. What makes quartz stand out as a special mineral? Magmatic, sedimentary and metamorphic processes yield quartzes of a broad range of qualities and kinds. Quartz can grow in a variety of twins, many of which have been described thoroughly in gemmological texts. It also has a tendency to show strong colour zonation. This intriguing diversity of forms, occurrences and ways to exhibit colour make it susceptible for all kinds of scientific and artistic interpretation.

Humans found quartz thousands of years ago in many types of rocks, and had time and fantasy enough to attribute certain properties to this material, at a time when physics and our modern models of causality were non-existent, or had not as high a place in our modes of thought as they do today.



A quartz watch and three different oscillating quartz crystals with electrodes in different frequencies.

APPLICATIONS OF QUARTZ

Quartz can be found in large forms, with some being measured in metres, and are useful for big carvings and objects. Quartz has unusual optical properties due to its spiral-like ordered silica-tetrahedrons. It forms enantiomorphous crystals (crystals that are mirror images of each other but which are not identical, and which rotate the plane of polarized light equally, but in opposite directions) with either the positive or negative trapezohedron evolved as crystal faces (these are usually not easy to spot). The internal world of quartz is therefore fascinating to many because of these mirror images. There are more point groups and

crystals that can form enantiomorphously and have 'spiral-like chains' in them, but none of them is as common as quartz.

Piezoelectricity (electricity or electric polarity produced in certain nonconducting crystals, when subjected to pressure or strain) of quartz is prevalent in everyday life; in technology (an early use of piezoelectricity of quartz was in phonograph pickups) and in watches. Quartz is also used for pressure gauges and can be used in heat-ray lamps, prism and spectrographic lenses. In medicine and pharmacy synthetic quartz is used due to its chemical purity. Could these properties of quartz have an effect on its fame as a 'special' mineral, being that it is omnipresent in our daily lives?

SIMPLICITY PREVAILS

There are differences in natural and synthetic quartzes, visible by microscope sometimes and measurable with modern analytical instruments. These differences do not change crystal properties but are linked to other elements in the silicon-dioxide structure. This makes quartz very special; simple chemistry, with interesting structure, channels and positions, and a variety of locations where it is found, lead to it being one of the first minerals held in many gemmologists' hands. Its attributes as a hard, beautiful and 'otherworldly' mineral make it appealing to both gemmologists and artists alike; and being one of the few materials connecting both science and art since the dawn of mankind, and therefore making it a special mineral with both scientific and artistic merits. ■

All photos Fabian Schmitz.



Two synthetic bicolour quartzes.

Bumble Bee 'Jasper'



Helen Serras-Herman FGA takes a look at the volcanic origin of Bumble Bee 'Jasper', the poisonous chemicals that are hiding in its molecules, and the precautions that should be taken when cutting this material.



Bumble bee 'jasper': rough specimens above and a polished slab below.

Bumble Bee 'Jasper' is a brightly coloured orange and black material, with a fierce look and an equally deadly chemical composition. It has been on the market only for about four years, but it is already a collector's item, valued by lapidaries, jewellery designers and mineral collectors. As the mine production has ceased due to flooding, the prices of rough, slabs and specimens are now climbing every year.

THE VOLCANIC ENVIRONMENT

Bumble Bee 'Jasper' is found in Indonesia, an archipelago in south-east Asia, consisting of 17,508 islands. Home to 238 million people, it is the fourth most populous country in the world. Located on the edges of the Pacific, Eurasian and Australian tectonic plates, Indonesia experiences frequent earthquakes as the plates shift and collide. Across the archipelago there are approximately 150 active volcanoes. It is within one of these active volcano areas in the West Java province, located in the western part of the island of Java, where the 'Bumble Bee Jasper' forms in a 'solfatara' — a type of active 'fumarole' or volcanic vent that emits steam rich in sulphurous gases and water vapour, sometimes hot mud. It is here that locals collect native sulphur in baskets near the volcanic mud pools and vents. It is a

dangerous area — the volcano has erupted several times.

American geologist Joel Ivey, who lives in Indonesia, first found the Bumble Bee material back in the 1990s. Ivey has spent 26 years of his career exploring for gold, copper and other metals in both modern and ancient volcanic environments, mainly in Indonesia, Philippines, Laos, Burma and the US. His company, IndoAgate (www.indoagate.com), has explored and discovered various lapidary materials in Indonesia.

