

# Gems & Jewellery

Aug/Sept 2015 / Volume 24 / No. 5



The lure of ivory

Maya jade: a revival

The Scorpion King:  
interview with Bruce Bridges



**Gem-A**  
THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN



**Gem-A**  
THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN



# Gain a European Certificate in Gemmology

**Gem-A will be running a practical session on Monday 12 October to help candidates prepare for the next FEEG exam session, to be held on Tuesday 13 October.**

Priced at just £100.00, candidates will have the opportunity to handle a range of stones from the FEEG syllabus, and will be given guidance on practical exam technique from Julia Griffith FGA DGA FEEG.

To book your place contact [education@gem-a.com](mailto:education@gem-a.com).

Founded in 1995, The Federation for European Education in Gemmology (FEEG) supports a European gemmology qualification that is recognized by all gem and jewellery bodies and institutions across Europe.

FEEG comprises 11 gemmological organizations from eight European countries. Graduates of these organizations can take the exam (available in five languages) to gain the European Certificate in Gemmology.

**Graduates of Gem-A's Gemmology Diploma are eligible to take the exam.**

If you are a Gemmology Diploma graduate and want to find out more, contact [education@gem-a.com](mailto:education@gem-a.com).

*Understanding Gems*

Join us.



# Aug/Sept 2015

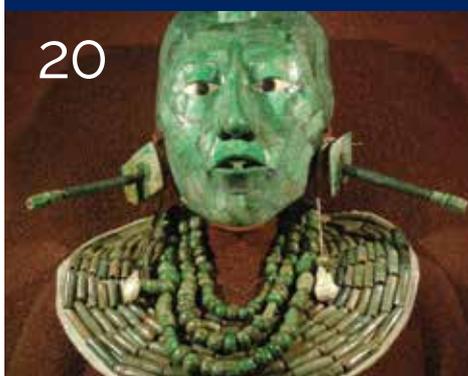
## The ins and outs of polished diamonds: thick and thin

Grenville Millington FGA looks at thick and thin girdles in two unusual stones.

8



20



## Maya jade: the revival of a gem revered by royalty

Helen Serras-Herman FGA takes a look at the history and revival of Maya jade.

## Interview with Bruce Bridges

With tsavorite production in the Scorpion Mine back on track, we spoke to Bruce Bridges about continuing his father's legacy.

24

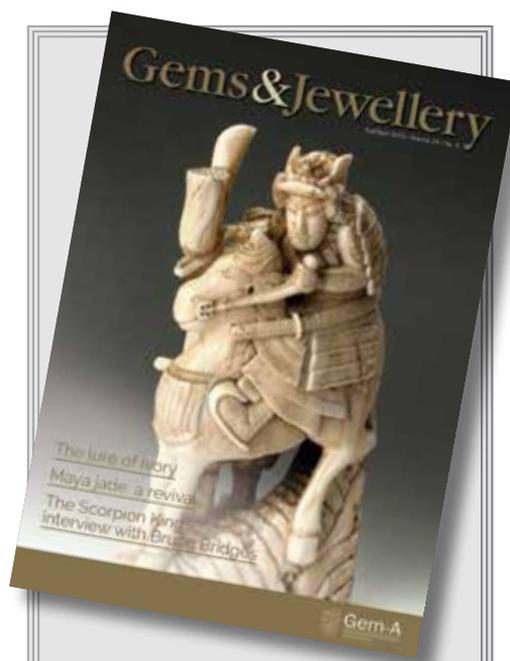


26



## The lure of ivory

Maggie Campbell Pedersen FGA discusses the past, present and future of ivory.



## Cover Picture

Photo © Maggie Campbell Pedersen.  
See page 26.

### Published by

The Gemmological Association of Great Britain (Gem-A)

21 Ely Place, London EC1N 6TD

t: +44 (0)20 7404 3334

f: +44 (0)20 7404 8843

e: editor@gem-a.com

w: www.gem-a.com

Registered charity no. 1109555

Copyright 2015 ISSN 1746-8043

### Deputy Editor

Georgina Brown

### Advisory Board

Mary Burland, Andrew Fellows, Harry Levy

### Design and Production

Zest Design +44 (0)20 7864 1504

### Advertising

For mediapack and advertising rates contact Gem-A's Marketing Consultant Ya'akov Almor at bizdev@gem-a.com.

Any opinions expressed in *Gems&Jewellery* are understood to be the views of the contributors and are not necessarily those of the publishers.

Editor's Note	5	Shows and Exhibitions	19
Gem News	6	Gems and Minerals	20
Gem-A Events	7	Interview	24
Hands-on Diamonds	8	Organics	26
Scottish Conference	11	Book Shelf	29
Gem-A Conference	15	Obituary	30



# Gem-A

INSTRUMENTS



## Practically perfect

Our **UPDATED** Practical Gemmology Handbook is available to purchase from Gem-A Instruments; now containing full colour photographs and updated information. This handy reference guide is a must for all gemmologists, featuring gemstone data, information on instrument use and useful observations on the characteristics of gemstones.

Only **£40.00**

To purchase visit [Gem-A Instruments](http://Gem-A Instruments) or email [instruments@gem-a.com](mailto:instruments@gem-a.com).

*Understanding Gems*

Join us.



# A note from the team

Autumn is fast-approaching as is (yes, I really am going to say it) Christmas, although for those of us here in the UK it feels like Spring never launched into Summer. By the time this issue of *Gems&Jewellery* goes to print the results of the Gem-A election will have been announced, and a new Board of Trustees comprising old and new faces will take the helm. A report on the AGM and the elections will appear in the October issue of *Gems&Jewellery*. Inside this issue we have a host of exciting features; Bruce Bridges talks to us about running the Scorpion Mine (page 24), Maggie Campbell Pedersen discusses the hot topic of ivory (page 26), Grenville Millington shows us some thick and thin diamonds (page 8), and we take a look at the ancient carvings of the Maya (page 20).

Looking forward we have an exciting Autumn ahead: IJL from 6–8 September, where we will be hosting practical demonstrations on our new stand, J15. This is a new approach to interacting with show visitors, learned from the successes of the Tucson Gem and Mineral Show, where we found people were fascinated by simple demonstrations of gemmological equipment. These were

people who only knew gemstones as a finished product and who had never had the opportunity to see a spectrum or even an inclusion. It was something as simple as this that brought newcomers to gemmology. If you can nudge a curious friend or colleague our way, please do. Show favourites Andrew Fellows FGA DGA and Claire Mitchell FGA DGA will be hosting two seminars entitled 'Stimulating Simulants' and 'Cornucopia of Colour'. Come and visit us, everyone is welcome.

Shortly after IJL the IRV Loughborough Conference takes place from 12–14 September — a must for every valuer and wonderfully insightful for any keen gemmologist or jeweller. From 18–22 September we'll be at the Hong Kong Jewellery and Gem Fair, where we will be selling courses, membership and Gem-A Instruments, and vitally, visiting our teaching centres, lecturers and meeting with students from Hong Kong and China. Our membership in the Far East is hugely important to us and we have a very strong, enthusiastic and well-organized 'local' team which ensures the show's success. On-site at our London headquarters we have an exciting Gem Central with Maggie Campbell Pedersen on 15 September. An expert on

Our students are the future of gemmology and the industry and we hope they enjoy their courses and go on to shape the gem and jewellery world as FGAs and DGAs before them have done.

organic gems, Maggie will be talking about ivory — the subject and title of her recently-released book. Contact [events@gem-a.com](mailto:events@gem-a.com) to reserve your place.

As is always the case with September we will also have a new intake of students; I'm sure you will all join me in wishing them an exciting journey of discovery in their studies, as you all did. Our students are the future of gemmology and the industry and we hope they enjoy their courses and go on to shape the gem and jewellery world as FGAs and DGAs before them have done. Lastly, I would like to say a big thank you to JTV, who have signed up as Platinum Sponsor of our Conference in November. Support from sponsors helps us to deliver the very best speakers and helps to make the Conference the best it can possibly be. We were privileged to be a part of JTV's Gem Lovers Conference 2015 in July and are thrilled that we can continue this relationship. If you have a business and would like more information about sponsoring our Conference, please visit our website to download a pack; your Association needs you!

Warm wishes,

**Georgina Brown**  
Deputy Editor



# Gem News

## JTV CONFIRMED AS PLATINUM SPONSOR

Building on a successful relationship that has been growing for a number of years, JTV has signed up as exclusive Platinum Sponsor of the Gem-A Conference. JTV's generous support will enable Gem-A to bring the very best in the gemmological field to London for the two-day Conference on 21–22 November. Gem-A would like to thank all at JTV for its continued support. See pages 15–18 for more information on this year's Conference.

## GARY ROSKIN FGA APPOINTED ICA EXECUTIVE DIRECTOR

The International Colored Gemstone Association (ICA) has appointed renowned



gems and jewellery expert Gary Roskin as ICA Executive Director. Roskin took up his new position on 4 August 2015 at ICA's New York office. He will be responsible for the Association's day-to-day activities and will contribute to its development.

Gary Roskin is a highly respected gemmologist and journalist with extensive gem and jewellery industry experience. He established Roskin Gemological Services, which includes the Roskin Gem News Report, and is the gemstone editor of *Base/World Daily News*. Formerly the senior gemstone editor for *JCK* magazine, Roskin is the executive director of the GIA's Alumni Association, a Gem-A tutor and ambassador, and has written regularly for this publication.

"It is indeed an honour to be the new executive director of the ICA," said Roskin. "ICA is a not-for-profit organization which promotes the understanding and appreciation of all aspects of the coloured gemstones and jewellery industry. This is in line with my personal beliefs and relates to all of the things I have written about and have taught for decades."

ICA president Benjamin Hackman said: "We are delighted that Gary will be joining the ICA in such an important position. There is no doubt that this pivotal role will enhance the work of the ICA, which is the leading worldwide organization in the field of coloured gemstones and jewellery. ICA will benefit from Gary's vast experience in the industry — from jewellery to gemmology and gemstones to diamonds. ICA's Board of Directors and I are happy to welcome Gary to his new position."

## OPEN-PIT MINING ENDS AT UDACHNAYA PIPE

Open-pit mining at Alosa's Udachnaya pipe in Western Yakutia has ended. Mining will now take place underground.

The pipe, opened in June 1955, was Alosa's largest open-pit mine. The 640 metre deep pipe has produced approximately 350 million tons of ore containing rough diamonds worth around \$80 billion over the course of its lifetime, with an output of up to 12.8 million tons of ore per year.

The final blasting operations at the open-pit mine took place in the first half of 2015, producing 1.05 million tons of ore (about 1.7 million carats of rough diamonds) during the year.

The underground mine at the Udachnaya pipe is targeted to produce 4 million tons of ore per year from 2019 onwards. Once this target is reached, the mine will become the company's largest underground mine. This year, the mine is scheduled to produce about 0.78 million carats of rough diamonds; a total that will increase to more than 5 million carats in 2019.



## LOUISE PRIOR IS NEW EXECUTIVE DIRECTOR OF WFDB

The World Federation of Diamond Bourses (WFDB) has appointed Louise Prior as its executive

director, effective from 1 August 2015. Prior was formerly a senior executive at De Beers.

