Gems & Jewellery

Aug/Sept 2013 / Volume 22 / No. 6

Amazing amber

Meteorite hunting

IJL and Munich show previews

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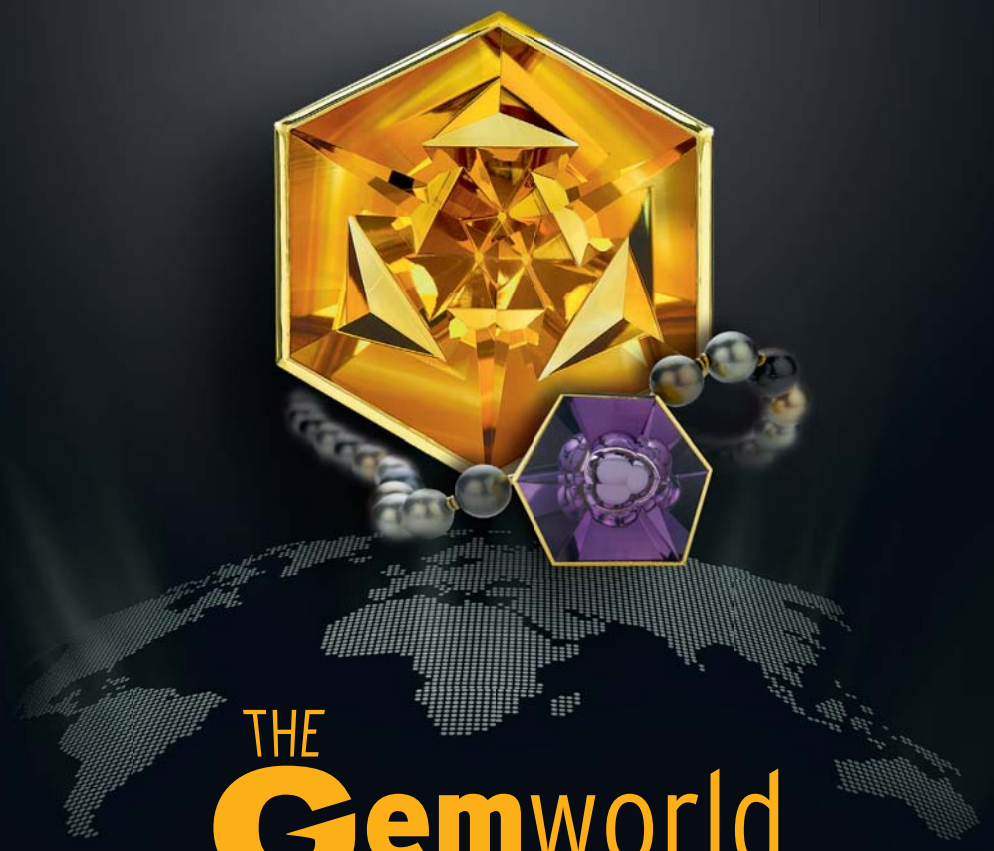

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Photo: Atelier Tom Munsteiner

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Editorial

Gems&Jewellery
Aug/Sept 13

Contents

And it's (almost) goodbye from me

International Jewellery London (IJL) 2013 starts soon (see page 20). It will be my tenth as part of Gem-A's team. The first was a sort of teaser/trailer to my taking up the position a few weeks later as CEO in November 2004. I assume it was felt that a bit of advance exposure might be useful for all. This coming IJL will be my last. Having stepped down as CEO just over a year ago, I have stayed on as editor of this magazine and as an International Ambassador representing Gem-A at various events worldwide. Now, as from the end of September, I leave Gem-A completely to play the banjo, write books and continue with the specialized consultancy work that has sustained me through most of my working life.

It has been an interesting nine years. A lot has changed. Gem-A's market and global reach has grown, courses have been updated and we are producing an increasing number of graduates who realize the uniqueness and international prestige of our qualifications. But frustratingly a lot hasn't changed. Poor if not downright dishonest gem descriptions still abound around the world and far too many of those in the industry remain not only in blissful ignorance of developments in treatments and other challenges, but seem convinced they don't need to know about them. It can make you laugh and cry — at the same time sometimes — as when Gem-A tutor Cara Williams reported, on Gem-A's *GemTalk*, on a catalogue description of green amber and silver jewellery which explained to customers that "green amber gets its lush, mossy hues from ancient seaweed deposits".

If you can't educate the sellers, next best is to educate their customers to ask the right questions. That's why JTV's concept of a gem conference aimed as the public is an interesting one (page 6). It ties in with the Gem-A/JTV GemBasics course and one of the mantras of modern jewellery and gem selling — whether from a high street shop or a website, selling is now a package in which a purchase is partnered by information and interaction. Such interaction is often web-based today, for example via Facebook. Facebook is also one of the primary ways in which Gem-A now stays in touch with students and members. Strange to think that it started the same year that I joined Gem-A.

I'll be back for one more outing as editor here — before I go I will have finalized the October issue — but in the meantime I hope to see many of you at IJL and at the September Hong Kong Show.

Jack Ogden

Cover Picture
Tiny pinpoint particles in a Tanzanian spinel (see page 12). Photomicrograph by Christopher P. Smith.

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Gem-A news

Gem-A CEO James Riley FGA gives a round-up of what's happening at Gem-A.

Home Sweet Home

As summer draws to a close, 21 Ely Place is just about shipshape and Bristol fashion ready for the start of the teaching year in September. The final touches are being made to the library which, some 58 years after its creation, will once again be known as the Sir James Walton Memorial Library.

Sir James Walton was an eminent surgeon specializing specifically in lung disease. He was surgeon to Kings George V, Edward VIII and George VI. One of his achievements was to understand the importance of atomic lattice structure of minerals when dealing with diseases caused by mineral dusts. It is hardly surprising that in his retirement when he took up the study of gemmology he was an expert on crystallography and wrote a very good volume on *Physical Gemmology*. He passed the Diploma in Gemmology with distinction and was President of the Gemmological Association as well as Chairman of the NAG (I think one of the very few if not the only non-trade individual to hold that position). He bequeathed his library to the two associations which in its day was one of the finest and most comprehensive collections on jewellery, gemmology and horology.

The library was split in 1990 with the separation of the two associations but now, thanks to the Board of the NAG, the full collection will once again be on view and accessible for members of both associations as well as the general public (the latter by appointment). In addition, the books belonging to the South West Trust will also be on display. These comprise the collections of Ron Yeo and Eric Bruton.

If anyone has any books they would like to donate, please feel free to contact me. I would like to thank Johnny Roux, formerly of De Beers and a major contributor to the Diamond Diploma notes, for his recent donation of books and papers on diamonds.

To coincide with the completion of our move we will be holding an official opening event at 21 Ely Place between 6:00 and 8:30 pm on Tuesday 3 September. I hope that many of you will be able to drop in to join us in cutting the ribbon and to explore the new facilities. For those of you who can't make it, we are always pleased to welcome you at any time, but many of the rooms will be in use. The building will also be open during our conference in November.

Details of the conference can be found in the Calendar opposite but yet another highlight is that Martin Rapaport is joining us both as a speaker at the Conference and to present the diplomas and give the address at our awards ceremony. In this, the 50th anniversary of the Diamond Diploma, I can think of no one better.