Ivey named the material Bumble Bee 'Jasper' in reference to its bright orange-yellow and black banded coloration — resembling that of a bumble bee. He selected the term 'jasper' because, according to Ivey, "[Bumble Bee 'Jasper'] represents a broad mix of volcano-sedimentary materials cemented to stone by an assortment of mobile dissolved elements transported and deposited by hydrothermal waters in a volcanic environment. Hydrothermal fluids are as likely to contain carbonate as silica. Jaspers rich in silica are more commonly preserved on the earth's surface purely by the fact that silica is hard and carbonate minerals (including calcite) are soft and decompose quickly". In discussion about the volcanic environment, the chemical composition and the genesis of the Bumble Bee 'Jasper', Ivey stated that "The 'bumble bee' components are dominated by orpiment, realgar, aragonite, calcite, supergene silica (opal) and an assortment of iron and manganese oxides. When the upwelling [hot] hydrothermal waters hit the oxygen-rich cooler surface ground water, Bumble Bee was born".

The pit itself is 150 ft long and 35 ft deep, and according to Ivey the seams of the best quality of Bumble Bee were only about five inches wide (pictured). Chemical analysis indicates that this material is a carbonate-rich rock consisting of 41 elements. Bumble Bee contains only a small percentage of silica, which suggests that classifying the rock as agate would be inappropriate. Ivey stated: "Although there is not a lot of introduced silica in the veins themselves, the wall rock is a siliceous dacitic ash. Sparks did fly as I knocked off the less colourful material." Dacite is a volcanic rock, consisting mostly of feldspar and quartz.

The local Indonesian name for Bumble Bee 'Jasper' is 'Batu Badar Blerang', which translates to 'Fumarole Rock'.



A great vein of Bumble Bee can be seen at the bottom of the mining pit, where Joel Ivey and his team were mining in October 2011. Photo courtesy of Joel Ivey.

AVAILABILITY IN TUCSON

My husband and I first encountered Bumble Bee 'Jasper' at dealers' booths during the 2012 Arizona gem shows in Quartzsite and Tucson, where there was an ample supply and a wide variety of rough specimens, slabs and cabs available for purchase. Although the porosity (combined with the toxicity problems) deterred us from buying any Bumble Bee 'Jasper' early on, we were taken by the striking colours and patterns, as well as the positive reaction of fellow lapidaries and jewellery designers, and purchased a small quantity that sold out almost immediately. At this year's shows there was much less material available, and the prices of good material had climbed considerably.

COLOURS AND PATTERNS

Bumble Bee 'Jasper' is immediately recognizable and is set apart by its intense brilliant yellow and orange coloration. The material displays a dramatic sequence of concentric or wavy bands of ochre, black, yellow-green and orange colours, along with white veining, against the translucent tan or grey background matrix. The manganese-rich jet-black layers are a stark contrast to the orange/yellow bands and create a stunning visual.

The rough material is very three-dimensional, with bumps and lumps protruding from the surfaces which, when cut, produces orbicular, or 'eye', patterns.

Bumble Bee 'Jasper' at its best quality displays dazzling lacy patterns and gorgeous orbicular scenes. When cut as cabs, the colour arrangements create stunning zig-zag patterns, circular and teardrop shapes, concentric 'bull's eyes' and high contrast 'yin-yang' black and yellow designs. This vibrant colour configuration is rarely seen among lapidary materials. In our era of dyed and enhanced gemstones, you may suspect colour enhancement. However the rough material, and the consequently cut slabs, are completely natural in colour.

Large specimens with well-defined natural stone graphics make wonderful display pieces for collectors. A pair of well-cut carved Bumble Bee 'Jasper' skulls were offered for sale during the 2013 Tucson gem show (pictured). The concentric patterns of their eyes were carved very skillfully into the material's colour bands.



The carved skulls at the 2013 Tucson show.



This huge Bumble Bee 'Jasper' specimen (24 inches long) was offered for sale this year in Quartzsite for US\$25,000.

Bumble Bee 'Jasper' at its best quality displays dazzling lacy patterns and gorgeous orbicular scenes.