"Louise is a natural choice for this important position," said WFDB president Ernie Blom. "She is a highly respected and well-known diamond industry professional with vast experience. During her many years with De Beers, Louise was responsible for the strategic development, implementation and management of global Sightholder services."

"With the ever-increasing challenges faced at every stage of the diamond pipeline, I am excited about supporting the Board in driving forward the WFDB's initiatives and working closely with major industry players to ensure the continued success of the WFDB and its important work," commented Prior.

## ISO INTERNATIONAL STANDARD FOR DIAMONDS PUBLISHED

Industry bodies, including CIBJO and Assay Office Birmingham's AnchorCert Gem Lab, have welcomed the publication of ISO International Standard 18323, entitled 'Jewellery — Consumer confidence in the diamond industry', which specifies a set of permitted descriptors for the trade that are designed to be understood by consumers.

The new ruling by the International Standards Organisation explicitly defines a diamond as having been "created by nature" and further notes that "the denomination 'diamond' without further specification always implies 'natural diamond'".

The new standard defines nomenclature that must be used, and also that which cannot be used, in the buying and selling of diamonds, treated diamonds and synthetic diamonds. In particular, it outlines how to describe synthetic diamonds in a clear and accurate manner. It does not specifically address the grading of diamonds.

The new ISO International Standard defines a synthetic diamond as "an artificial product that has essentially the same chemical composition, crystal structure and physical (including optical) properties as a diamond". The only permissible terms that may be used to describe it are 'synthetic diamond', 'laboratory-grown diamond' or 'laboratory-created diamond', and no abbreviations can be used.

The Standard unambiguously bars the use of adjectives such as 'cultured' and 'cultivated' as well as 'real', 'genuine', 'precious' and 'gem' to describe any synthetic diamond. The use of such words can be considered deceptive. Furthermore it states, brand names and manufacturers' names combined with the word 'diamond' are insufficient means of disclosure when applied to synthetic diamonds.

The chairman of the Technical Committee that oversaw the formulation of ISO International Standard 18323 is Harry Levy, who also serves as vice president of CIBJO's Diamond Commission and is also president of Gem-A. ■

# Events

## SHOWS



### International Jewellery London (IJL) 2015 Booth J15

6–8 September

Olympia, West Kensington, London

IJL will, as ever, wow visitors with its amazing array of all things jewellery, diamonds and gemstones. Whether you're a jeweller looking to find new collections, a diamond or gemstone dealer seeking a new supplier, or simply an industry professional looking for or offering an industry service, IJL is the perfect event for you. And with IJL celebrating its 60th year in 2015, this year's special anniversary event promises to be particularly special.

### Hong Kong Jewellery & Gem Fair

Booth 3M044

18–22 September

Hong Kong Convention & Exhibition Centre,  
Hong Kong

Gem-A will return to Hong Kong's biggest gem and jewellery show to bring you Gem-A Instruments and our world-renowned courses. Come and meet the team and browse our new course.

## GEM-A EVENTS

### Gem Central: Maggie Campbell Pedersen Talks Ivory (Specialist Evening)

15 September

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

Gem Central are regular practical gemmology evenings for Gem-A members and students, which provide the opportunity to investigate and explore a variety of gem materials. Organics expert Maggie Campbell Pedersen will be discussing ivory, the subject of her latest book, published in June 2015. Students and Corporate members: Free  
Members: £5  
Non-members: £10

### Gem Central: TBC

20 October

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

### 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 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, including seminars from Richard Drucker 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:

- Ilario 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](http://www.gem-a.com/news--events/events/gem-a-conference-2015.aspx)  
or see pages 15–18.

### Gem-A Graduation Ceremony and Presentation of Awards 2015

23 November

The Mermaid Conference & Events Centre,  
Blackfriars, London

This year's Gem-A and FEEG graduates and their families are invited to the Graduation Ceremony, to be held at The Mermaid Conference & Events Centre. The ceremony will be followed by a drinks reception.

## OTHER EVENTS

### Loughborough Conference 2015

12–14 September

Burleigh Court, Loughborough University,  
Loughborough

Continuing a long-running tradition spanning over 27 years, the annual IRV Loughborough Conference has become a permanent fixture in the calendars of many current and prospective Registered Valuers. Boasting a number of first-class main speakers and insightful, professional workshops covering a number of areas of the valuing trade, the IRV Loughborough Conference is a must for anyone with interested in becoming a valuer.

### Platinum Sponsor

As Platinum Sponsor, Gem-A will be on-hand throughout the conference to discuss education and training, as well as exhibiting our range of instruments and publications fit for the working valuer.

# The ins and outs of polished diamonds: thick and thin

In the fifth instalment of his series on polished diamonds, Grenville Millington FGA looks at thick and thin girdles in two unusual stones.



Correct me if I am wrong, but I don't think that Laurel and Hardy, the famous slapstick American double act, have ever been mentioned in gemmological literature — that is, until now. In several European countries, The Netherlands and Spain for example, the 'little and large' comic duo were referred to as 'Thick and Thin'. It seemed to be a particularly suitable title for this article. Let's start with 'thick'.

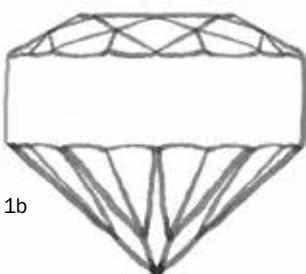
During the course of learning about gemmology, the subject of stone cutting and proportions is reached. Amongst other aspects, students diligently learn to draw a representation of the brilliant-cut diamond. The side view will have a medium thick girdle and be labelled, possibly, with a figure of 3% to 5% (1a).

Some students, even those within the jewellery trade, will never properly examine a brilliant-cut diamond from the side view, especially if the only ones that they usually

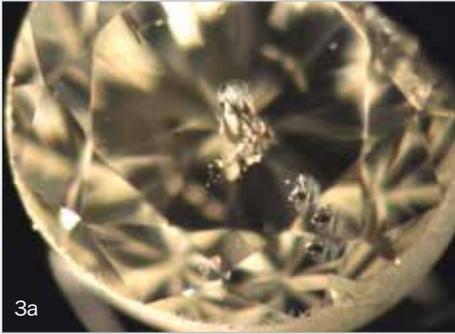


2: (a) Brilliant-cut diamond 0.11 ct with a girdle thickness of around 30% of diameter, magnification approx. 50×; (b) a closer look shows small cleavage fractures ('bearding'), magnification approx. 120×.

see are mounted. I can imagine that some non-trade gemmologists even think that all brilliant-cut diamonds have a girdle thickness that is 3% to 5% of their diameter.



1: (a) Diagram of the common width of a brilliant-cut diamond girdle and (b) diagram of a brilliant-cut diamond with 30% girdle.



3: (a) The interior of the 0.11 ct diamond shows a cleavage cluster plus various crystals, magnification approx. 80 $\times$ . (b) Reflections from the back facets give a 'star' effect, seen when the focus in 2a is lowered, magnification approx. 80 $\times$ .

Some girdles are much thinner, producing a 'knife-edge'; these stones are prone to chipping, whereas some are thicker and their description (on reports) merits the epithet 'thick'. There are even some that I would describe as 'very thick'. And then there is the diamond we feature here, where we can perhaps use the term 'exceptionally thick' (1b, 2a).

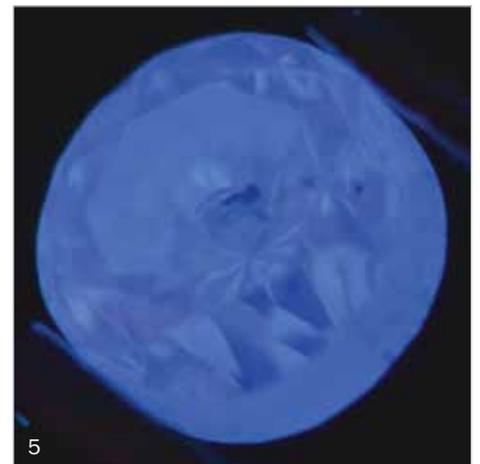


6: 'Thin' rose-cut diamond, 15 mm diameter, 7.19 ct.



4: Large 'natural' of parallel striations, magnification approx. 80 $\times$ .

5: The 0.11 ct diamond giving an even, strong blue fluorescence, magnification approx. 50 $\times$ .



The girdle thickness of this diamond represents around 30% of its diameter, varying from 22% to 32%, but generally it is closer to the larger figure. With regard to proportion, an average brilliant-cut diamond of this diameter (2.5 mm), would weigh between 0.05 ct and 0.06 ct, as opposed to this particular stone which weighs 0.11 ct.

The images shown in 2a and 2b also give you an excellent illustration of the 'bruted' finish seen on the majority of polished diamond brilliants. It's a finish which looks like ground glass, and the damage caused by fast bruting, which leaves minute cleavage fractures creeping into the diamond body (2b).

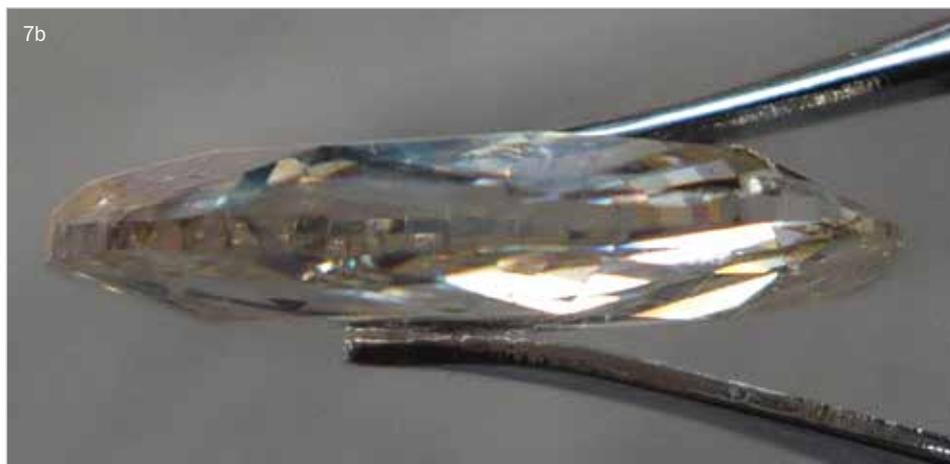
What else has this diamond to offer to us, now that we are paying it close attention? The normal view (that is, the view through the table) presents us with a central 'cleavage cluster', plus some crystals of varying sizes (3a). The proportions of this stone are responsible for the attractive 'star' display when we focus beyond the main inclusions, towards the centre of the stone (3b).

A trip along the girdle allows us to reach something else of interest: a 'natural'. This is

quite large and fills the width of the girdle, but there are no signs of trigons, just the commonly seen parallel ridges/striations, possibly indicating that the original crystal was very rounded (4).

There was just one more thing to try: would this stone give us any fluorescence? Of course it would, and it obliged us with a pleasing bright blue glow under the longwave UV lamp (5).