Welcome

September will see two new members of staff at Gem-A. Miles Hoare will already be known to many of you not only as a contributor to *G&J* but also in his PR work for the NAG. Miles will be joining us specifically to work on social media and the development of our new website. As the world becomes smaller with the development of IT we are finding that increasingly members are communicating with us and each other through relatively new mediums. We aim to make your experience as simple and easy as possible, so if you have any ideas of what you would like to see please contact Miles at miles@gem-a.com.

Julia Griffith, a former Bruton Medal winner, will join us as an intern to work on the historical and educational book and stone collections. She will also be assisting the teaching staff.

Both will be at IJL so please do come and say hello!

Show time!

The autumn show season is upon us. Gem-A will be exhibiting at IJL, the Hong Kong Jewellery and Gem Fair and Gemworld Munich. Add to this the IRV conference at Loughborough and our own conference and it will be a busy few weeks. Some members ask me what the value of us attending these events is. All of them showcase our offering to the wider trade community and generate new business in terms of students for courses and sales of instruments. They also provide a tremendous opportunity to interact with you the member, especially those of you outside the UK. It's your

association, so we are always pleased to meet you and hear your views about what we should be doing. Shows also give us the chance to see new developments in the trade, be it new treatments, cuts or marketing techniques. We aim to share our experiences with you and I would encourage all of you to do the same — reports from events we have been unable to attend are always welcome, so drop me a line.

What's in a name?

I have already aluded to the name of the library here in Ely Place. This brought us to thinking about what to call the teaching rooms. Rooms 1, 2 and 3 seemed a little bland and calling them 'Foundation' or 'Diploma' again seemed a bit flat. What better then to name them after perhaps the most influential figures in their respective areas who caused the association and its courses to be what they are today. As is always the case, there are a number of individuals to choose from and there is bound to be some discussion, but I think the following will meet with approval.

Our Diploma classroom will be known as the 'Herbert Smith Room'. Herbert Smith was President of the Association for many years, and was arguably the father of the Diploma in Gemmology which is celebrating its 100th anniversary this year. We even have his portrait to grace the room!

The Foundation classroom will be the 'Robert Webster Room'. A tutor for many years and recipient of the Research Diploma in 1946, Webster worked in the Gem Testing Laboratory and wrote numerous books such as the *Gemmologists' Compendium*, *Practical Gemmology* and *Gems*.

The Diamond classroom is to be the 'Eric Bruon Room'. Founder of the *Retail Jeweller* and author of numerous books including *Diamonds* Eric Bruton was responsible for bringing the Diamond Course to London in the late 1960s and writing the first course notes.

Our Advanced Teaching room containing advanced testing and lab equipment will be named the 'Basil Anderson Room'. As the stalwart of the Gem Testing Laboratory and Gem-A's chief examiner, Anderson was one of the leading figures in gemmology of his generation.

New courses

As a result of presentations at the CIBJO Congress in Tel Aviv followed by discussions during my visit to Melbourne Gem-A will shortly be offering courses in Corporate Social Responsibility (CSP) together with Branded Trust. These starter courses will introduce the indiviual to the concept of CSR and show them how to apply it to their business. The first course will be in October and the availability will be rolled out across Gem-A ATCs with the full backing of CIBJO. Anyone interested in the first courses should contact me directly.

So long, Jack

Some of you may already know that Dr Jack Ogden will be leaving at the end of September. The next issue of *Gems&Jewellery* will be his last as editor and I'm sure he will sign off in his own unique, inimitable way. Jack, as chief executive of both Gem-A and previously the NAG has had a great effect on both associations, not to mention their publications. His contribution to the study of jewellery and the trade in general is significant. He has also been a great ambassador for our trade and the UK. Jack has said he will continue to contribute to these pages and I'm sure he will be at many events in the future. However, for now, I would like to thank him both on behalf of the members and the association, and also personally; his friendship and advice have been invaluable to me.

Gem-A Calendar

Gem Central and Career Service evenings

Gem-A regrets that Gem Central and Career Service evenings have been cancelled until the autumn, with the first planned for 9 September. We apologize for any inconvenience caused, but this is due to our sudden move to our new headquarters at Ely Place. We look forward to inviting you to events in our new home and will announce dates as soon as possible. For further information please contact: events@gem-a.com

The Gem-A Conference 2013

2 and 3 November,
Goldsmiths' Hall, London

A two-day conference to celebrate the 100th anniversary of the first Gemmology Diploma to be awarded and the 50th anniversary of the Diamond Diploma.

Confirmed speakers include John Bradshaw, David Callaghan, Dr John Emmett, Arthur Groom, Brian Jackson, Dr Jack Ogden and Gary Roskin.

For further details go to: www.gem-a.com/news--events/events/gem-a-conference-(1).aspx

Show Dates

Gem-A will be exhibiting at the following shows:

IJL London
1 – 4 September 2013, Stand J94
Gem-A is proud to be a sponsor of IJL

Hong Kong Jewellery and Gem Fair
13 – 17 September 2013
CEC Booth 3M046

Gemworld Munich
25 – 27 October 2013

Gem news

Looking forward to the AsiaWorld-Expo and back at the Gem Lovers' Conference

An iconic view of Hong Kong at night taken from the Star Ferry and looking back towards the Convention Centre. Copyright Gem-A, photo Jack Ogden.

Hong Kong

This year's September Fair, described as the world's number one fine jewellery event, will be held from 11 to 15 September at AsiaWorld-Expo (AWE) and from 13 to 17 September at the Hong Kong Convention and Exhibition Centre (HKCEC). This year is the 30th year of the show and will feature more than 3,500 exhibitors from 48 countries and regions. It is expected to bring in around 52,000 visitors from around the world — quite a change from the first show held in a hotel ballroom in Hong Kong with 100 exhibitors. Visitor pre-registration is now available and the Fair Mobile App should now be available for download at www.jewellerynetasia.com.

The September Hong Kong Show is one of Gem-A's best international venues and we will be there again, booth 3M046 in the Convention Centre (CEC).

Gem Lovers' Conference

Gem-A was well represented at the JTV Gem Lovers' Conference held in Knoxville, Tennessee from 10–12 July. Billed as 'Three Days of Nothing but Gemstones', this unique event was aimed at gem enthusiasts among the public rather than gemmologists or the trade. This targeting of the public with gem and gemmological information is all part of the trend in modern selling, which encourages the provision of pertinent information to customers, and the opportunity for customers to interact with each other and staff. It is interesting to note that a major TV/online selling organization sees the benefit of arranging a 'bricks and mortar' venue for face to face interaction, while most wise 'bricks and mortar' sellers encourage such interaction online, typically using Facebook. The old mantra that a satisfied customer is your best salesperson is even more applicable today across all types business, and far easier to propagate.

