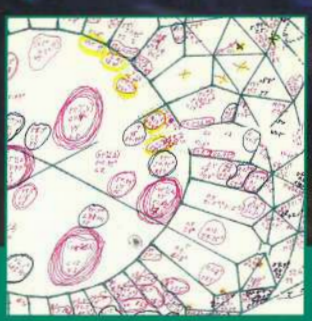
Gems & Jewellery

December 2005 Vol. 14 No.4



The Gemmological Association of Great Britain & The Society of Jewellery Historians

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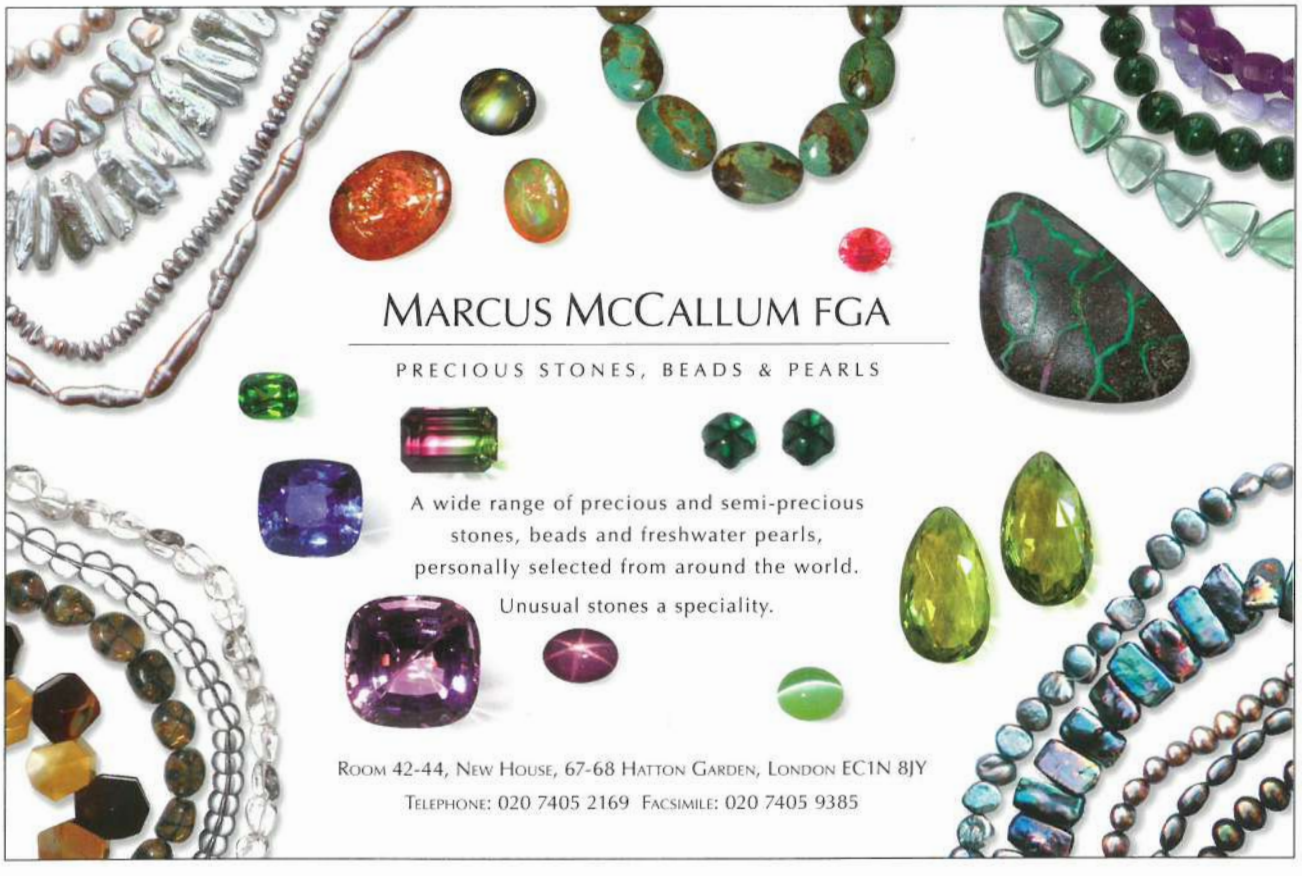