The 'thin' diamond is obviously very much in contrast to the one I have just described. It was brought to me so that I could check and weigh it whilst its original mount was being repaired, which meant that I had a very short time to look at it. The overall size was quite large: 15 mm in diameter and the weight was 7.19 ct (6). As you can see from the triangular facets it was a rose cut,



but the other side was similar, so it was a double-rose, and it had a faceted girdle which is unusual for a rose cut. However, the most noteworthy aspect was its depth, or rather, the lack of it! In total its depth was 3 mm (7a and 7b).

In contrast to the bruted girdle finish of the first stone, this one has a faceted finish. You may also have noted the bluish surface of some of the facets shown in 6 and 7a. This is a type of tarnish that can be found on very old mounted stones (50 to 100 years and older). It is not common with diamonds and is more usually seen on pastes, emeralds and aquamarines. I doubt very much that it is 'tarnish' in the strict sense of the term, which implies a chemical change to the actual surface, so it will be a deposit of some sort. It takes an awful lot of effort to remove this type of tarnish from any type of stone that it appears on. This stone had been vigorously wiped without removing it.

This is a good example of a faceted stone that needs some reflecting foil at the back of it or else the light just travels straight through, even if the stone is diamond (8). This stone, foiled or not, relies for its effect on surface reflections, as shown in 6. ■

All photos Grenville Millington.

7a and b: Two views of the rose cut diamond.

8: The rose-cut diamond next to a 1 ct brilliant-cut diamond. The shallowness of the cut allows for very little internal reflections.





# Bonny, bonny Scotland!

Georgina Brown and Andrew Fellows  
FGA DGA report from Peebles, Scotland,  
where friends and colleagues  
gathered together for the Scottish  
Gemmological Association's (SGA)  
annual Conference from 1–4 May 2015,  
held at the Peebles Hydro Hotel.

We know we are not the only ones who consider the Scottish Conference to be one of the best events in the gemmological calendar. With a scenic location in the heart of Peebles, a high calibre of speakers discussing a diverse range of topics, exciting events and a warm welcome for all who attend, the Scottish Conference is a must for every gemmologist.

## FABERGÉ

The conference commenced on Friday evening with a drinks reception, followed by a talk from Clare Blatherwick, head of the Jewellery and Silver Department at the Edinburgh branch of Bonhams, on 'Naturalism in the work of Fabergé'.

A Russian craftsman and designer, Peter 'Carl' Fabergé was working in the late nineteenth and early twentieth century, at a time when *Art Nouveau* and *Belle Époque* were prevalent design styles. His father, a Baltic German jeweller, had worked on restoring the imperial jewellery and was purveyor of jewels to the Russian court.

When Peter Carl took over the House of Fabergé, it moved from producing jewellery typical of the French eighteenth century style to becoming artist-jewellery. Influenced by the jewelled bouquets created by eighteenth century goldsmiths and an increased interest in botany and naturalism during the Victorian era, Fabergé combined his accurate observations of nature with his fascination for Japanese art, and brought them to life in the refined decorative devices and motifs adorning his work. These highly decorative objects brought Fabergé great commercial success and are some of his most famous works.

Clare showed delegates images of several beautiful naturalist pieces by Fabergé, including a variety of animal carvings, including frogs and birds, some of which are both functional as well as highly decorative pieces. Amongst these was a bowl inspired by leaves, featuring a carved and decorated frog. Although the materials used were often relatively common, such as quartz, Fabergé's style transformed them from the mundane to the exquisite and collectable. Amongst notable pieces to reach auction in recent years was a Siberian amethyst cigarette case, which sold for £2,000, and a neo-Russian *Art Nouveau* figurine that achieved £34,800 in 1997.

## LUMINESCENCE

On Saturday morning delegates were treated to a talk from Professor Emmanuel Fritsch, entitled 'Luminescence: how luminescence can benefit gemmologists'. Emmanuel began by stressing the difference between luminescence and fluorescence; luminescence is the emission of visible light, caused by some sort of excitation, whereas fluorescence is the emission of light caused by excitation on a surface. In contrast phosphorescence is the emission of light after the source of excitation has been turned off. Emmanuel then gave a series of 'practical pointers' to the gemmologists in the room, to be used when testing luminescence. He stressed that, to observe luminescence correctly, the gemmologist must test in a very dark room (only half-jokingly suggesting that bathrooms are perfect for UV testing!). The first



The Gem-A and Gem-A Instruments stand, stocking quality books and instruments.

of Emmanuel's pointers was that, in order to test the colour of luminescence, gemmologists must have their own set of master stones as a reference. In addition to this, they must use the same practical set-up each time, to ensure consistency of results.

In terms of lighting, Emmanuel advised that UV lamp reflections must be avoided. When a purplish colour is seen in a stone this is usually lamp reflection. Furthermore, to evaluate the intensity of the luminescence the distance between the light source and the stone should be fixed — suggesting an optimal distance of 7 cm between the light source and the stone. He also noted that the power of the lamp is crucial to observing luminescence; different lamps will give different results, and one cannot compare results from different lamps with different powers. You must use the same lamp, at the same distance, each time.

One common issue in all areas of the trade is nomenclature; how, he asked, do we describe and evaluate 'intensity' with language? Generic terms used to describe fluorescence can be 'none' or 'inert', but these terms can mean different things — the term 'none' can, in some cases, mean 'a little bit', whereas 'inert' means 'nothing'. There are no fixed terms for reports — an issue which clearly needs addressing. Gemmologists should also report on turbidity — luminescence can be more or less 'turbid' (chalky), and if seen, this should be included in reports.

Emmanuel also discussed colour distribution and zoning, which can dictate fluorescent areas. Contrary to popular belief, 'edge luminescence' or the fluorescent 'cage effect' are not characteristic

of HPHT treatment. He also questioned the content (or lack of) in reports; e.g. what is the intensity grading of a zoned stone? Emmanuel showed delegates an image of a fire opal ring from Mexico where the centre is strongly luminescing whilst the rest is inert. How should this stone be reported and graded? At present the reporting structure doesn't cover these options.

#### GEM-A OVERVIEW

Gem-A's Charles Evans then gave a brief overview of Gem-A's initiatives for 2015. Charles discussed the new FGAA partnership with the Gemmological Association of Australia (GAA) and stated that Gem-A is working with other countries to bring similar results. The Association is also offering a Coloured Stones Grading Course, run in association with GemWizard, as well as an exciting new degree course, the BSc in Gemmology & Jewellery Studies, in partnership with Birmingham City University (BCU). Current paid-up members who have passed both the Gemmology and Diamond Diplomas are eligible to apply for the one-year top-up course, to be run from BCU and Ely Place. Lastly, the eagerly-anticipated new Gem-A website was announced, with a completion date for Autumn. The site will have a fresh, modern design, and will allow members and friends of the Association to book courses and events online, purchase stock from Gem-A Instruments and access exclusive members-only content.

#### MONTANA SAPPHIRES

Next on the agenda was Dr Keith Barron, owner of Potentate Mining LLC, a company dedicated to developing and mining the sapphire and gold resources of the Gem Mountain district in Montana, USA, with his talk on the 'Geology, character and origin



Emmanuel Fritsch with MacBarnett, Barnett Bear's Scottish compatriot.



of Rock Creek Montana Sapphires'. In 2011 Potentate secured the Eureka Gulch sapphire and gold mine and subsequently also secured approximately 3,000 acres of sapphire-bearing ground in the Rock Creek sapphire mining district in 2014. Keith warned delegates that owning a mine is not for the faint-hearted and that they are veritable 'money pits' — mines are very capital-intensive to start up, sometimes not showing profits for several years. He shared images of sapphires mined from the area; blues (both cut and rough) and fancy colour sapphires have been found, including padparadscha, bi-colours, yellows, oranges and blues, along with rubies. The Rock Creek deposit is a relatively high grade deposit of sapphires, which is unlikely to be depleted for many years. The sapphires occur in unconsolidated colluvium near the surface of the ground and thus the relative cost of mining is quite low in relation to underground mining, making the relative cost of production more modest.

When Potentate Mining re-opened the mine, it was recovering half the grades the previous owners received, but it is hoped that as production continues, a greater range of material will be recovered. Approximately 8–12% of the yield is fancy intense blue material with no heat treatment needed. The rest of the yield (approximately 85%) responds well to the usual heat treatment, making it more desirable for the market, and so increasing the mine's viability. There is no beryllium treatment and no glass-filling of stones, just the straight-forward heating that has been done for decades. Historically watchmakers used most of the material, particularly during the 1920s and 1930s. One notable exception is a brooch produced by Tiffany using Rock Creek sapphires; the final piece appearing in the 1906 Paris Expo.

The matrix in which the material is found is mud and clay — atypical of alluvial deposits but typical of gold and diamonds. The mine started out as a gravel bar in the river, where the stones were naturally tumbled, and were found along with gold. Recovery is by use of a hand jig, with the stones still being picked out by hand.

The two main mining locations in Rock Creek differ; the Eureka Gulch is predominantly gold-bearing with a few sapphires, while the Rock Creek/Gem Mountain area is mostly all sapphires, with a small amount of gold. The material yielded has historically been cut locally, but at too high a cost to be commercially viable nowadays.

## JADE

Dominic Mok of AGIL then took to the floor with his presentation on jade: jadeite/fei cui. Dominic began by stating that the gemmological term 'jade' includes jadeite and nephrite. This definition is still used today; but Dominic clarified that there is not just a single material which can be thought of as 'jadeite'. Fei cui (pronounced 'fay choy') is a term used in China and Hong Kong to describe jadeite, or jadeite with other soda calcic pyroxene (kosmochlor/omphacite) plus amphibole, feldspar, and/or chromite, along with other trace materials. At present the name has not caught on around the world, but given that jadeite is mostly traded in these markets, it seems only a matter of time. In 2009 Hong Kong Customs and Excise defined fei cui jadeite as a "granular to fibrous polycrystalline aggregate composed solely or principally of jadeite omphacite and kosmochlor", with the final descriptive category being defined by the main constituent.

Dominic also explained the current system for treatment classification of the different types of jadeite: Type A (natural, untreated), Type B (treated jadeite — chemically bleached and resin-impregnated with jadeite, undyed), Type C (dyed colour jadeite) and Type B+C (resin-impregnated and dyed). He also highlighted that doublets do exist, although they are not common; these are Type A or B jadeite with plastic backings, created to give the appearance of larger, more expensive pieces.

On the testing front, Dominic stated that, from a technical point of view, FTIR, EDXRF, Raman and UV-Vis techniques can all be used to look at the spectrum of jadeite and to determine its nature, identity and chemical composition. However, Dominic also shared his own newly-devised grade system for fei cui, called the fei cui smart grading system, consisting of the '3Cs' + 'Tips'. The 3Cs consist of: colour, class, craftsmanship, whilst TIPS denotes: Transparency, Internal shine, Purity and Size. These factors, when considered together, determine the final grade for any individual piece.

Lastly Dominic informed delegates that he has also developed a new jade wheel, an accompaniment to his highly useful gem wheel, which provides support to the user when determining the colour of jadeite, and is designed to be used in conjunction with his new high-intensity torch.



Saturday evening dinner, held in the exquisite Bannockburn Room, so-called because the wall coverings depict the the Battle of Bannockburn.