In addition to Gem-A's Andrew Fellows, Claire Mitchell, Jack Ogden and James Riley, and JTV's own experts, speakers included Steve Arnold ('The Meteorite Man'), Gaetano Cavalieri (CIBJO), Terry and Cindy Chandler (Diamond Council of America), John Dyer (award-winning gem cutter), Patty Geolat (estate and vintage jewellery expert), Hayley Henning (The Tanzanite Foundation), Antoinette Matlins (gem and jewellery expert and author) and Shane McClure (GIA). A wide range of gems were on show — available for purchase — including a large selection of John Dyer's cut stones and specimen examples of rough gems, including some remarkable tanzanite crystals. Also of course there were the popular bargain bowls of inexpensive gems and rough, some for under 50 cents a carat, which attracted participants including a few that showed remarkable patience and persistence in sorting through the thousands of gems in search of something special. The event was also a perfect opportunity to market the GemBasics introductory gemmology course written by Gem-A for sale by JTV.

Inexpensive apatite rough among the bargain bowls of gems at the JTV Gem Lovers' Conference. Copyright Gem-A, photo Jack Ogden.

Pennies from heaven: a market for meteorites

Meteorite hunter Steve Arnold explains his profession and passion to Jack Ogden.

Early on 15 February this year a previously undetected 10,000 ton meteorite entered the Earth's atmosphere over Chelyabinsk Oblast in the southern Ural region of Russia. It was travelling at more than 40,000 mph and brighter than the Sun but then, still almost 15,000 miles above Earth, it exploded with an enormous shock-wave and flash of light. It also produced a huge shower of meteorite fragments. Want to buy one? Ask Steve Arnold with whom I caught up in Tennessee in July. Steve describes himself as a meteor hunter and has co-starred with Geoffrey Notkin in the popular Science Channel TV show *Meteorite Hunters* which has completed three seasons, and has taken its two presenters to remarkable places — including North, South and Central America, Australia and, yes, Russia.

One can understand the allure of these bits of heavenly body, but how does such a passion start? Steve, who had originally studied business administration, told me that with him it all began with a book on metal detecting. He went to the library of the Kansas Historical Society to research places where he might discover things and was intrigued to learn about a local meteorite. The realization then struck that meteorites could be picked up with a metal detector and that was it… he had found a fascinating way to earn a living and which, over the last 21 years, has taken him to some amazing places.

He showed me some examples of his inventory. It covered a wide range, and not just typical iron meteorites. There was a piece of moon rock. Not a bit of rock brought back from the moon, but a slice from a 760 g meteorite (officially called 'NWA 6355' in the Nomenclature Committee of the Meteoritical Society) that had been found in the Sahara in 2009 and proved to be a felspathic breccia blasted from the moon's surface by comet or asteroid impact. He had several samples of indochinite, a type of tektite natural glass found on the Indochina peninsula and around the Pacific region. This is black, not green like European moldavite. There were also pieces of the pale yellowish 'Libyan desert glass' — the same material as had been carved into a scarab amulet for the centre of one of Tutankhamun's pendants.

Steve Arnold (right) with Geoffrey Notkin and a meteorite discovery in Kansas. Photograph by Sonny Clary © Aerolite Meteorites

As noted, metal detectors can be used to find meteors — and repeatedly since metal detectors are becoming increasingly powerful, so new ones can be used to advantage over areas previously investigated. But the meteor hunter also has other ways of sniffing out his prey. If some finds from a particular meteor shower are known, trajectories can be calculated and likely find sites identified. Meteorites also show up on radar which allows the place where they land to be worked out, but, as Steve cautioned, wind plays a significant part. Even CCTV security camera footage has proved useful. And, of course, there is the oldest approach — the eyewitness reports that range through history. Even Aboriginal legends have proved fruitful.

This is a reminder that picking up and trading meteorites is nothing new — there are ancient Egyptian beads made of meteoric iron and, as Steve explains, fragments of meteorite from Brenham, Kansas, have been found in native American burial mounds in Ohio incorporated into earrings.

Steve also showed me a piece of the so-called Gibeon Anvil, a slice from a 51 kg meteorite found in Namibia. This was one meteorite among the thousands recovered in the region from the breaking up of an iron asteroid in prehistoric times. Remarkably, when sliced the Gibeon Anvil was revealed to have a structure that shows it was extensively hammered — it had been used as an anvil by local tribespeople, perhaps many centuries ago.

Steve speaks with knowledge and enthusiasm as he recounts adventures and finds. Among the latter was the largest known fragment from Brenham — a pallasite meteorite weighing 650 kg. This attracted a lot of media attention and led to the TV series. Indeed the 2009 pilot for the series included a section on pallasite meteorites which ended at the Gemological Institute of America where John Koivula FGA explained how one could distinguish extra-terrestrial olivine found in pallasitic meteorites from terrestrial olivine. Steve told me that he was now also aware of fake pallasite originating in Russia, proof that even in the rarefied field of meteor hunting gemmological skills can be useful.

For more information visit:
http://www.meteoritemen.com/

Big gem trend

Following his visits to BaselWorld 2013 in March and the JCK Las Vegas Show in June, in this issue Gary Roskin FGA talks about the trend this year towards larger wearable gems.

Don't misunderstand the title, there's nothing wrong with small jewels. But BIG seems to be the operative word these days as we have seen more than our fair share of large beautiful and important gems brought into the jewellery world.

To be clear, it's not just about size. Anyone can go out and find a large crystal, slap a few facets on it and call it a gem. But it's quite something else to find a large gemmy faceting-quality crystal, with saturated and pleasing colour, and then meticulously cut and polish it into a work of art.

From museum showcase to wearable jewellery

Of course, we could talk about Crown Jewels and other museum delights but, for the *Gems&Jewellery* connoisseur, let's bring size down to something a bit more affordable and wearable. This of course takes us to the most recent gem shows and the gems that we have for you here.

Pearls

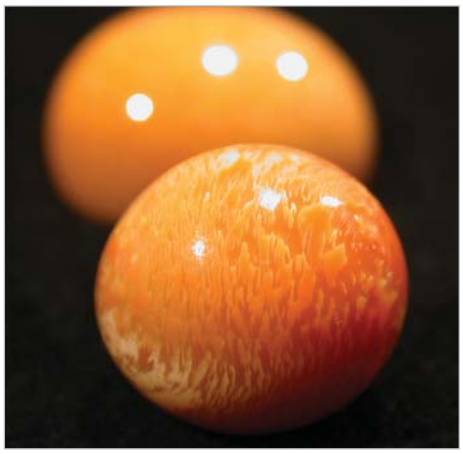
It wasn't that long ago that single Australian white South Sea cultured pearls were impressive at 18 and 19 mm. But when you see Australia Pearls' display (*below*)

with a suite, a necklace and earrings layout of 25 impeccable 19 to 17 mm whites, perfectly round, very high lustre, with very few blemishes, we know that Mother Nature is outdoing herself.

Moving east to the French Polynesian Islands, the same phenomenon is happening. Cultured Tahitian black pearls used to be considered 'big' at 12 to 13 mm. From Gellner, they were more than willing to model the incredible pearl ring seen *top right*, set with a 20.6 mm round, very high lustre, no blemishes, dark grey pearl with a rainbow of iridescent colours. The ring is platinum, accented by diamonds.

Not pictured here, we were amazed to see Alain Boite holding a matching trio of 19 mm dark grey, very high lustre, no blemishes, Tahitian cultured pearls. While a pair would be considered an incredible match at this size, finding three is simply unheard of… well, until now, of course.