Education – a continuing process

A few weeks ago Gem-A held its annual Conference and, the following day, the graduation and educational awards ceremony for students. Both were international events with conference speakers, participants and graduates attending from all corners of the world. Thanks to our sponsors, this year it was possible to invite all 2005 Diploma graduates to attend the Conference at no charge. This move, which we hope we can repeat in future years, underlines why we link our Conference and our Graduation ceremony in our calendar. Education in gemmology is a continuing process. It doesn't stop with the Diploma. Being an elected fellow or a member of the Gemmological Association is a commitment to continuous professional learning; continuous learning that is achieved through the media of our publications, conferences, seminars and other events.

We teach our courses in 28 countries, and our Gemmology Diploma is rightly viewed as the highest status international gemmological qualification. Our Diploma graduates are eligible for election as Fellows of the Association and then may use the coveted letters FGA after their names.

But what is the Diploma's educational status? We can now answer this far more precisely than hitherto. Gem-A has recently been reconfirmed as an official Accredited Awarding Body in the UK and our Foundation Certificate, Diploma in Gemmology and Gem Diamond Diploma are all qualifications that are accredited with the UK Government Qualifications and Curriculum Authority (QCA). Our Diploma in Gemmology is now accredited at the same educational level as a Bachelor's degree from a British university. It is not the length of a full degree, but may contribute towards the attainment of a full degree and this is something we are now actively exploring. Our Foundation Certificate in Gemmology is the educational equivalent of an A level, while our Gem Diamond Diploma is the equivalent of a UK Certificate of Higher Education.

Our graduates have every right to be proud of their achievements – and we are proud of them.

Jack Ogden
Chief Executive Officer, Gemmological Association

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Muscovite 'fish' in a beryl 'aquarium' from Pakistan. Photomicrograph by John Koivula courtesy of microWorld of Gems.
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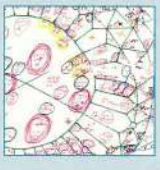

Section of working drawing of the Koh-i-Noor replica. Courtesy of John Nels Hatleberg.
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Rutilated quartz pendants by Ulla Hörnfeldt. Photo courtesy of Ulla Hörnfeldt.
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Salamander ring set boulder opal by Charmian Harris. Photo courtesy of Charmian Harris.
See The return of colour, p.88

SOCIETY OF JEWELLERY HISTORIANS

The Society of Jewellery Historians was formed in 1977 with the aim of stimulating the growing international interest in jewellery of all ages and cultures by publishing new research and bringing together those seriously interested in the subject, whether in a professional or private capacity. The membership includes archaeologists, museum specialists, collectors, art historians, dealers, gemmologists, practising jewellers and designers, scientists and restorers, all united by their enthusiasm for the subject.

The Society holds eight evening lectures a year at the prestigious apartments of the Society of Antiquaries of London, as well as occasional symposia. The lectures cover all periods from ancient to modern, and a living jeweller is normally included each year. Refreshments are served after lectures, and this provides an opportunity for members to meet.

Jewellery Studies is published in colour on an occasional basis, and contains full length articles, book reviews and other information. Members also, of course, receive *Gems & Jewellery* quarterly. The current maximum annual subscription is twenty eight pounds.

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Rising prices - falling sales

HARRY LEVY advises the trade to stop down-valuing their products

The human mind has the habit of forming causal links between contiguous events. This, after all, is the basis of our understanding the world and the basis of our sciences. Sales of jewellery are falling because the prices of the component parts are rising. I would like to suggest that the causal link, the 'because', is not so direct, and that continual price rises encourage the purchase of better quality jewellery.