**SUPPLY AND DEMAND**

Stuart Robertson from GemWorld International then gave an update on the supply, demand and pricing of gemstones from the perspective of the Price Guide, showing how over the past several years the prices of major gemstones have increased, and how quality has played an important role in price. As one might expect, size has a major influence over value, but quality has come to represent an increasing force. Stuart showed trends of increasing prices over the past decade, with the greatest increases accompanying stones combining size and quality. This increase has been mirrored in lower grade stones, but not to such a great extent.

**POISONOUS GEMS**

Professor Emmanuel Fritsch returned for his second talk of the conference, entitled 'A sulphurous presentation', which gave a light-hearted look at the potentially poisonous aspects of some gemstones, such as bumblebee jasper. Running through various gem materials, he showed how the saying 'beautiful but deadly' can sometimes be applied to gems and minerals — in particular the aforementioned bumblebee jasper — which contains several forms of sulphur, yet which is fashioned into beads and flats for use in necklaces. When covering the latest find, Emmanuel highlighted that the deposit was concentrated into a vein in a localized area, and that it had subsequently been fully mined out.

Saturday concluded with a delightful three-course dinner, held in the Peebles Hydro Hotel, allowing friends to come together and discuss the day's events. Sadly due to a wedding the hotel was unable to accommodate the Association's traditional ceilidh, but this was rectified with impromptu Scottish dancing and singing from delegates in the hotel bar.

**DIAMOND MORPHOLOGY**

Sunday dawned bright and early with Professor Fritsch's third presentation of the conference on diamond morphology. Emmanuel explained about the main growth habits of diamond: crystal (octahedral, cuboid and fibrous), twinning, post-growth evolution and polycrystalline. During this technical look at diamonds, he explained the concepts of natural micro-faceting and how the different forms could be investigated by procedures such as luminescence and inclusion analysis. Although a very technical area, Emmanuel succeeded in keeping the talk within the audience's grasp, and made it as entertaining as crystallography can ever be!

**THE HONOURS OF SCOTLAND**

After coffee and tea delegates were treated to a presentation by Richard Welander on the Honours of Scotland — a sneak preview for those attending the tour of the castle on Monday. The Honours, also known as the Scottish Regalia or the Scottish Crown Jewels, include the crown, sword of state and sceptre, and were used for the coronation of Scottish monarchs from 1543–1651. They have since been used on state occasions, particularly during a monarch's first visit to Scotland as sovereign. The current crown dates from 1540, when James V commissioned a new crown; the arches were removed, the stones were unset and the gold was melted down. More gold was added to the finished piece to create a larger, more impressive headpiece. The circlet is made from Scottish gold, and the crown also features 22 new gemstones alongside 20 gemstones taken from the previous crown, including freshwater pearls from Scotland.



*Dominic Mok of AGIL with MacBarnett Bear.*

An image of the old imperial crown can be seen in James IV's *Book of Hours*.

After Oliver Cromwell ordered all the English regalia to be broken up or melted down, the Scottish Honours were secreted away and hidden in Dunottar Castle. When their location was discovered, they were smuggled out and hidden elsewhere. In 1707 the honours became redundant with the act of union, and were brought out of hiding to be locked away in their current location in Edinburgh Castle. In 1818 Walter Scott petitioned to put the Honours on show for the first time, suggesting an admission charge of one shilling per person. This proved to be a great success, with over 150 people viewing them on the first day. Today the Honours travel south to every opening of parliament, symbolizing the bond between England and Scotland, and the role of the monarchy in ruling both countries.

**WORKSHOPS**

Sunday afternoon saw delegates attending workshops on Grading and Valuing Emeralds, Testing Fundamentals, Visual Optics, Cameos and Intaglios, Jade and Diamond Testing, and all delegates who attended were enthusiastic and eager about the workshops. As is normal for this conference, pre-booking was necessary for all workshops, given the high level of demand for them, and those who attended came away with either a refreshed view on their chosen subject, or, in some cases, new testing techniques or abilities. This is one area of the conference that caters for all, from the newly initiated to the seasoned professional.

On Monday morning delegates who had opted to do so went for a tour of Edinburgh Castle, and a viewing of the Honours of Scotland. For the remainder it was time to head home to all corners of the country (and in some cases, the world) after an interesting, informative and warm weekend away with our Scottish compatriots. ■

*Gem-A would like to thank the SGA for its hospitality and generosity during the Conference. We look forward to returning next year.*



# Gem-A

THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN

## Gem-A Conference 2015

Saturday 21 and  
Sunday 22 November

Incorporating the 18th International FEEG Symposium

Sponsored by

**jewelry**  
television®  
jtv.com

Platinum Sponsor

---

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.

This year Gem-A will bring together a range of world-renowned speakers and international delegates to discuss important issues within the gem and jewellery trade, from both a scientific and trade perspective. The Gem-A Conference audience will, as always, be a diverse mix of members of the gem trade, gemmologists, gem enthusiasts and gem students from all corners of the globe.

Registration and tea and coffee will commence at 08:45 on both days, and the Conference will close at 17:30 on Saturday and on Sunday.

### SPEAKERS

**Ilario Adamo** — 'Demantoid garnet: identification, occurrences and origin determination'

**Jean Pierre Chalain** — 'The history of HPHT'

**Andrew Cody** — 'Opals'

**Jörg Gellner** — 'A 'Rap' list for pearls'

**Grant Hamid** — 'The corundum conundrum: weaving a path through the corundum maze'

**Bill Larson** — 'Gem mining in pegmatites of Southern California, USA'

**Shane McClure** — Topic TBC

**Adolf Peretti** — 'Commercial important origins of rubies and sapphire and colour grading ('pigeon's blood' and 'royal blue').'

**Paul Rustemeyer** — 'Colour zones and growth phenomena in tourmaline crystals'

**Fabian Schmitz** — 'Natural vs. synthetic quartz: an overview of differences, colour reasons and identification'

**Martin Steinbach** — 'Asterism: gems with a star'

SATURDAY 21 NOVEMBER (EVENING)

## Gem-A Conference Dinner

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

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**

Two 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'

MONDAY 23 NOVEMBER (EVENING)

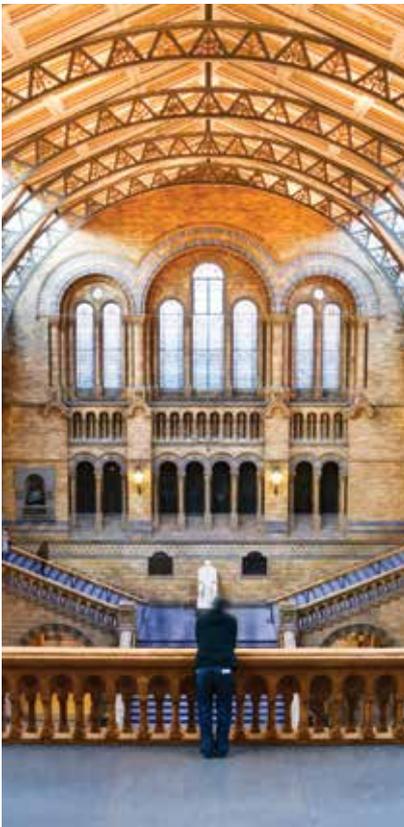
## Graduation Ceremony and Presentation of Awards

**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 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

Meet the curator 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.



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



# Gem-A

THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN

## 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
<b>CONFERENCE</b>				
<b>Members and Students rate</b>				
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)	<b>Please specify:</b> Sat 21 Nov <b>OR</b> Sun 22 Nov	£135.00		£
Saturday evening Conference dinner only	Sat 21 Nov	£75.00		£
<b>Non-Members rate</b>				
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)	<b>Please specify:</b> Sat 21 Nov <b>OR</b> 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 <b>OR</b> Afternoon session with Richard Drucker	Mon 23 Nov	£25.00		£
Morning session <b>OR</b> Afternoon session with Alan Hodgkinson	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: .....

### PAYMENT DETAILS

- Cheque (must be drawn on a British bank in sterling and made payable to Gem-A)
- Credit/Debit Card       Visa     MasterCard

Amount £ .....

Start date: ..... Expiry date: ..... Issue number: .....

Card no: ..... Security code number (last 3 digits on back of card): .....

Name on card: ..... Cardholder's signature: .....



Platinum Sponsor

Completed form to be sent to Gem-A Events, 21 Ely Place, London EC1N 6TD, UK t: +44 (0)20 7404 3334 f: +44 (0)20 7404 8843 e: [information@gem-a.com](mailto:information@gem-a.com)

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.

Registered charity no. 1109555. A company limited by guarantee and registered in England No. 1945780. Registered Office: 3rd Floor, 1-4 Argyll Street, London W1F 7LD.

# Gem-A at IJL

Gem-A returns to the UK's biggest jewellery trade show next month.



The show, which will be held at Olympia, London, from 6–8 September, features the greatest breadth and variety of jewellery suppliers, with over 10,200 trade personnel from the UK and overseas and all major UK industry bodies and associations.

Come and visit Gem-A at **Booth J15**, where you will be able to meet the staff, sign up for courses (such as the exciting new Gemmology & Jewellery Studies degree course, run in conjunction with Birmingham City University) and purchase quality books and instruments from Gem-A Instruments. We will also be running several hands-on practical demonstrations on the stand — come and get involved.

## PRACTICAL SEMINARS

### Stimulating Simulants

Sunday 6 September 2015, 13:00 – 14:00  
London Room

In this hands-on practical workshop, Gem-A presenters Claire Mitchell FGA DGA and Andrew Fellows FGA DGA focus on the range of synthetic and simulated materials that are available on the gem market today. You'll have the opportunity to learn more about what is current, to examine and identify samples, and to have the benefit of gemmological education from Gem-A.

### Cornucopia of Colour

Tuesday 8 September 2015, 11:30 – 12:30  
London Room

Gemstones can be found in a vast range of colours, but how closely do you look at them? In this hands-on practical workshop Gem-A tutors Claire Mitchell FGA DGA and Andrew Fellows FGA DGA show the range of colours and colour effects that can be seen in gemstones. From simple single colour gems, through to gems that change colour and more, this is one that has to be seen to be believed!

*First come, first served.*

Visit the Gem-A team  
at IJL Booth J15

## SPECIAL IJL OFFERS FROM GEM-A INSTRUMENTS

### Laser inscription and Hearts and Arrows viewer

Normal price £48.00 + VAT

**Now only £38.40 + VAT**



### LED rechargeable loupes

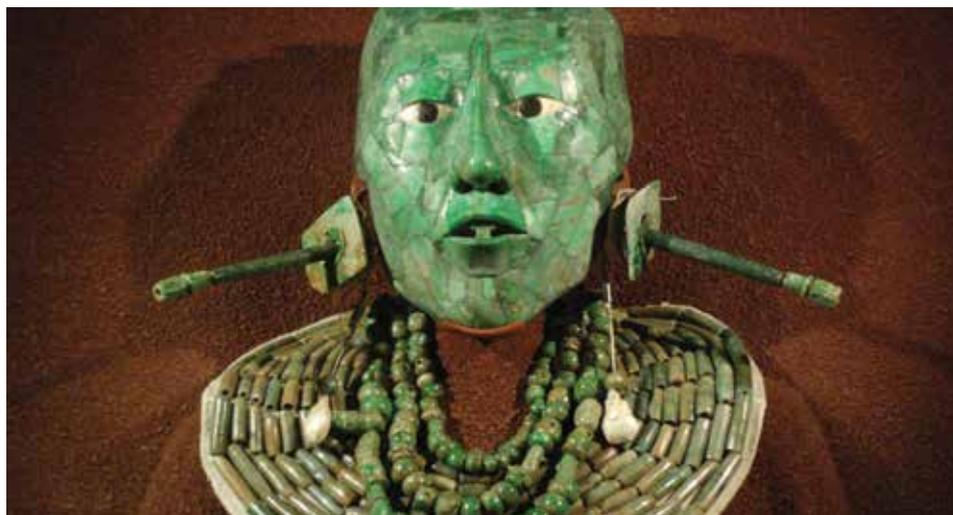
Normal price £45.00 + VAT

**Now only £36.00 + VAT**



# Maya jade: the revival of a gem revered by royalty

Helen Serras-Herman FGA takes a look at the history and revival of Maya jade.