Jumping from saltwater into the freshwater ponds of China, Daniel Vecht of London Pearl displayed an incredible assortment of bead nucleated drops. *Left* he is pointing to a pair of drops measuring, 20 by 40+ mm.



Dom Pedro

For the extremely large, and in this case not wearable, look at the recent donation of the 'Dom Pedro' to the Smithsonian Institution's Museum of Natural History's Gems & Minerals Hall in Washington D.C. The Dom Pedro is a fabulous aquamarine that stands 35 cm tall, 10 cm wide at the base and weighs 10,363 ct. There is an exciting history of how Tom Munsteiner and Axel Henn purchased the rough aquamarine crystal, and brought it back to Germany for Bernd Munsteiner to create the incredible obelisk. Thanks to the generous gift by Jane Mitchell and Jeffery Bland, the Dom Pedro now stands before thousands of visitors to the museum every day. It truly is one of those beautiful magnificent BIG gems. While we'd all love to wear fabulous big gems, we are very thankful that this one was not sawn into smaller wearable pieces.
http://mineralsciences.si.edu/collections/dom-pedro/index.htm

Gems and Minerals

In the natural pearl category, the *Melo melo* pearls from Ambra Greco of Milan were stunning as shown on the previous page, with this 27 mm, 45 ct 'ball of fire'. This was one of the smaller gems in a necklace containing one thousand carats of *Melos*. The name of the necklace — as you may have guessed — is called 'The Thousand Carats Necklace'.

Tanzanite

As rare as it is with only one known major deposit in the world, I am constantly surprised to see such vast quantities of very fine quality tanzanite offered in the trade. However, it takes a sight holder like AG Color to really bring out the best of the best. Last year, we saw Sanjay Phophaliya offering a magnificent — and wearable — 400+ carat cushion cut. This year, brother Hemant was displaying a pair of briolettes with a total weight of 40.76 ct, alongside a pear shape weighing 60.53 ct *(below)*.

Spinel

There have been some amazing colours of fine quality spinels seen over the past few years, but nothing screamed so loudly as this 71.42 ct vivid red cabochon from Cicada Jewelry, New York (*top right*). The modern platinum necklace suspending the Burmese spinel was made up of over 53 ct of old-style cushion-cut diamonds.

Morganite

There seems to be a fascination with morganite, the peachy coloured beryl. We have seen only a small handful of very fine colour pinkish-orange, orangey-pink morganites, with most having more brown

or yellow primary coloration. On the affordable side of large, Ruppenthal was displaying the trend, with a fine — and large — very slightly brownish, orangey-pink pear-shape morganite, in a better than average quality — great lustre but noticeable blemishes — Tahitian cultured pearl and diamond necklace seen below.

Ametrines

I don't believe I have ever seen quite as an amazing suite of ametrines as the one presented in Las Vegas by the Sabbagh Brothers, Brazil. Beautiful crystals (*below*), with the perfect carving to accent the colour division, from back left to right, weighing 164 ct, 144 ct and 165 ct. In the front row, the stone on the left is 140 ct, on the right 114 ct, and in the middle, the largest — and wearable — ametrine weighs in at 255 ct!

Brazilian rubelite

I have always wondered how, or if, we are ever going to know completely whether or not the colour of rubelite — the red tourmaline — is actually untreated, natural colour. Getting huge assurances from the owners of the Miranda Group that these are indeed all Mother Nature's doing, the trio of rubelites we saw weighed 19.91 ct (pear shape), 88. 42 ct (oval) and the cabochon weighing 99.38 ct! "Absolutely no heat and no irradiation!"

Aquamarine

Have you noticed lately that everyone seems to have 'original Santa Maria aquamarine' material? I tend to look at country of origin this way; if it looks great, buy it and wear it. If we can prove the country of origin — great. That's the added benefit. And we do know the origin of these three gems. From Nomads, we have three fabulous blue gems – a 12 x 10.5 x 10 mm triangular cushion Vietnamese deep vivid blue spinel, a fabulous

The best for last? Padparadscha.

Marc Princ certainly had a beauty, a 28.24 ct no heat, Sri Lankan Padparadscha sapphire (*right*). The colour was spot on, with a terrific blend of pink and orange, not too saturated or dark. And definitely wearable. Whether or not it was affordable though, now that is the question. This was one of those pieces that I would say, "If you have to ask how much, you probably can't afford it." (Just so you know, it was definitely 7 figures!)

Cambodian medium-dark blue zircon and then the aquamarine — of Indian origin, a fabulous deep very slightly greenish blue, 27.9 x 21.1 mm emerald cut weighing 66.86 ct (*all shown above*). That's my birthstone — I could wear that.

About the author

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

Recent Events

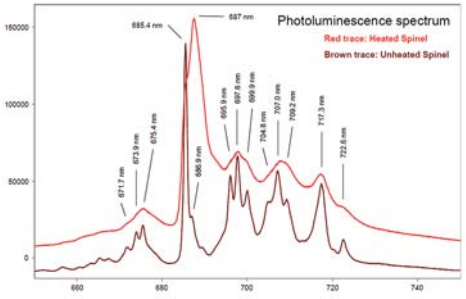
The Scottish Conference

At the The Scottish Gemmological Association Conference 2013 at The Hydro, Peebles, in May, keynote speaker Chris Smith, president and owner of the American Gemological Laboratories (AGL), gave presentations on both spinel and tanzanite. Here are the summaries of his talks.