At first glance this may seem a somewhat stupid suggestion. We have seen the sale of jewellery items go down, and we are seeing price rises in diamonds (look at the Rapaport price list over the past year). Almost every day I hear dealers saying how they could buy very little when they went to re-stock, because prices were so high. They argue that they cannot re-sell stones at these higher prices because their customers will refuse to pay these price increments. They will go home and their suppliers in turn will say that they could not sell their products because prices had risen. Factually they are both correct, but they are correct because they are both in the supply chain and they are both looking inwards into the trade and not outwards, where their products will eventually end. They are both assuming that the end user will not buy jewellery because prices have gone up. In this they are totally wrong.

Let us look at it from the end user's point of view. He will go into a jewellery shop just a few times in his lifetime. He has no idea about prices, he has no monitor of how prices have fluctuated over the years. He knows about petrol prices, local bus and train fares, postage on letters, newspaper prices and other things he buys almost every day. To satisfy himself that the price he pays for his jewellery is correct, he may shop around. In these days he may look on the internet, he may find Rapaport prices, learn a bit about colour and clarity grades, but all these will give him are current prices, he will have no comparison of prices over the years.

If anyone has been given a forceful sale in buying, say, a car or a music centre, the last ploy the salesman will attempt is to say prices are rising that evening or the next day. We all know that this is sales talk and prices of things tend to fall rather than rise. He can compare like for like, but he cannot do this for his jewellery. Imagine someone who walks into a jewellery shop and is told by the salesman that the prices have risen since last week and are probably going to go up again in the near future. What do you think the reaction will be? In most cases sheer delight, he knows jewellery is an investment and what more could he want than an item he is buying to go up in value. He will probably declare that he wishes he could afford to buy more.

We all know, in the trade, that buying jewellery as an investment is an unpopular concept. I have attended many conferences where there has been a discussion to tell people that jewellery is NOT an investment. This is not because we do not believe in rising prices, but because mark-ups in the supply chain are so high, especially in the last step, the retail one. As a trade we have been blessed with the reputation of selling things that go up in price, but because we are embarrassed that we will be lucky to recover half the price paid should it be sold in the short term. In today's market it will take many years before the retail price paid will match its resale value. But someone who buys a piece of jewellery at retail should know that he would be lucky to get half the price should he go back to resell the piece.

But what we do not understand within the trade, especially those in the supply chain, is that the consumer knows that almost anything else he will buy will have almost no resale value at all. If he buys a designer handbag, or an article of designer clothing, and most other luxury items he acquires, he knows it will have little value as soon as he leaves the store. An expensive holiday, or a good meal, will be money spent that will leave him only memories; a piece of electronics or electrical goods will be obsolete almost before he gets it home and it could be replaced by something better and cheaper. Jewellery is one of the few items which he can buy as a token of love, which will become a family heirloom, and have a value for the family to fight over. Watching a recent TV programme where people are encouraged to sell their old bric-a-brac and heirlooms, it is only the jewellery that always sells.

Most diamond and stone dealers never understand what happens to their products. They are too immersed in the supply chain. How often has a dealer who has been asked to produce a set of ten ten-pointer diamonds supplied ten stones weighing exactly a carat which consists of stones varying in diameter from 2.8 to 3.2 mm. He does not understand that the ten stones are going to surround a centre stone, and they have to look the same. Would he buy a cluster ring for his wife where the surrounding stones vary in size? I have been offered many beautiful coloured stones, by dealers and cutters, who do not understand that they will have to be set in cast mounts and if they are too thick, too deep, or have round backs, they simply cannot be set in jewellery. They supply 'a pair' of stones which have to be held very far apart to resemble a pair. If it is a pair of earrings the dealer will say that there are a pair of eyes and a nose between the earrings and no one will notice a difference. What they forget is the owner will look at them sitting side by side in a box, and seeing a variation in size or colour would not want to wear them.

It is a pity that most dealers have so little education for the work that gives them their livelihood. I am being hard on dealers because many are so inward-looking. Recently many dealers first came into contact with the outside world when the NGOs began putting pressure on the diamond trade regarding conflict diamonds. The dealers suddenly

realised that if the public stopped buying jewellery, then all those in the supply chain would stop buying. They became heavily involved in the Kimberley Process and have maintained open channels with the NGOs.