1: Jade mask and pectoral of King Pakal the Great (*War Shield* in Maya language) of Palenque, at the National Museum of Anthropology in Mexico City.



2: The famous Temple I pyramid in Tikal, Guatemala, rises 145 feet above the main plaza. Jade carvings for jewellery and ceremonial objects were found inside several pyramids in Tikal.

In January 2011 my husband and I had the opportunity to visit several museums and archaeological sites in Mexico, among them the pyramids at Palenque, Uxmal and Chitén Itzá. We also viewed the famous and most impressive jade mask and pectoral of King K'inich Janaab' Pakal I, or King Pakal the Great (AD 683) of Palenque (1), at the National Museum of Anthropology in Mexico City, along with many other jade carvings. We continued the Maya jade story in Tikal (2), Guatemala and into Copan, Honduras, in January 2012.

Jade was revered in the Maya world — an ancient culture that flourished in the first millennium AD in Mexico and Central America. The Maya civilization stretched geographically over what is known today as Guatemala, Belize, southern Mexico and the western regions of Honduras and El Salvador. The Maya excelled in architecture, astronomy, mathematics, agriculture and the arts.

The Maya, just as their predecessors the Olmecs, held jade in the highest esteem. It was rare and valuable and represented eternity. They buried their kings adorned with jade masks and pectorals, considering jade

the ultimate passport to the afterlife (3). For the Maya, green was the most precious colour. Green represented the life-giving water of the Sacred Cenotes (natural wells), as well as symbolizing crops and fertility. The extremely rare and valued feathers of the quetzal bird are also bright green. In addition to its colouring, jade was also valued — and still is today — for its durability and its ability to take a high polish.

The English term 'jade' is derived from the Spanish 'piedra de ijada' or 'yjada' (meaning 'flank' or 'side', hence the term 'loin stone' or 'colic stone') as it was supposed to cure kidney ailments. Latin scholars in sixteenth-century Europe coined the term 'lapis nephriticus', which later became nephrite.

Jadeite was identified as a separate mineral from nephrite, by French professor A. Damour in 1864, whose chemical analysis in 1881 proved that the Mexican stone was also jadeite. Ironically, after all those years, the Spanish 'piedra de yjada' came to be known as jadeite.

The sources of Mesoamerican jade have been lost for over 500 years, primarily because the Spanish conquistadors did not value jade, being only interested in gold and emeralds. Reports in diaries kept by early Spanish explorers document the special status of a gemstone unknown to them, one that would later to be called 'jade'.

At the beginning of the Spanish conquest, the Maya people kept the location of their jade mines a secret in order to protect them from the invaders, but over time the location of the ancient mines and quarries became forgotten and lost.



3: When this incredible funerary jade mask from Tikal was tested with a spectrometer, it confirmed Mary Lou Ridinger's visual identification that only the ear flares of the mask are pure jadeite, while the rest of the green pieces are jadeite-diopside mix. Circa AD 600–900. Housed in the Museum of Archeology & Ethnography in Guatemala City.



4: This stunning Maya portrait jar, approximately seven inches tall, from Tikal, is made out of the rarest jadeite, imperial jade. It is on display at the National Museum of Archaeology and Ethnology in Guatemala City.

#### THE MAYA JADE REDISCOVERY STORY AND JADE TODAY

The amazing story of jade rediscovery spans over a century, involving many American scientists enamored with the material; among them are Zelia Nutall, William Niven, Robert Leslie, William Foshag and Tom and Joyce Barbour.

American geologist William Foshag, curator of the Department of Mineral Studies of the Smithsonian Institution National Museum of Natural History had spent several years in Mexico and Guatemala in the 1940s studying the ancient jades and the geology of the area. Foshag wrote about the discovery of jade in 1952 in the Motagua River Valley of Guatemala by fellow American Robert Leslie (Foshag, 1955).

Foshag's book, *Mineralogical studies on Guatemala Jade*, published a year after his death, details how his research used X-ray diffraction patterns and refractive indices to categorize the Guatemalan jade as jadeite, finding it to be similar to jade found in Burma (Esposito, 2011). This was the beginning of the rediscovery of the Maya jade mining sources.

In 1974 archaeologist and anthropologist Mary Lou Ridinger and her late husband Jay Ridinger actually searched for the jade and found their first outcrop of green jade on a tributary of the Motagua River. They

sent samples to the Gemological Institute of America (GIA) and other labs, all of which confirmed their finds as jade.

Today we know the exact location of many of the ancient mines and, according to Ridinger, it was the unearthing of the ancient lapidary shop sites that lead them eventually to the rediscovery of the jade mines.

A magnificent variety of jadeite colours is now mined in Guatemala. Jadeite in every shade of green is collected there, as well as white, creamy yellow, blue and (my personal favourite) the rare lavender. Jade boulders of different colours can be found side-by-side in the field, even boulders with various colours within. Its physical appearance is granular, with a greasy lustre. Its hardness is about 7 on the Mohs scale. The refractive index is 1.65–1.67 and specific gravity 3.30–3.36.

Also discovered is a rare variety of fine-grained deep black jade that has flecks of precious metal inclusions — silver, nickel, cadmium, platinum and gold, as well as cubic golden pyrite inclusions — and was given the very appropriate name 'galactic gold'. During the 2013 Tucson gem shows I donated a slab to Gem-A, and after a Raman spectrum test was run, it proved the material to be omphacite jade (Ogden, *Gems&Jewellery*, March 2013).

Mary Lou Ridinger retrieves jade by surface collection only — there is no underground mining. Gasoline-powered jackhammers are used to remove jade 'lenses' from the boulders (Hargett, 1990). As it is difficult to identify the jade boulders in the field because their surface is covered by a rind similar to the bark of a tree, miners pound the rocks with a 10 lb sledge hammer and listen for a unique ringing sound. They also test the jade in the field by submerging the specimens in a methylene iodide test fluid, blended to a specific gravity of 3.0. Jadeite will sink, while serpentine and chrysoprase float.

#### ANCIENT MAYAN LAPIDARY WORK

Besides burial masks, the ancient Mayas carved jade into pendants, rings, ear flares, beads and ceremonial objects. Many of the beads are not only fashioned and drilled into a tube bead, but are also elaborately carved (4, 5).

When I met Mary Lou Ridinger in Antigua, Guatemala, I asked how the Maya carved their jade. We know that the Maya did not have metal tools. The advent of copper tools with their ability to carry abrasive grit revolutionized hard gemstone carving in

ancient Mesopotamia, Egypt and Greece. According to Ridinger, the Mayans carved jade with a wooden blade made from the local hardwood 'lignum vitae' with an adhesive that could carry crushed garnet or jade. Alluvial garnet deposits are found in the same area near the Motagua River. I also wondered how long it took for my fellow ancient Maya lapidaries to carve these magnificent pieces. I am even more in awe at the length of the holes of the ancient Maya jade beads — many of them between two and three inches. Even today it takes a while to drill a shallow hole in jade using diamond tools. The ancient lapidaries probably used a wooden bow drill with a bamboo shaft and abrasive, and/or a stone tip.

Fabulous collections of jade artifacts, carvings and beads are housed in the National Museum of Anthropology in Mexico City, the National Museum of Archaeology and Ethnology in Guatemala City, and the National Museum of Archaeology and Ethnology of Miraflores — the ancient Maya site of Kaminaljuyu — also in Guatemala City, as well as the archeological museums in Palenque, Mexico and Tikal.



5: The Maya carvers created intricate jade carvings such as this, on display at National Museum of Archaeology and Ethnology in Guatemala City.

#### JADE MAYA™

While in Antigua, Guatemala, my husband and I visited the Jade Maya™ shop — the Ridingers' gallery and factory for carving jade. I am still very appreciative of the warm hospitality we received from owner Mary Lou Ridinger, shop manager Raquel Pérez, and our personal tour guide Raphael Martinez, who allowed us to spend many hours visiting every room and workshop and taking photographs.

The slab room is where the rough material comes in from their seven quarries and gets slabbed. Huge saws are lined up waiting for



6: The full spectrum of colours of Guatemalan jade slabs graded in numbers 1–14

massive jade boulders to be mounted and cut. The slabs are then sorted and graded, all numbered from 1 to 14. These numbers correspond to their final finished cabochon grades. An impressive inventory of sorted jade slabs of all colours and grades is arranged on wooden shelves, immediately available for custom orders (6). Among them are some rare 'Maya imperial jade' slabs; the bright emerald-green variety and 'Mayan foliage', a very popular green-and-white mottled variety. All of their jade material is natural and is not treated by dye, heat or bleach.

Whilst in the workshop I talked with skilled craftsmen who carve beautiful replicas of ancient artworks, with motifs that reflect their artistic traditions. They are all local Guatemalans, many of Mayan descent. I was astounded by their work. The main carving area is a room in the centre of the shop, where visitors can observe the carvers at work. Several lapidary units around the perimeter of the room are set up with rotating wheels, where lapidaries take the jade carvings through every step of grinding and sanding. One lapidary was working on the final sanding of jade discs and kindly let me watch her at work. The final polishing is done on flat vertical laps using chrome oxide.

I also watched the master artist carver, who was carving a phenomenal jade skull. I was impressed with his work and how fast he was progressing, but was also stunned to see that he was carving 'dry', i.e. without dripping water. Water is used as a lubricant

and thus prolongs the life of the diamond tools, as well as keeping the dust down, so that carvers do not inhale it. He and the other carvers were wearing only cloth masks as protection.

In the drilling room, or the 'Perforado Sala', I talked with two highly skilled workers. One lapidary was drilling round pendant blanks, which later would be engraved with Maya glyph designs. He used an ultrasonic drill, but every pendant was held by his fingers, and was masterfully perforated at the exact same spot as the



7: Final sanding stage on a disc of 'Mayan Foliage' jade — a very popular green and white mottled variety, at the Jade Maya™ shop in Antigua.

previous one, without slipping or sliding. I was truly impressed by the rapid flow of production. The other lapidary was drilling tiny quarter inch preformed cubes of jade. I admired their bead-making skills, all done by hand. After they drill the beads, they sand and polish them into a finished product.

We later attended a brief presentation with other visitors and tourists about the history of the Guatemalan jade, the rediscovery story, the status of the current jade industry in Guatemala, the types and colours of jade and the products available.