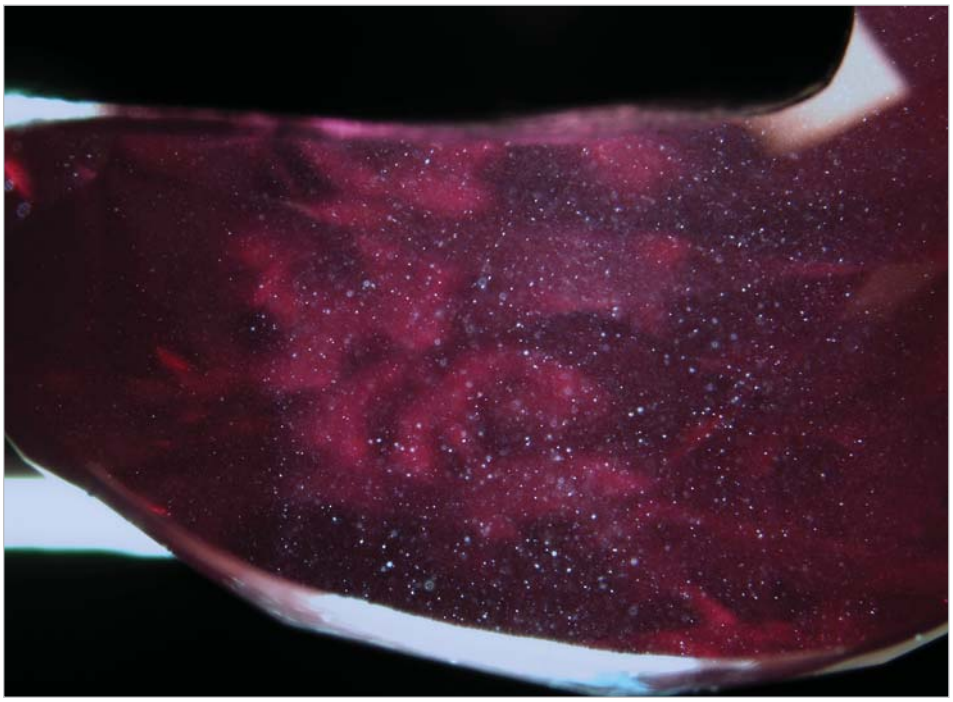
Spinel

This gemstone has had a long and illustrious history with famous examples including two in the English Crown Jewels (The 'Black Prince's Ruby' in the State Crown and 'Timur's Ruby' set in a necklace) and that in the Imperial Crown of Russia ('Catherine the Great's ruby'). Although Arab gemmologists were aware early on of the distinction between ruby and spinel, Chris suggested that the fall in esteem of spinel in the west was the result of this distinction being recognized in Europe in more recent times. However, there is now a revival and over the last 10 to 15 years spinel has become popular and prices are rising, a revival fuelled in part by the large rise in ruby prices.

The main regions that provide spinel are Asia and East Africa. Sri Lankan spinels, which tend to be a deep pinkish red were probably the first known, but Tajikistan spinels were in use by the Mughal period. The Tajikistan spinel deposits, rediscovered in recent times, provide spinel of a consistent fine purplish pink. Red spinel is also found in Mogok, Burma, and Chris suggested that, on the basis of colour, this area may have supplied the so-call Black Prince's Ruby.



When spinel is heated above approximately 750°C, a disordering of the lattice may be recorded using photoluminescence spectroscopy. The strongly structured chromium emission bands become significantly broadened, with a shift in the position of the primary emission band.



The transparency of some Tanzanian spinels may be improved by heating in the relatively higher temperature range of 950 to 1150°C, which reduces the concentration of tiny pinpoint particles. Photomicrograph by Christopher P. Smith, AGL.

In East Africa, spinel was first discovered in Tanzania in the 1970s, but from 2007 onwards provided some very fine spinels which greatly impacted the market. The colour of the East African spinels is not quite as good as Burmese reds and pinks, and those from the Mahenge district tend to have clouds of particles and planar dislocations.

In the late 1980s spinel was discovered in Vietnam at Luc Yen. After a decrease in exports, production here is now growing again. The spinel is found in marbles and also in alluvial deposits and, as in Sri Lanka, artisanal mining here allows longer exploitation and greater benefit to the wider community. Some beautiful blue violet spinel is found here and there is also a small but stable production of rare cobalt blue spinel. In Vietnam spinel there are snow flake-like inclusions and columnar etch tubes which can be aligned or criss-crossing.

The red and pink shades of spinel are due to chromium and iron, those with more iron becoming orangey. Blue is caused by cobalt and, when iron and/or

A wide range of beautiful colours occur in spinel. Today the historical sources of Ceylon (Sri Lanka), Burma (Myanmar) and the Pamir Mountains in Tajikistan are complemented by fine gems coming from modern sources of Tanzania and Vietnam, as well as Kenya and Madagascar. Photograph by Bilal Mahmood, AGL.

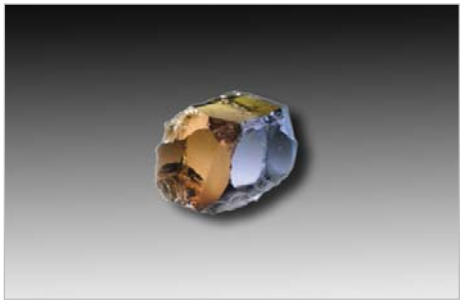
chromium are present with the cobalt, violet shades result.

Until recently spinel was never treated, but this has now changed. Clarity enhancement in the form of oil fillers has been noted and some Mahenge material is now heated. Heating to around 950–1150°C generally has had little effect on colour but it removes concentrations of the particles thereby improving clarity. However, recently Chris has had the opportunity to examine some fine red Mahenge spinels which show evidence of heating at a lower temperature that might have modified the colour. Research is underway. The band broadening seen with photoluminescence and Raman spectroscopy, which can characterize spinels treated at higher temperatures, seems to be absent with those heated at lower temperatures. Chris's experiments with heating purplish spinel showed no change and he doubts that anyone would risk heat-treating rare cobalt-blue spinel.

Tanzanite

Chris Smith admitted that for some time tanzanite didn't inspire or challenge him gemmologically. Although tanzanite holds fourth place in coloured gem sales globally, imitations of it are easy to spot and everybody knew that most are heated. In 2007 however, cobalt-coated tanzanites appeared on the market and it was the examination of these that inspired Chris to take a closer look at tanzanite in general. Coating was fairly easy to detect, lacked durability and was a relatively short-lived treatment in USA, although still sometimes encountered in the UK.

The main challenge with tanzanite is to determine which has been heated and which has not. Tanzanite is defined as the blue variety of zoisite. Most of the zoisite mined in the Merelani hills of Tanzania is brown which can be heated to produce blue tanzanite. There is also some pink zoisite found — thulite. Between about 12% and 15% of the zoisite mined at Merelani is blue. For the purposes of his research, including heating experiments, Chris divided samples of the Merelani mine output into three groups — beer-bottle brown, blue with brownish pleochroism in one direction and blue with no pleochroism. Heating turns the brown component blue. It is assumed that the natural blue tanzanite has been heated in the ground — although the mechanism is not fully understood — and thus shows similar internal characteristics to the heat-treated material. Study of the inclusions in



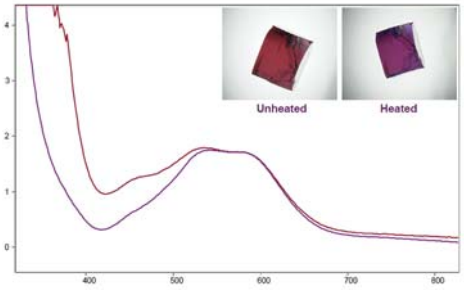
For one group of the natural-colour tanzanite, a strong trichroism with pleochroic colours of blue, purple and a mustard-yellow can help to identify unheated tanzanite, as seen in this oriented polished cube. Photograph by Bilal Mahmood, AGL.

Recent Events

This group of natural-colour tanzanites was collected by Christopher Smith directly from the mine-run of the TanzaniteOne mining operation in the Merelani Hills of Northern Tanzania. Photograph by Bilal Mahmood, AGL.

the natural and heat-treated blue tanzanite provided little clear guidance as to which was which. Spectrographic studies were carried out on oriented polished cubes using FTIR, Raman and UV-vis, and para-magnetic resonance. The results with the as-mined and heat-treated materials showed that there was not a definitive way to distinguish naturally blue and heat-treated blue using spectrometry when brownish pleochroism is absent, although a possible indication of reduction in the hydroxyl region as seen using FTIR is being researched further. However, tanzanite that shows brownish pleochrosim in one direction has not been heated.

Chris noted that there now seems to be a price premium on unheated tanzanite and that retailers and dealers would benefit from seeing gem mining — such as tanzanite mining — in action to gain an idea of just how much material has to be mined to obtain usable gems.