Large polished specimens with concentric 'bull's eyes' and well defined natural stone graphics make wonderful display pieces for collectors.



When cut as cabs, the colour arrangements create stunning lacy patterns and high contrast 'yin-yang' black and yellow designs. Cabs courtesy of All in Vein.



Bumble Bee material from different seams shows varying colours and patterns. Photo courtesy of Joel Ivey.



These beautifully cut matched pairs of Bumble Bee 'Jasper' are perfect for earrings. Cabs by Armando.



This stunning large carving of Bumble Bee 'Jasper' (height: 19 inches) makes a great collector's piece.

LAPIDARY WORK AND SAFETY

As it is dominated by soft minerals such as calcite, aragonite, anhydrite, orpiment and realgar, all of which exhibit hardness of less than five on the Mohs scale, Bumble Bee 'Jasper' is softer and much less durable than other highly silicified jaspers. The lower hardness makes the material relatively easy to cut and polish, however.

The intense brilliant yellow and orange coloration comes from the minerals orpiment and realgar, which are arsenic-bearing minerals high in sulphur content. The arsenic and sulphur bands make Bumble Bee stunning to look at, but extremely toxic to work with. When cutting and polishing this material you must take all possible precautions to avoid ingesting or inhaling the ground dust. Protect yourself from the fumes and toxic dust by cutting with water and by wearing a simple respirator mask. Ensure there is proper ventilation in the workshop. Wash your hands regularly or wear gloves. Empty and wash grinding trays well, so that when the water evaporates there is no toxic grinding powder left behind. If you feel a sweet taste in your mouth — an indication that you are ingesting toxic material — stop for a while.

Bumble Bee 'Jasper', even in its most solid pieces, is still porous, often with holes and pits. These features are nature's hallmarks and most of them can be artistically included into the stone's design. Many lapidaries use Opticon®, the trade name for a fracture-filler resin (a synthetic polyester epoxy) that penetrates and seals cracks, eliminates fracture reflection and hardens the surface. However, this treatment should be disclosed to buyers for proper wear and care. Opticon-treated stones should not be placed into an ultrasonic cleaner.

Because of its multi-mineral composition, Bumble Bee 'Jasper' has varying hardness, which requires a light but firm touch on the wheels. It may also take somewhat longer on the 1,200 grit sanding stage to eliminate all fine scratches, dimples or flats, compared to working with an even-hardness material, such as quartz. I personally prefer to polish it with diamond. In spite of its relative softness, the material takes a great polish. The finished cabs and carvings would probably be better suited for pendants and earrings rather than rings, which naturally take greater abuse when worn, unless the stone is bezel-set and well protected and the wearer shows care. ■

ACKNOWLEDGEMENTS:

My heartfelt thanks to Joel Ivey, who shared his insights on Bumble Bee 'Jasper' with me. I am also very thankful to Bruce and Barbara Ferguson who let me photograph their specimens and cabs, to Win from 'All in Vein' for photographing her cabs, and to Armando Barrera (Armando Custom Rock Cutters) for his cabs.

Photos by Helen Serras-Herman, except where otherwise stated.

Helen Serras-Herman MFA FGA is an award-winning gem sculptor with over 30 years of experience in unique gem sculpture and jewellery art. She was inducted in the National Lapidary Hall of Fame in 2003. You can visit her website at www.gemartcenter.com and her business Facebook page at Gem Art Center/Helen Serras-Herman.

Synthetic green diamond



Anthony de Goutière GG shares photomicrographs of an interesting synthetic green diamond.

Earlier this year I had the opportunity to examine a rather unusual-looking synthetic diamond that had come into my son's store for appraisal. He was intrigued by the strange inclusions and brought it to me to examine and photomicrograph. The owner was vague about its origin but did mention Namibia as a possible source.

The diamond is fashioned as a sort of modified square shape with a very thick girdle and weighs 3.14 ct. The colour is dark blackish green (1). It is not a very attractive specimen. However, when viewed through the microscope with dark-field illumination,



it displayed very interesting inclusions (2, 3).

I then tried crossed-polarizing filters and the scene was really quite beautiful (4 and 5). I got the impression that the diamond had perhaps been cut to display the growth patterns because they were nicely centred in this specimen, or, more likely, the unusual cutting followed the shape of the original crystal.