Finally, we strolled through the gift shop, a true luxury art gallery, where exquisite jade carvings are offered for sale. Some are replicas of ancient Mayan mosaic masks and sculptures, while others are original designs, created by contemporary jade sculptors and jewellery designers.



8: Elaborately carved Maya jade bead with 10 cm drill hole from the Objects Collection at the Cultural Resource Center of the National Museum of American Indian.

#### NATIONAL MUSEUM AMERICAN INDIAN MAYA JADE COLLECTION

In September 2014, my husband and I had an incredible opportunity to visit the Objects Collections of the National Museum of American Indian (part of the Smithsonian Institution) at the Cultural Research Center, located just outside Washington D.C., in Suitland, Maryland. The Objects Collections are opened to researchers, but a two-month advanced appointment is required, as well as a precise list of items to be pulled out of the vault.

Thousands of items are housed at the NMAI Cultural Resource Center, stored very carefully in drawers and vaults. Among the collections is a small number of beautiful Maya jade carvings. I spent hours with museum specialist Victoria Quiguango, looking at and admiring the drilled holes of elaborately carved bead pendants, some of them three to four inches long.

## WORKING WITH GUATEMALAN JADE

As I mentioned earlier, my favorite Guatemalan jade variety is the lavender jadeite. I like its look and its rarity. It is easy to carve, following standard lapidary steps. After sanding the carvings up to the 14,000 grit step, I achieved a good final polish with chromium oxide.

My lavender jade carvings proved to be more difficult to design around and be incorporated into jewellery, however. I tried many gem materials, especially natural turquoise, but when paired with the lavender jade, they would overpower the pale lavender colour. After much thought, I decided to stay in a pastel palette, using tanzanite faceted beads, purple star sapphires, sugarcane emeralds from Brazil and natural colour baroque-shape freshwater cultured pearls, whose soft colour variations from cream to gold to pinkish-white allowed the lavender jadeite to stand out.

Carving the black 'galactic gold' jade was as dirty as any other gem material that has pyrite inclusions. The black residue colour stains everything — from pans to fingernails! However, the black jade was easy to carve, drill and sand. Final polish was done with 50,000 grit diamond and the results were truly beautiful.'



9: 'Maya Jade Nymph', carved from lavender jadeite, from Helen's 'Maya Jade Collection', inspired by the history of the Maya ancient world and her travels. Photo M.J. Colella.



10: 'Through Your Eyes' lavender jade carved pendant, set in 18 ct gold and sterling silver with baroque natural colour pearls. Photo M.J. Colella.

## ACKNOWLEDGEMENTS

I am grateful to the friends who motivated me to appreciate the Guatemalan jade. Among them, the late appraiser Anna Miller, whose second Conference on Jadeite in Antigua, Guatemala we were going to attend in 2003; celebrated photographer Fred Ward, author of the *National Geographic* article 'Jade — Stone of Heaven' (1987) and the book *Jade* (2001), from whom we heard a lot about the jade shop in Antigua; and Mary Lou Ridinger, who generously offered me her time and knowledge. I was truly thrilled when she was present at my lecture on Maya jade earlier this year during the 2015 AGTA Tucson GemFair seminars.

I am also very thankful for all the new friendships we made along these travels. Together with the passion for gem knowledge and for new materials, and the fascinating history of the ancient Maya world, they all inspired me to create new artwork.

*Helen Serras-Herman FGA is an acclaimed gem sculptor with over 30 years' experience in unique gem sculpture and jewellery art. Her award-winning artwork has been exhibited worldwide and published in over 150 trade magazines and books.*

*Visit [www.gemartcenter.com](http://www.gemartcenter.com) and her business Facebook page at Gem Art Center/ Helen Serras-Herman.*

*All photos Helen Serras-Herman, unless stated otherwise.*



11: The black 'galactic gold' jade is a scarce variety of black omphacite jade containing flecks of precious metals such as silver, nickel, cadmium, platinum and gold, as well as cubic golden pyrite inclusions. Pendant is carved in the shape of an ancient Celt, 303 carats.

## REFERENCES

- Esposito, C., 2011. *Never Jaded: A Look at Field Notes*, article by SIA/IHD, Smithsonian Institution Archives, 2011. Available at [nmnh.typepad.com/fieldbooks/2011/06/foshag.html](http://nmnh.typepad.com/fieldbooks/2011/06/foshag.html).
- Hargett, D., 1990. Jadeite of Guatemala: a contemporary view, *Gems & Gemology*, **26**(2), 134–141.
- Foshag, W., 1955. Jadeite from Manzanal, Guatemala, *Journal of American Antiquity*.
- Foshag, W., 1957. Mineralogical studies on Guatemala Jade, *Smithsonian Miscellaneous Collections*.
- Ogden, J., 2013. Tucson — the pulse of the industry (Taking the test), *Gems&Jewellery*, **22**(1), 21.
- Ward, F., 1987. Jade — Stone of Heaven, *National Geographic*, **172**(3), 282-315.
- Ward, F., 2001. *Jade*, Gem Book Publishers, Malibu, California, USA.



12: Black 'galactic gold' jade pendant. Photo M.J. Colella.

# And the dream lives on...

It has been almost a year since the reopening of the Scorpion Mine in Kenya, which closed following the assassination of its owner Campbell Bridges in 2009. Now that tsavorite production is back on track, we spoke to Bruce Bridges about continuing his father's legacy.

## Describe a typical day in your life (if there is such a thing!)

One of the nice aspects about my job is that there really is no such thing as a typical day. I travel a great deal, about 250,000 miles a year, so I'm often in a different country in North America, Europe and Africa, depending on the week. When I am at our head sales office in the US, I prepare the orders to be shipped out to various jewellers and dealers throughout the day. If I'm in Kenya, my day revolves much more around the management of our holdings and overseeing the production and processing (sorting, cobbing, grading, sawing, cutting) of tsavorite. I will also see a myriad of dealers who bring gems and specimens from all over Africa into our office. Driving to the head office in Nairobi can be quite a challenge due to the horrendous traffic congestion; the meagre 10 mile drive from our home can become a two-hour safari to the city centre.

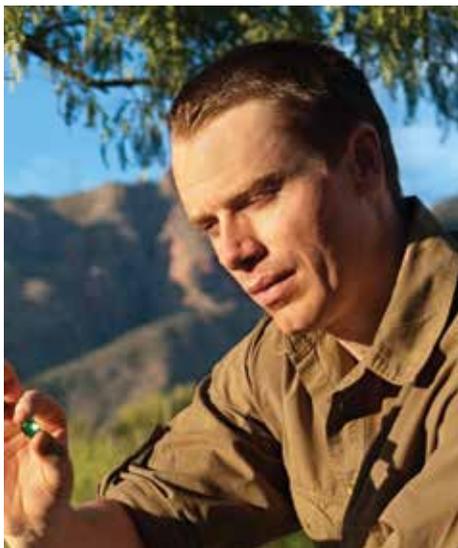
Working under my father I used to spend about eight months a year in Africa — which usually included a solid four-month stint at the mine. Now that I'm responsible for sales and have children, I take far more trips a year, but for shorter periods of time. While my children are still so young I feel I miss too much of their development if I'm gone for long periods.

No matter where I am in the world though there really is not much down time. When my day ends in the U.S., the day is just beginning in Kenya, Asia, Europe, and vice versa.

The one thing I'll say is that good, or bad, my day is never boring.

**Last year the court case against the men who murdered your father was settled. However, since then your family and employees have received death threats. Has the situation eased at all?**

The ruling in the court case last year was very bittersweet for us. While my family was not entirely satisfied with the shortfall of justice — despite the unprecedented



*Bruce Bridges examining the 20.20 ct Scorpion King up close.*

mountains of evidence we had, including multiple eye witnesses — the fact that four 40-year (life) sentences were handed down was still quite a surprise to many and sent reverberations throughout the country. Kenyans have gotten used to the lack of justice and complete impunity for those in power. Despite the evidence we had against those involved in my father's assassination, most people thought that they would all get away scot-free. The guilty verdicts sent a message to those involved that there is some measure of law and order in the land. Again, none of the above would have been possible without all those who supported us in Kenya and throughout the world. Therefore, the powerful authorities who funded and hired the perpetrators of my father's murder have backed off somewhat for the time being.

That said, a new and equally powerful element of organized crime has now come to the Taita area. They have tried very hard to encroach on our claims and have threatened our workers. These death threats were one of the reasons that led to one of our longest-standing foreign employees leaving the company at the end of last

year and our head of security is currently in hiding due to the severity of these threats. Hopefully, we are able to weather this storm as well.

Our employees were sorely disappointed with the court case verdict last year as they were fully aware of the facts concerning the accused. It was very apparent that the most well-connected assailants involved were released and the others convicted. Whenever a case involves powerful and moneyed people in authority, it is extremely difficult to win convictions. Without the assistance of high-level government security departments, our attorney and the Director of Public Prosecutions, it would not have been possible for us to succeed in presenting our evidence in court. We as a family are deeply grateful to those in authority who made it possible for us to pursue justice and who handled our security during this trying time.

Despite all of the above, our workers have stuck with us through thick and thin. We never let go any of our long-standing employees, even when the mine was closed for five and a half years. They were all kept on full salary during that period. Now of course that the mine has reopened they have returned to their full time duties. We employ around 80 people in total.



*Judith and Bruce Bridges grading at Scorpion Mine.*



Workers sieving at Scorpion Mine.

### What sort of issues do you encounter these days?

Well, despite the continuing harassment from illegal miners, death threats towards us and some of our staff, and encroachment on our claims as I've mentioned, the day-to-day activities of running a mine can be quite a challenge in their own right. The mine is situated in a semi-arid locale, so water is always an issue, despite my father's construction of water tanks and a very intricate system of catchment areas.

Installing and maintaining solar panels for electricity and even a cell tower for phone and internet are all part of the necessary logistics when operating from a remote mining area. I never would have believed — even five years ago — we'd have internet access at the mine. Maintenance of the roads and infrastructure at the mine along with the machinery is constant. Then the actual aspect of mining, which includes organizing and overseeing the earth moving teams, blasting teams and extraction teams, is of paramount importance. Security is also vital on any mine site and especially gemstone mining.

We take great pride in the responsibility that my father bestowed upon us to mine in the most environmentally friendly and sustainable way possible. Therefore, our entire operation revolves around how and where to plant trees, dispersment of the waste rock and the location of the most efficient water catchment areas possible.

The biggest challenge of course on any mine site is to try and make sure that we are always on reef (a bed or vein of ore) and able to produce gem material, without which no operation can be sustainable.

### Presumably, keeping the mine open and running is important, not just in terms of providing a living for your employees, but also to keep alive your father's legacy?

Yes indeed, keeping the Scorpion Mine open and carrying on my father's dream for tsavorite and his legacy is my driving force in life.

My father gave a gift to this world in his

discovery of tsavorite and created a new gem industry in Taita where none existed before, along with establishing an entirely new gem enterprise for East Africa. Not to mention the fame and recognition he brought to East Africa through his discovery and lifelong promotion of Kenya's gem industry.