Polarized UV/Vis/NIR absorption spectroscopy records the changes upon heating zoisite to transform the brown coloration into that of tanzanite. The most significant changes are recorded along the gamma-ray, where a band centred at about 455 nm is completely removed and the absorption edge shifts into the UV region of the spectrum, creating a transmission window in the greenish-blue region of the visible spectrum.

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Gems in Germany

With inexpensive flights within Europe as well as a great location, the Gemworld exhibition in Munich (this year 25 – 27 October) has become a magnet for gem dealers and gemmologists, and gem lovers in general. And, of course, Gem-A will exhibit there again this year. Rebekka Fründt of The Munich Show talks about the event and encourages you to visit. We can add that there are also the restaurants, beer and museums of Munich to tempt you — in total, a perfect weekend!

This autumn sees the fifth Gemworld Munich. The trade fair for gemstones and jewellery has become well known in Europe with exhibitors and visitors regarding it as a major event in the year. It has over 300 international exhibitors from 30 nations and attracts around 6,000 visitors — with jewellers, goldsmiths, designers and dealers being able to choose from a top-class range of products. The assortment offered at Gemworld includes raw material, cut gemstones and accessories as well as finished jewellery and jewellery collections.

The range of exhibitors at Gemworld demonstrates both its high quality and international nature. In the gemstone sector, dealers from Thailand, India, Hong Kong, Brazil and elsewhere offer high quality coloured gemstones, and use Gemworld Munich to meet and supply their European customers. Names like Sara Gem, Leopard Gems, IMAGEM, Fantasia Jewellery, Opalinda and Timeless Opals have become regulars at Munich. Renowned European companies like Rubin & Son N.V., Sky Systems and Trendwerkk are key exhibitors.

Gemworld 2013

The pavilion concept offers visitors a well-structured layout where companies present their goods in exclusive and elegant surroundings. The ICA Pavilion, the only one at a European show, houses companies such as Dynamic International, Aurora Gems and German Salazar. Well-known German names, mainly from the gemstone region Idar-Oberstein — Paul Wild OHG, Henn GmbH, Cameo Roth and Atelier Munsteiner for example — all gather at the Gemworld Pavilion. The Brazilian Pavilion, which was established last year, achieved resounding success with trade visitors and dealers and maintains growth this year; the hosts expect a total of 10 exhibitors from the Brazilian region Minas Gerais. New names like JS Gems and OTF Gems join last year's exhibitors such as RC Gemas Ltda. and BC Gemas Do Brasil Ltda. In addition to these, a Sri Lanka Pavilion will be launched this year and companies like The Choice and Shyam Jewellers can be found there.

Other large international companies showing at this year's Gemworld Munich include Gerhard Hahn Pearl AG, Horst Lang e.K., Albert Tsang Ltd., Arteluna S.A.S., Opalos Mina Las Cruces and

Opal Pacific Ltd. Overall there is an increase in exhibitors on last year showing that Gemworld is gaining in prestige and is becoming and obligatory marketplace.

This year the hosts of Gemworld continue to concentrate on the promotion of budding jewellery designers and goldsmiths with the launch of the New Design Forum. Here, this new talent will be given the chance to exhibit and sell their creations at subsidized rates. Those who graduated from an international university, academy or training school, who are less than 35 years old and who work with precious metal and/or gemstones, will receive a stand at the Forum. The aim is to create a platform that allows young and undiscovered craftspeople to reach an international professional public. Gemworld is a great opportunity to make contacts, do business, get in touch with other designers and exchange experiences. Additionally, Young Designers' Corner will take place again this year. This European jewellery design competition for students and graduates was launched at Gemworld last year. Newcomers will benefit from a top quality showroom to present their pieces and collections of jewellery. From all participants, an independent expert jury will select the best three budding designers who will receive a trophy, money and free stand at Gemworld 2014.

Gemworld Munich is also a platform for numerous associations. Representatives of ICA, DMF, the Gemmology Association of Turkey, Tanzanite Foundation, Gem-A and German Gemmological Association will welcome you to their stands. The independent testing facilities of the Institute for Gemstone Testing and the German Gemmological Association offer visitors on-site testing of gemstones and an extensive consulting service.

Why visit?

The European trade appreciates Gemworld as an ideal purchase channel. Firstly, Gemworld Munich is well-timed, giving buyers the opportunity to restock before Christmas trade starts and to learn about the new trends for the upcoming season. Secondly, many European shows focus on big brands and lifestyle products but Gemworld Munich is an exception as it offers a profitable platform for smaller exhibitors from the gemstone sector. Therefore, European purchasers profit from a varied and international range of goods available, just a few hours' travellng time from most European centres. An excellent infrastructure and a modern trade fair centre guarantee an uncomplicated and comfortable visit.

Gemworld is part of The Munich Show Mineralientage München, which is Europe's leading trade fair for minerals, gemstones and fossils and welcomes 1,250 exhibitors and 40,000 visitors every year. This autumn, the show celebrates its 50th anniversary and appropriate to this occasion the mineral section of the show will exhibit the world's best and most extraordinary crystalline gold and gold nuggets. In addition Fossilworld assembles the Golden Discoveries of Palaeontology; the most renowned museums and private collectors open their archives and bring spectacular objects of unique worth to Munich.

Gemworld Munich is a three-day event that takes place from 25 to 27 October 2013. On Friday it is open for trade visitors only, while over the weekend the trade fair centre will be open to the public as well. Trade visitors can buy tickets at reduced prices online: www.gemworldmunich.com, where you can also find additional information.

Amazing Amber in Scotland

The National Museums of Scotland are hosting a special exhibition (closing 8 September this year) entitled 'Amazing Amber'. It is curated by the internationally renowned amber expert, Dr Andrew Ross, who holds the position of principal curator of invertebrate palaeobiology at the museum. Maggie Campbell Pedersen FGA paid a visit to the exhibition.

I had the pleasure of being shown round the exhibition by Dr Ross himself — and I felt like a kid in a candy shop. Not only are there 320 items on display, but 75% of them have never been shown before. They belong mostly to the museum itself, but a few are on loan from other places, notably the Natural History Museum in London.

The first thing you see on entering is the huge piece of Burmese amber which belongs to the Natural History Museum, but here it is displayed on a specially built stand so that its sheer size is immediately apparent.

There is a small area near the entrance which is devoted to the history of amber in Scotland, with examples of belt buckles and such like. This part is curated by Dr Alison Sheridan, principal curator of early history. It is very interesting, and puts the material into its practical context as well as telling us a little about Scotland.

Cattle charm: This amber pebble, on a silver chain, would have been dipped in the drinking water of sick cattle, in the belief that it would cure them. A spell would have been chanted as the pebble entered the water. The inscription on the silver disc reads, "A gift from Angus Macdonald, Bridge of Coe, to H.McC. 1845". Image © National Museums Scotland.

However by far the largest part of the exhibition is devoted to the resins themselves. The raw amber on display includes samples from the Baltic, Mexico, the Dominican Republic, Australia, Italy, Spain, France, Japan, Burma and other South East Asian countries, Romania, and real UK amber (not the variety washed here from the Baltic). Many of the ambers are not suitable for carving or making into jewellery, but they are totally fascinating in their own right.