De Beers, in the days before they became known as the DTC, realised that the marketing of diamond rough had to be controlled. They then controlled more than 90% of the market and supplied quantities to just satisfy demand, or better to just below demand level. With their control of almost all the market, they were able to inject price increments into their sights, thus ensuring whatever price people paid for their diamonds, within a few years they could sell them back in the market at near or better than their purchase price.

Why are the prices of diamonds rising? Amongst the many factors is that the DTC now control only about half of the rough market, they say they have sold their stockpiles from earlier years, especially in the larger better quality goods. The demand for diamonds has increased as new consumer markets have opened up in India and China and demand is outstripping supply. The price increase is not felt across the board, but in the larger and better stones. This is because people want them because they expect the price to increase. Traditionally diamonds, gemstones and jewellery have been concentrated forms of wealth, easy to hide, easy to move around, and easy to flee with should the owner wish to leave the country. These stones come from limited resources in nature, especially the fine crystals and as more people buy them the price must increase. The suppliers of rough, and supplying countries wish to add value to their stones by being involved in the cutting and polishing, leaving reduced amounts to the small independent dealers. The DTC now wants to play a greater part with their sight holders in bringing their stones to the market.

Should the price of diamonds and gemstones fall, there will be an initial rush from the public to buy them only in the hope that they will quickly rise in price again. No amount of advertising will increase sales. If anything they will further depress sales because the perception of their value decrease or lack of growth will make people less inclined to buy them. The sales of jewellery have increased phenomenally, especially in the cheaper ranges. This is because cheaper jewellery is not now regarded as an investment. Jewellery utilising synthetic stones, or cheap lower quality small stones has made them comparable with costume jewellery. There have been recent increases in the prices of these smaller stones, but because of high mark-ups they do not affect the price of the end product.

The fall in better quality jewellery sales is not directly due to price increases of the component parts, but due to the general economic outlook. When one reads day after day in the press, that we are going into an economic depression, this does cause psychological depression. When one is told that pensions will not be as high as were predicted, people will stop spending money. As the trade has now realised, other luxury items are competing for people's money. They will come back to buy jewellery not because prices are coming down, but because they perceive a value in the products they are buying.

Traditional jewellery shops and stores are being challenged by cutters and dealers advertising their stones on websites. They see the mark-ups that are made in the supply chain and this is another factor which stops them buying jewellery through established outlets.

We must stop this pessimistic approach to rising prices, stop down-valuing our products, and talk them up for what they have always been and that is a precious commodity. Incidentally a 5% profit on a $1000.00 makes more money than 5% on $900.00. To compete one must reduce profit margins. With grading reports prices of diamonds have been commoditised and are internationally known now.

Price decreases will not bring the public back. There is a perceived change in consumer confidence in our products and it is this that is now being tackled. ❑

Gem-A Conference and Graduation Ceremony

I am writing to say what a wonderful time I had in London during the Gem-A Conference and Graduation Ceremony. I couldn't have imagined what fun an educational experience could be. The speakers at the conference were fabulous (especially my own personal hero, John Koivula) and it was also very interesting seeing Doug Garrod's demonstration with the different lighting techniques on the microscope. I very much enjoyed meeting other award winners and the new graduates, as well as the staff of Gem-A.*

My Anderson Medal is much treasured and I feel very honoured having my name on it with that of Basil Anderson. If I can achieve 25% of what he did I will die happy! I also enjoyed meeting Anthony Hirsh [sponsor of the Hirsh Foundation Award]; I had time to visit his shop in Hatton Garden before heading back home – he had some mighty large stones!

I would also like to thank the École de Gemmologie de Montréal, especially Odile Civitello and my teachers, Mary-Elyse, Christine, Colette and Michel, and last but not least my husband Marc, who unselfishly encouraged me to abandon him every weekend in order to go to classes.

Now it's back to studying for the Diploma which I know will be a lot of hard work but very stimulating.