I fully understand and accept the fact that I am not the man my father was and could never hope to achieve what he did. However, it is with great pride that I speak of his accomplishments and I'm honoured to be his son. If I can further his dream for tsavorite, then I feel that I will have also been able to accomplish something in my life that was a responsibility bestowed on me by my father.

Being the third generation of my family in the gem and mineral industry in Africa, I feel a duty to carry on the family heritage — wouldn't it be wonderful if we could perhaps have a fourth generation to come along!



Entrance to No. 2 Tunnel.

### As was hoped, has tsavorite production increased at Scorpion Mine and for how long can this be sustained?

Yes, I'm thankful to say that tsavorite production is indeed coming on line now from the Scorpion Mine. We reopened the mine on 5 January 2015 and it took us about six months to get all of the equipment, personnel and infrastructure in place.

While we had several very promising indicators, we were on reef for about a solid month and went through a sizeable barren zone before hitting our first major tsavorite pocket. We're now very grateful to be on the brink of full-scale production and are mining new gem material on a weekly basis.

We are currently in the stockpiling phase and hopefully we have quite a bit of material in the coming months to bring to market.

### Do you see the interest in tsavorite increasing?

The tragic irony to the loss of my father is that it brought a great deal of publicity to tsavorite and sales skyrocketed. With

the gem mining sector really falling into a downward spiral after my father's murder, as he was very much the glue that held the sector together within Kenya, the vast majority of the legal miners in Taita slowed production, we closed our mines and tsavorite production all but dried up. Therefore, you had demand at an all time high and very little supply, which led to tsavorite prices skyrocketing.

Many coloured gemstones have seen substantial increases in prices over the last five to six years, but not in the same way as has tsavorite. I would suggest that it is one of the most sought-after coloured gemstones in the world and more people are becoming aware of it everyday.

That said, there is still a long way to go before it is commonly known to both the trade and the public. I think as more of the public becomes aware of the story behind tsavorite and the more they go to their jewellers enquiring about this fabulous gem, that the trade will have to keep up with the times.

Of course, we are doing everything in our power to raise its awareness both within the trade and to the public. The unequalled intrinsic properties and history of this extraordinary green gemstone make this a far easier task.

### What are your future plans for the mine?

Our goal is to develop the tsavorite mines to the large scale that my father envisioned, while also keeping the magic and romance that was so apparent at all of his mining sites. In an effort to do this, while we have a great deal more heavy machinery and infrastructure now, we have not touched my father's old camp and tree house. No matter what level of mining scale we accomplish, such testaments to where we came from and our roots will always remain the same.

### Do you have any plans for mining other stones?

We actually have been mining a plethora of additional gemstones other than tsavorite for quite sometime. Our mining concessions

in Kenya contain: tsavorite, tanzanite, tourmaline, hessonite/golden grossular, rhodolite and ruby — we've mined all of them over the years. Our focus of course is on tsavorite and always will be.



Tsavorite 10.75 ct cushion.

# The lure of ivory

Maggie Campbell Pedersen FGA discusses the past, present and future of ivory.

A few days ago I was shown a necklace, thought to be ivory, for comment (1). It was of the 'souvenir' type, carved with little elephants, and reckoned to be about 50 years old.

At that age it can legally be sold in the UK if the owner so wishes, though the value may not be very high. Ivory is, however, an extremely emotive subject and many would find it difficult to put a value on it, while others would prefer not to deal with it at all.



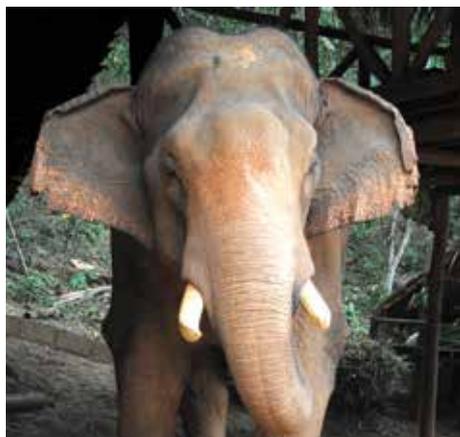
2: Japanese okimono carved from walrus ivory.

In my opinion there are three reasons why we should know something about ivory. Firstly, as gemmologists, we may be asked to identify it — just as I was. Secondly, ivory has a much longer and richer history than any other gem material. It has denoted status, funded wars (and been carried off as war booty), been stockpiled as a form of wealth and been transformed into everything from glorious carvings to a powder fed to cows to increase their milk yield. Thirdly, we need to know about it to save the animals because, sadly, today we are discovering the cost of our excess.

## PAST

Ivory comes from several animals, including elephants, walrus, hippos and whales. While elephant ivory (from their tusks) is by far the most common form of the material, the other types were usually the preferred material in the areas where they were to be found because they were readily available and the least expensive. Thus in Russia mammoth and walrus ivory was — and still is — used. The Inuit used whale and walrus ivory because they were the animals found locally. Walrus and hippo ivory have been traded extensively, but elephant ivory has always been the most sought-after.

We have held ivory in the highest esteem for many millennia. The earliest carving has been dated at about 40,000 years old. We have used ivory for all manner of things, both decorative and utilitarian, in countries worldwide. Every country that had ivory-bearing animals has used it in some way, and most have traded it as well. The African continent has been criss-crossed with ivory trade routes, as has the Indian Ocean. In some countries ivory was a part of their everyday life. In others the influence of settlers from the west introduced the custom of carving the beautiful material. An example of this is the Philippines, where ivory had not been used until the Portuguese settlers arrived in the sixteenth century, bringing their religious symbols and altarpieces made of ivory with them.



3: Male Asian elephant.



1: Ivory necklace, probably carved from Indian elephant tusk.

When the settlers realized that the local people were fine carvers, they imported ivory and started a tradition that lasts to this day. The country is now regarded as one of the hubs in the illegal ivory trade.

Japanese carvers have always been regarded as some of the best in the world. They used a little ivory in very early times, but for many centuries their use of ivory was limited to netsuke, which were commissioned and used as part of the belt on a kimono. When westerners arrived and showed an interest in buying these exquisite, small objects it did not take long for the Japanese carvers to extend their craft, and to start making 'okimono', or 'display objects', solely for the western market (2).

Slaughtering animals to the point of extinction purely for their ivory is not new. Elephants have been killed for their tusks for thousands of years. They once inhabited far more areas than they do today, for example they roamed through large parts of the Middle East and through China. Hippos were once common in Egypt but have long been regarded as extinct there.

Ivory is an incredibly versatile material. It can be carved, turned on a lathe, used as a base for miniature paintings and thinly sliced and used as inlay and veneer. Whole tusks have been used in the structure of dwellings, yet it has also been made into the finest and most intricate carvings

imaginable. Unlike most organics, given the right conditions, ivory can survive for thousands of years.

## PRESENT

When dealing with ivory today we not only have to identify it, but also try to work out its age and advise on whether or not it can be legally sold.

The necklace mentioned above had been inherited from a grandmother and was definitely 'legal'. It had probably been carved in Asia (possibly India), so most likely from an Asian elephant tusk, though African ivory was also exported to India and it is usually impossible to tell them apart except by DNA testing. My reasoning for these conclusions was that the drop shape and fretwork of the pendant have a slightly Indian style, and the elephants depicted are Asian, not African. This is indicated by the size of their ears, and the double dome on their heads (3).

With regards to the ivory itself, the pendant is made of material taken from close to the distal end of the pulp cavity, hence the strong curve and the slight discoloration on the back (4). This, however, made it difficult to see the 'intersecting arc' pattern, as it is never as clear near the centre of the tusk or pulp cavity.

The pattern was visible on some of the small elephants and the beads, but these have suffered a little from wear — especially the beads (5). Again this is probably because the material used came from close to the pulp cavity where the ivory is slightly softer and more susceptible to staining from make-up or perfumes, or even from natural body oils. I advised the client not to try to clean the necklace as in doing so it could easily be ruined.



4: Curved back of the pendant, carved from near pulp cavity.



5: Beads discoloured by contact with make-up or scent.

Ivory can become discoloured and this should generally be regarded as part of the individual item's patina.

## FUTURE

So ivory is fascinating and beautiful and tactile, but what about the conservation status of the various animals today, and their future?

We know that the number of elephants being killed illegally for their tusks equates to between four and five elephants every hour. Whole herds are wiped out by gunfire from a helicopter, which then lands, the tusks are brutally removed and the helicopter takes off

again before any game warden has a chance of arriving on the scene.

Today there are many suggestions regarding how to deal with the situation. One is to burn all stockpiles and to ban all sales of ivory, in an effort to stop the trade. Others say that it would be unenforceable, would drive the value of ivory up, and might drive trade even further underground.

Because ivory is such a valuable commodity, another suggestion is to flood the market with ivory by selling all the stockpiles, causing the price to drop dramatically and the poaching to cease because it is no longer profitable. This could work, but what when the stockpiles run out?

Whichever solutions are used, it is generally accepted that education is the real, long-term answer. The people financing the poaching know what they are doing, but the ones buying the trinkets generally have no idea of the animals' plight. People in China have no idea that the elephants are killed for the ivory. People in Thailand do not realize that their elephants are in grave danger of becoming extinct.

Ivory is an emotive subject, but one that should be addressed, not ignored. ■

All photos © Maggie Campbell Pedersen

## WILLIAM (BOBBY) MANN

It is with sadness that we report that William (Bobby) Mann passed away on 20 July 2015, aged 78, following an illness. He will be greatly missed.

Bobby was a renowned ivory expert in the U.S. Originally a firefighter, he retired as captain of the Washington D.C. force after 28 years of service. His hobby of looking at jewellery in antiques markets led to his studying gemmology and subsequently qualifying in the early 1980s. From there he went on to specialize in ivory. In 1996 he co-founded the International Ivory Society, and for the past 20 years ran ivory identification workshops. He was past president of the National Capital Area Chapter of the International Society of Appraisers and president of the Washington D.C. Chapter of the Gemological Institute of America Alumni.

Bobby loved everything to do with ivory. He had a magnificent collection of worked and raw ivory and ivory simulants. He was generous with his time and his knowledge, and always willing to share both. His help and advice were invaluable to me over the years, especially during the last few years when I was working on my book on ivory. He introduced me to various experts in the field, as well as answering lots of queries himself. It is a great sadness to me that he did not live to see the finished work in which he had taken so much interest.

For many years gemmologists have had to rely on ivory identification books in black and white, but about three years ago Bobby produced two in colour: a pocket-sized book entitled *Ivory Identification — A Photographic Companion*, and a slim, A4 format book *Ivory Identification — a Photographic Reference Guide*. At least one of them should be on every gemmologist's bookshelf.



MCP



# Gem-A

THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN

## Gem Central: Maggie Campbell Pedersen talks ivory

Tuesday 15 September 2015

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

World-renowned organic gems expert Maggie Campbell Pedersen FGA will be talking about the elephant on the trading floor: ivory. A specialist in organic gems, Maggie is the author of the newly-published *Ivory* (2015) and *Gem and Ornamental Materials of Organic Origin* (2010).

Students and Corporate members: Free

Members: £5

Non-members: £10

**Don't miss out — contact [events@gem-a.com](mailto:events@gem-a.com) to book your place now.\***

\*Please note this is a specialist evening and must be booked in advance.