The 'bugs in amber' are prominent in the exhibition. There are displays along the walls where examples of flora and fauna in ambers from various countries can be viewed beside a large photograph of the same flower part or insect. Light box tables down the centre of the room also display amber samples with inclusions, and here they can be viewed through a magnifier. This area was clearly extremely fascinating to visiting children, who were also able to touch a couple of large samples of amber that had been put out for that purpose — and worn smooth by inquisitive fingers. Another small interactive part was a quiz,

Westness brooch-pin: This pin, made of gilded silver, with insets of amber and red glass and panels of gold filigree, was found in the ninth-century grave of a Viking woman in Orkney. This particularly fine brooch had originally been made up to a century earlier, and it may have been stolen during a Viking raid in Scotland or Ireland, or else given to a Viking as a gift. Image © National Museums Scotland.

where the public can see five samples of included amber and guess whether they are real, or whether they have had the insects inserted afterwards and are fakes.

Fakes and imitations are also well represented, with examples of early plastic necklaces, present day plastic imitations and treated ambers. Perhaps the most interesting sample was a Chinese carved bottle, about eight inches tall, from the eighteenth century. It had originally been thought to be a rather magnificent example of carved red amber, but it is very even in colour and is strangely flat, so it aroused suspicions. It is not hollowed out but has a straight conical hole down the centre. When tested it proved to be Baltic amber, pressed and dyed. But according to Dr Ross the age is known to be correct, which means that, in China, amber has been dyed and pressed for over 200 years.

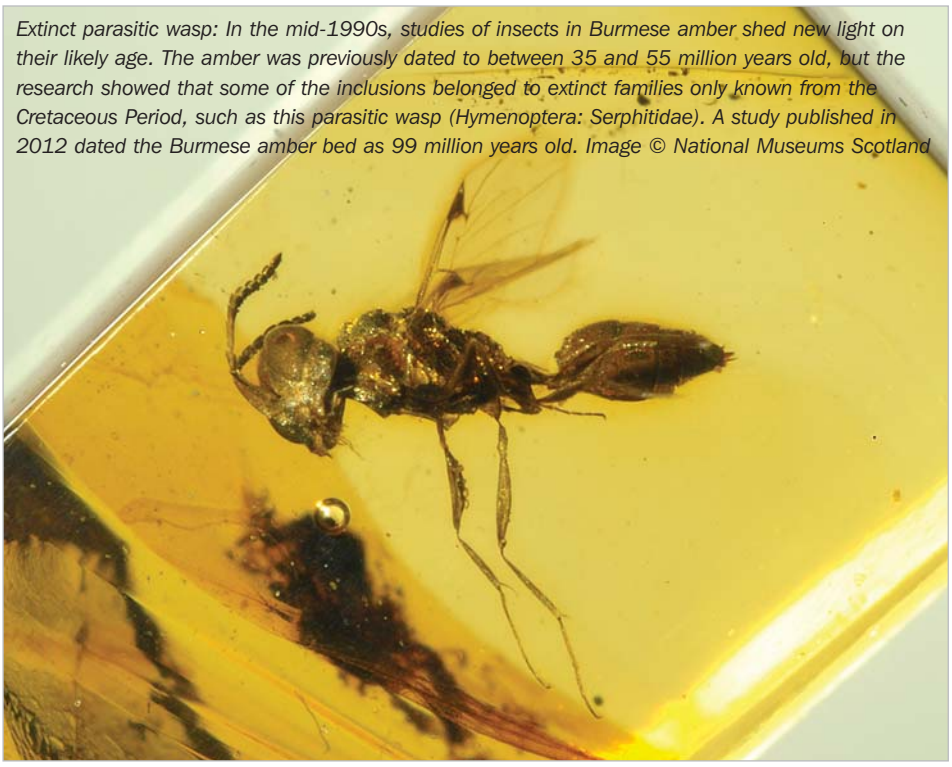
A very worrying exhibit is a small piece of 'amber' with an insect inclusion. The insect is a house fly, and is embedded in copal which has been hardened. We are aware of this being done to copal to make it resemble Baltic amber, but examples with insect inclusions are new on the market. The big question is how is it done without destroying the insect?

The exhibition took three years to organise, and is a resounding success. Visitor figures for the first two months were almost 22,000. The gallery is light and bright, the displays clearly labelled and well-lit. In order to use enough light for the public to see the exhibits but not damage the amber, all the display cases were specially built and hermetically sealed containing oxygen scavengers. This means that the lights can be brighter without causing the samples to oxidize.

Unfortunately it seems that the exhibition will not go on tour, as this is very costly and would be complicated to accomplish, especially with the custom-built display cases which cannot be readily moved. Nor can the exhibition be extended in Edinburgh as there is another exhibition due to follow in the same rooms at the museum.

If you can manage a visit before it closes, do so — it is a beautiful exhibition.

Carved skull: This piece of Mexican amber has been carved into a skull, probably for the tourist market rather than the Mexican Day of the Dead ceremony. Image © National Museums Scotland.



Extinct parasitic wasp: In the mid-1990s, studies of insects in Burmese amber shed new light on their likely age. The amber was previously dated to between 35 and 55 million years old, but the research showed that some of the inclusions belonged to extinct families only known from the Cretaceous Period, such as this parasitic wasp (Hymenoptera: Serphitidae). A study published in 2012 dated the Burmese amber bed as 99 million years old. Image © National Museums Scotland

International Jewellery London — the focus on gems

The UK's premier fine jewellery show IJL is almost upon us. Opening on Sunday 1 September and running until Wednesday 4 September, it is a focal point of Britain's jewellery year attracting trade buyers from all over the UK and increasingly those from Europe and the rest of the world.

1. Visitors entering IJL 2012. Photo © Reed Exhibitions Ltd.

IJL stands for International Jewellery London and it is indeed both London-based and increasingly international. The show prides itself on its wide selection of high quality, design-led jewellery and also the range and depth of the accompanying seminars. This is an industry in which one never stops learning and continuous professional development is a necessity not a luxury.

3. Coloured stone beads are always popular with buyers. Photo © Reed Exhibitions Ltd.

The exhibitors range across designers, manufacturers, importers and gem and pearl dealers, plus allied services such as education, tools and equipment, and gem labs. Visitors are very much geared up to buy (**1**). A visitor survey at the IJL 2012 revealed that two thirds had placed orders at the show and, remarkably, more than a third of visitors said they did not attend any other jewellery trade shows.

Gem-A has had a long association with IJL, with active input on the advisory panel over many years as well as close contact with the organizing staff. Looking forward to this year's show it is good to see that there will be a wonderful range of gems and gem-set jewellery to see. There are the long-established UK-based exhibitors such as A E Ward & Son Ltd (Stand J81), Joias

2. 'Autumn stones.' A small selection of the coloured stone beads available at Marcia Lanyon (IJL Stand K58). Photo © Marcia Lanyon Ltd.