Although the diamond didn't react to a magnet it did attract tiny dust particles that were very difficult to brush or blow away. ■

All photos Anthony de Goutière.



Dana Schorr

*This obituary was first published on 6 August 2015 on lotusgemology.com.
Reproduced here with kind permission from Richard Hughes FGA.*

Richard Hughes FGA offers a touching tribute to his friend, Dana Schorr — gem dealer, world traveller and activist — who sadly passed away on 5 August 2015 at age 63, following a heart attack.

Dana Schorr was a close friend of mine. Despite the great distance between Santa Barbara and Bangkok, we stayed in contact and often spoke to each other more than once a week.

Dana at heart was a rebel. Prior to getting into gems, he was involved in radical politics, with the Students for a Democratic Society, from what I understand. It was this that led him to get involved with printing, so that messages could be more widely spread.

While Dana did not have a religious bone in his body, he explained to me once that his Jewish upbringing taught him to question everything. He told me that in Judaism, there is traditionally no dogma, and that all ideas should be questioned and argued — something he practiced 'religiously'.

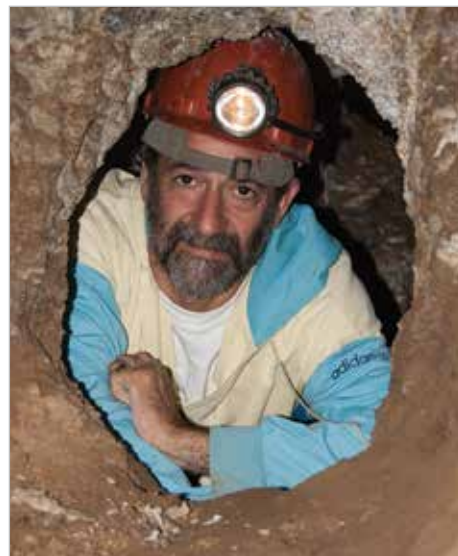
Dana was a seeker, a seeker of truth. His questioning of others often created discomfort, because it forced them to re-examine ideas that they had previously accepted blindly. He got involved in the gem business in the 1980s, which is when I first met him (in Bangkok). But it was only after I returned to live in the US that I came to know Dana well. He was heavily involved in the tanzanite trade and made numerous trips to Tanzania. I believe that was how he first became interested in the situation of artisanal miners in developing nations.

In 2004, I invited him to join me on a trip to Burma's ruby and jade mines and Cambodia's mines. The following year we visited Madagascar, 2006 saw us in Tajikistan and Kazakhstan, 2011 we went to Tibet and in 2013 Dana and I toured East Africa (Mozambique, Tanzania, Kenya, Malawi, Rwanda, Uganda and Ethiopia). All of these trips involved visiting coloured stone mines, most of them artisanal.

In the last couple years, Dana became interested in the various measures being proposed for corporate social responsibility in the coloured stone realm. He spent a lot

of time looking at the various initiatives and drafted some withering critiques, based on his own experience working with coloured stones. I can say with some certainty that he was not the most popular guy in the room. But as Mark Twain once said: "The radical of one century is the conservative of the next. The radical invents the views. When he has worn them out, the conservative adopts them."

I attended a panel discussion in London in November 2014 at Gem-A where Dana was one of the speakers (along with Greg Valerio and Vivien Johnston). Despite the fact that he couldn't spell dog if you spotted him a D and a G, he gave an eloquent presentation that laid out many of the problems with the proposals being put forward by groups like the Responsible Jewellery Council



Dana Schorr in the ancient galleries at Tajikistan's Kuh-i-Lal spinel mines, 2006. Photo Richard Hughes. Courtesy of Lotus Gemology.

and Precious Stones Multi-Stakeholder Initiative Working Group. Perhaps the best presentation I've seen on the subject (Greg and Vivien's presentations were great, too).

Dana was one of my closest friends. I often disagreed with him, but always knew where his heart was. I'm devastated at the news. The world will be a less pleasant place without his smile, without his laughter, without his intellectual challenges, without his heart. **R.H.**



Dana Schorr (left) and Richard Hughes (right) returning from a trek to see the silverback gorillas in Rwanda, 2013. Photo E. Billie Hughes. Courtesy of Lotus Gemology.



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