## rock, gem & bead shows 2015

19th/20th September Rock Gem 'n' Bead Newark Showground

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

have you subscribed?  
[rockngem-magazine.co.uk](http://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 £5.50, Seniors £3.00 • Children £1.00 (8-16 years) under 8s free  
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](http://www.rockngem.co.uk) [info@rockngem.co.uk](mailto:info@rockngem.co.uk)

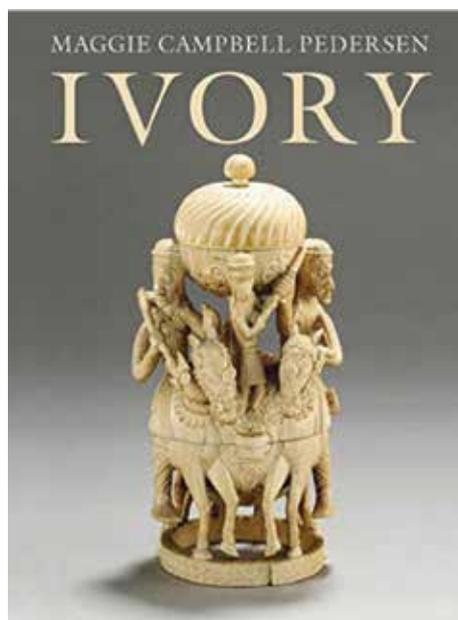
# Ivory

Maggie Campbell Pedersen FGA is a world-renowned expert in organic materials and their use and identification and is perhaps best well-known for her work and expertise in the field of ivory. With this new book she sets out to enlighten the reader on this sometimes controversial field, and shows how, over the ages, ivory has played a major part in many religions and countries.

The book is split into three simple sections, entitled 'What and where', 'How and what' and 'Where and when', which deal with types of ivory and sources, simulants and tests, and historical aspects respectively.

The first section covers the many sources of ivory; it is not solely the domain of the elephant, but that many other animals provide raw materials for carvings — amongst the more well-known are walrus, mammoth, narwhal and warthog, but few people realize that in areas where these are not available, sources can include whale tooth (killer and sperm whales), as well as teeth from deer, bear, crocodile and even wallaby. On top of these, certain localities used human teeth for adornment purposes. Maggie highlights the current trade restrictions for each of these, and the endangered status of each animal.

The second section, 'How and what', provides an overview of the testing techniques available for ivory (which can often be applied to most organics), and shows the limitations of such methods. Observation is key to this, as Maggie often says, along with experience, but there are a few testing methods that can be applied, such as UV light. On a more technical note, she explains how modern lab equipment can be used, not only to identify the material as ivory, but also to determine the species it originated from. Gemmological techniques such as FTIR and Raman spectroscopy have their place, but more advanced specialist methods, such as testing for isotopes, carbon 14 dating, and zooarchaeological mass spectroscopy (ZooMS) are being employed — the latter being used mainly in older artefacts, to date and categorize historic pieces and provide an insight into the sources and uses of ivory through the ages.



## **Ivory**

By Maggie Campbell Pedersen  
Robert Hale Ltd, 240 pages  
ISBN-13: 978-0719800535  
RRP: £45.00

'How and what' also covers a range of the simulants and imitators of ivory, from the earliest to the most recent, and, according to some, most convincing. Natural materials such as bone, antler and even hornbill are covered, with the relevant differentiating features noted, but Maggie also pays attention to the man-made imitators as well. Plastics, such as casein, celluloid and epoxy resins are covered, with the latest addition of Elforyn, which is a combination of plastics and minerals which has been specifically created to imitate ivory (the formula is being kept a closely guarded secret). From information provided and researched during the writing of this book, Maggie states that this new material feels like, and can be worked in a very similar way to, true ivory, but luckily there are sufficient differentiating features enabling the two to be differentiated.

The closing section of this chapter covers the fashioning of ivory. Over the years a variety of techniques have been employed to enhance the features and bring out the best from any tusk, and to showcase the ability of the carver in producing the intricate

details that this easily workable material is capable of allowing. Ivory carving dates back over 40,000 years, from the earliest pieces, up to modern carvings, utilizing the latest tools, but this is by no means the only method employed. Once suitably trimmed, ivory can be turned on a lathe to produce columnar features or vase style pieces, and can also be used for marquetry styles, the most skilled of these being Khatam kari. This middle-eastern technique produces an effect similar to a very fine mosaic, with geometric patterns.

The third and final section of the book covers the 'Where and when' of ivory — from prehistoric times (earliest carvings dating back some 40,000 years) up to modern times. Maggie approaches this in a logical, geographical manner, rather than chronologically, discussing each area (which include unexpected areas such as Egypt and Japan, where you might not expect ivory to feature) and highlighting the main developments and cultural influences of that region, before moving on to the next locality. By using this approach, the reader is able to make links between different cultures, and see how ivory's use has been globally influenced.

To close, Maggie has included two brief appendices and a glossary. The appendices cover the different types/sources of ivory, with both cross-section and longitudinal features, and a flow chart to help with the differentiation of the different materials. Following these is a comprehensive glossary of terms.

In a market full of gemmological texts, this stands out as a refreshing change from the norm. Physical constants and standard test results are shunned in favour of observation (although they are mentioned for advanced testing purposes).

Organics, and ivory in particular, cannot be tested with standard means, and this book provides the key observational features that will enable the reader to gain experience with this very tactile and beautiful material. This is a very welcome addition to any gemmologists library.

**Andrew Fellows FGA DGA**

# Tino Hammid

Tino Hammid, renowned gem and jewellery photographer, sadly passed away on 11 July 2015 at his home in Los Angeles.



Tino Martin Hammid, one of the most respected and admired gem and jewellery photographers, passed away on 11 July after a two-year battle with cancer.

Tino Hammid was an internationally-renowned photographer whose work had appeared in jewellery books, museum and auction catalogues and countless major international jewellery magazines, in titles such as *Jewelers Circular Keystone*, *Modern Jeweler*, *Rocks and Minerals*, *Gems & Gemology*, *The Journal of Gemmology*, *The Handbook of Gemmology*, Christie's Auction House, The Smithsonian Institution, The American Museum of Natural History, and many more. If you had an important gem or jewel, Hammid was the photographer you would call to capture its beauty on film. His iconic images, with the uneven silver-grey background, bright spotlight with dark shadow and beautifully framed gem or jewel, were unmistakably 'Hammid'.

I first met Tino when we were both working at the Gemological Institute of America (GIA) in Santa Monica, California. Tino worked in the Gem Media department from 1980 to 1982 as a staff gem photographer, along with gem photographers Mike Waitzman and Mike Havstad. He was energetic, always interested in what the gemmologist was looking for in a particular gem, and had an eye and an ability with the camera to capture it.

Tino quickly moved on and found his way to a freelance career in gem and jewellery photography, which included a 25-year association with award-winning journalist and gemstone editor David Federman, mainly providing photographs for *Modern Jeweler's* monthly 'Gem Profile' column. The images were iconic. For gemmologists and gem lovers, when the latest issue of *Modern Jeweler* arrived in the mail, Gem Profiles was the first feature to be viewed and read.

**If you had an important gem or jewel, Hammid was the photographer you would call to capture its beauty on film.**

During this period Federman and Hammid won two Jesse H. Neal awards — the most prestigious editorial honours in the field of specialized journalism and the Pulitzer equivalent for editorial writing — from the Association of Business Publishers. *Modern Jeweler* capitalized on the duo's awards by publishing two hardbound books with Federman's and Hammid's Gem Profiles — the perfect addition to a retail jeweller's library.

In 1987 Tino acquired Christie's auction house as a major client, photographing more than a hundred of their jewellery sales catalogues in Hong Kong, New York and Geneva. Like all of Tino's work, the images made the jewels come alive, and helped not only to sell the gem or jewellery, but to sell the catalogue itself.

If you look back at gem and jewellery books and magazines from the past 33 years, you will find that Tino Hammid had contributed photographs to so many titles. His last contribution was to *The Handbook of Gemmology*, a collaboration with

gemmologist Geoffrey Dominy. Created as a DVD, the handbook has quickly become one of the most popular gemmological texts in the industry, and showcases Tino's gemstone images. Tino enjoyed working on this project as it had the format to easily expand and edit text, expanding the number of Tino's images as well, all without increasing any publishing costs.

When I last spoke with Tino, just before the Tucson gem and mineral shows in February, he mentioned that he wasn't able to attend the shows due to low resistance/high risk to infection from chemotherapy. He was trying some fairly aggressive treatments for those with stage IV colon cancer. We shared a few Tucson stories, I sent images from the show, and we tried to make light of the situation. We ended the conversation by talking about meeting up in Tucson next year — I think we both knew that was not going to happen.

His gem and jewellery images will live on. Rest in peace Tino.

**Gary Roskin FGA**



*The Hope Diamond. Photo © Tino Hammid*

Tino will be deeply missed by all at Gem-A. Our thoughts and condolences go out to Tino's family and friends.



# Gem-A

THE GEMMOLOGICAL ASSOCIATION  
OF GREAT BRITAIN



## Polish your knowledge

Are these diamonds or synthetic moissanites?\* If you're not sure, sign up for our world-famous **Diamond Diploma**, one of the most comprehensive and valuable diamond qualifications worldwide.

You will gain a thorough understanding of diamonds and how the diamond market operates; learn about diamond grading, the 4Cs and the other factors that influence value; study the factors that affect a diamond's appearance and properties; and will learn how to identify and recognize imitations, synthetics and treatments. Our Diamond Diploma graduates can apply for Membership, entitling them to use the prestigious **DGA post-nominal letters** – a mark of excellence in the trade.

For more information or to sign up contact [education@gem-a.com](mailto:education@gem-a.com).

Start date: **8 September 2015**

(four month evening course, classes on Tuesday and Wednesday evenings)

End date: **January 2016**

Price: **only £2,750**

\* They're diamonds.

### *Understanding Gems*

Join us.



The background of the advertisement is a collection of various gemstones and jewelry. There are several necklaces: one with large, irregularly shaped, multi-colored stones; one with blue and white pearls; one with blue and white pearls and blue stones; one with blue and white pearls and blue stones; one with blue and white pearls and blue stones; one with blue and white pearls and blue stones. There are also many loose gemstones of various colors and shapes, including blue, green, yellow, orange, red, purple, and pink. Some are faceted, some are smooth, and some are in various cuts like round, oval, pear, and rectangular. The overall theme is high-quality, diverse jewelry and gemstones.

IJL  
INTERNATIONAL  
JEWELLERY  
LONDON

Join us at  
STAND E111

MARCUS MCCALLUM FGA  
PRECIOUS STONES, BEADS & PEARLS

A wide range of precious and semi-precious stones,  
beads and freshwater pearls, personally selected  
from around the world.

Unusual stones a speciality.

ROOM 27-31, NEW HOUSE  
67-68 HATTON GARDEN, LONDON EC1N 8JY  
TELEPHONE: +44(0)20 7405 2169  
FACSIMILE: +44(0)20 7405 9385  
email: info@marcusmccallum.com  
www.marcusmccallum.com