(Stand J71), Marcia Lanyon Ltd (Stand K58), Marcus McCallum FGA (Stand J31) and Apsara (Stand J29), who between them exhibit a truly huge range of loose coloured gemstones and beads (**2**) — Joias describes its stand as a 'loose gem wonderland'. Coloured stone beads are always a big draw at IJL (**3**). Apsara will be showing unheated rubies, sapphires and an interesting range of spinels, garnets (**4**), tourmalines and other gems.

New UK exhibitors with a gem focus include Flower & Maricar Ltd (Stand I99) with such pieces as a pair of large natural yellow sapphire and diamond earrings (**5**).

4 A tsavorite garnet from Apsara Ltd (IJL Stand J29). Photo © Apsara Ltd.

The yellow sapphires weigh 32 ct. From the USA come several new exhibitors, including Bluestar Global Inc. from New York. They are long-established tanzanite cutters and exhibit a range of loose and mounted stones, including tanzanite and diamond rings (**6**).

For many visitors a key factor in their decision to attend IJL is the variety of free seminars (**7**). These cover many different topics, from hiring the right staff to making best use of social media, from buying to gem ID — and how to break into foreign markets. Gem-A will be providing two seminars. On 1 September (16:15 – 17:15, Whitehall Room) Gem-A instructors Claire Mitchell and Andrew Fellows will present 'Colourless with confidence', explaining how to tell a colourless diamond from a cubic zirconia, synthetic moissanite or other diamond simulants. Such differentiation can be a challenge, but it needn't be if you know how... On 2 September (15:45 – 16:45, Whitehall Room) Jack Ogden will be talking about the growing public interest in coloured gems, and how this can help retailers engage customers and maintain margins. To profit from the coloured gem market jewellers need a strategy to choose gems, to train staff and to be prepared for the various challenges involved. This presentation will tell you how.

6. Tanzanite and diamond rings from Bluestar Global (IJL Stand J119). Photo © Bluestar Global Inc.

5. A pair of natural yellow sapphire and diamond earrings from Flower & Maricar Ltd (IJL Stand I99). Photo © Flower & Maricar Ltd.

Gem-A will again sponsor the Gem-Empathy Award at IJL. The winning exhibitor will be given publicity in *Gems&Jewellery* as well as a free full-page advertisement. Gem-A has always advocated that gem-set jewellery should be designed to show the gemstones to their best advantage, so the Gem-Empathy Award will be presented to the IJL exhibitor displaying, in the opinion of the judges, a single piece or collection of jewellery that makes captivating use of one or more gemstones. Gem-A's criteria for the award will include accurate and honest descriptions as well as creativity, imagination and attractiveness.

The inclusion of 'accurate and honest descriptions' among the Gem-Empathy Award criteria is a reminder that not all descriptions at IJL — or any other jewellery show — are correct. At IJL we've seen everything from downright dishonesty (imitations sold as real) to what might best be described as deliberate economy with the truth, particularly where treatment disclosure is concerned. The only real advice to buyers is to know enough about gems to be able to ask probing questions, and move on to the next stand if you are unsatisfied with the answer.

If you have questions about gems you are offered at IJL, or want some advice as to the probing questions you should ask the sellers, come along to our stand J94 and attend our seminars. We can also tell you all about our comprehensive gem-education programmes, from one-day seminars to our internationally acclaimed Gemmology Diploma Course. Our subsidiary trading arm, Gemmological Instruments Ltd, will be showing our wide range of gemmological equipment and books — with show specials. See you there.

You can pre-register for IJL at http://www.jewellerylondon.com/. This site also provides a full list of exhibitors, events and other information about the show.

7. A seminar at IJL in full swing. Photo © Reed Exhibitions Ltd.

Stone Scoop

Egg whites, fish-frying and copulating gnats

Jack Ogden tells of fun with amber in the eighteenth century.

Maggie Campbell Pedersen mentions an eighteenth-century example of Chinese pressed and dyed amber (page 18). The Chinese weren't alone; eighteenth century Europeans were up to all sorts of tricks…

Egg recipes

Most eighteenth and seventeenth-century recipes for imitation amber consist of yokes or whites of egg mixed with various types of resin or gum, but a simple one was: "Take whites of eggs; beat them well, then put them into a vessel with strong white wine vinegar, stop it close; let it stand 14 days, then dry it in the shade and it will be like Amber." However, then as now, more sophisticated trickery involved adapting natural amber.

All creatures great and small

To soften yellow amber you could put it into hot melted wax and then "you may make things thereof of what form and fashion you please". If you melted amber in turpentine you could "cast it into any figure, with flies or any small animals in it, as is seen in those valuable pieces of Amber sold at a great price…" People were intrigued by the presence of insects and other fauna and flora trapped in amber. A long article in *The Philosophical Transactions of the Royal Society* in 1749 discussed them at some length, listing the wide variety of insects so found, but expressing some doubt about the genuineness of "more perfect Animals being found buried in Amber, [such] as Frogs, Lizards, and small Fishes".

Insex

But even with the insects there was debate as to how they got into the amber. The 1749 author, who had listed the types of insects he had seen in amber, pointed out that insects could well be trapped on sticky amber, but how could they be completely immersed without a huge struggle? Some of course "seem as if they were struggling, or expanding their Wings, in order to get away" but the majority seemed simply "languid, sleepy, or drowsy". He suggested that the insects had been coated while asleep and that, indeed, most of those he had observed in amber were of the "kind that retires into Caverns to sleep". So, in his opinion, the active insects "are obliged to suffer the same Fate with those that are asleep, but… leave the Tokens of their having been awake, by a more lively and animated Representation of their Bodies". He somewhat cryptically adds: "But I don't think, that such a Vivacity as is required in Coition, is at all suitable to that subterraneous Habitation, and therefore I would be very apt to suspect those, who shew Flies and Knats copulating together in Amber, as wanting only to put a Trick upon me."

Right from wrong

Clearly there was a need to distinguish "creatures which are buried in Amber by Nature, from those which are inclosed in it by Art". Ways to tell, in addition to signs of struggle, included the positioning of the creatures relative to the surface of the amber ("those which are done by Art are in the Middle of the Piece for the Workers in Amber could not conceal the Artifice so well if they hollowed the Amber near its Surface") and also the presence of fissures: "If you observe the Amber too in which Insects are buried to be solid, pure, without any Fissures in it, or distinct Crusts, you may know that it is not the Work of Nature."

Frying

The clarification of amber was also carried out. In a 1742 article, *The Society of Gentlemen* explained how pieces of amber could be heated in oil so that "they may be heighten'd to clearness and transparency". Supposedly the process had been discovered by accident. "A workman lately happen'd to let drop out of his hands into a boiling kettle of fish a globe of amber, Which remaining in the liquor till the fish was done, and being before somewhat more obscure, now came out sparkling and shining." Temperature and suitable cooling time was important or else the amber would revert to its cloudier state.

Not seeing the wood for the seas

Nevertheless, despite the acquaintance with imitation and modified amber, people were still very unsure what amber was. That it was a hardened tree resin had been proposed at least as early as Roman times, but that was not universally accepted in the eighteenth century. One man writing in *Philosophical Transactions* in 1747 was adamant: "I absolutely deny that Amber is the resinous Juice of a Tree." He gives several reasons, the first, of elegant simplicity, being that amber is often found floating in the sea but "Trees are not very near the Sea."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