NICOLA (NICKI) SHERRIFF 2005
winner of Anderson Medal and Hirsh Foundation Award
Montreal, Quebec, Canada

*A report of the Gem-A Conference is given on p.89

Gemmology Foundation Certificate Awards

The **Hirsh Foundation Award** is awarded to the best candidate of the year; the **Anderson Medal** is awarded to the candidate who submits the best set of answers which, in the opinion of the examiners, are of sufficiently high standard.

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The Mountain of Light reborn

John Nels Hatleberg replicates the original Koh-i-Noor, facet by facet

The Koh-i-Noor (literally 'Mountain of Light') is one of the world's most famous diamonds and in its present form is a focal point of the British Crown jewels where it is mounted in the Crown of Queen Elizabeth the Queen Mother. In was re-cut in 1852, on Prince Albert's orders, from a 186-carat Mogul cut to a 105.6-carat oval brilliant.

Its earlier form is known from descriptions and from illustrations **(1)**. Over a period of five months John Nels Hatleberg, a talented conceptual artist and re-creator of famous diamonds, recut the original Koh-i-Noor, facet by facet, replicating every original facet angle. The result shown here **(2)** and displayed at the Diamonds exhibition which was held at the Natural History Museum London from July to November 2005, fulfils a lifetime's ambition for John and, like the achievement of any quest, is the culmination of a remarkable combination of tenacity and luck.

John has made a remarkable career creating exact replicas of famous diamonds, replicas that are required for insurance, promotion, security and display purposes. The Smithsonian, De Beers and the Dresden Green Vaults are among those who have commissioned his work and his skills have accurately copied the Hope, the Centenary, the Dresden Green, the Eureka and the Millennium Star among many others.

Recreating the original form of the Koh-i-Noor seemed an unrealisable dream until in 1992 John followed a lead from his friend Ian Balfour, the author of *Famous Diamonds*, that at the behest of the Trustees of the British Museum, a cast had been made of stone prior to its 1852 recutting. In John's words: "In a scene out of 'Raiders of the Lost Ark', I discovered a lump of plaster among the towers of scientific cases in the bowels of the British Museum (Natural History). I turned over the plaster. Incised on the bottom were the words 'This is a cast of the original Koh-i-Noor prior to recutting 1851' and initialled 'NSM' by the Keeper of the Museum." Here was an exact record of its original form **(3)**.

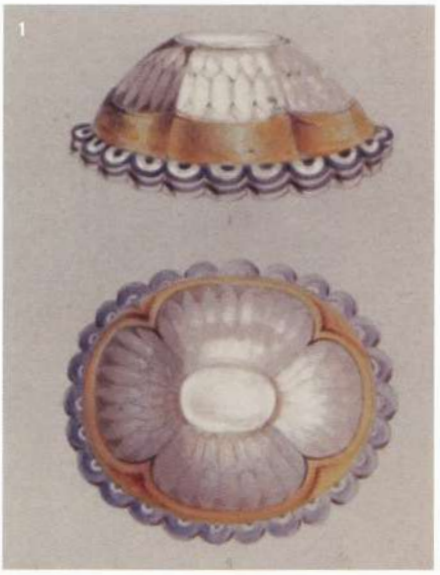


Illustration of the Koh-i-Noor in its original setting. © The British Library.

The replica of the Koh-i-Noor. Photo courtesy of John Nels Hatleberg.

Even so, it was only in January 2005 that John was given the go-ahead to produce a replica for inclusion in the Diamonds exhibition – he had just five months to recreate the most complex diamond of his career.

In order to precisely replicate a cut diamond, all dimensions and every facet and facet angle must be recorded. For a conventional diamond this is a highly intricate and painstaking process; for the original Koh-i-Noor it was extraordinary – it had had 200 facets, four times more than virtually any other cut diamond in history. And the original cutting had been

extremely precise and well-thought out. John records that in thirty different places, six facets met in one point, and in an additional twenty-four places five facets met in one point. As any lapidary would tell you, that is a remarkable achievement for a cutter. To recreate the stone, not only must the details of each facet be noted **(4)**, but how the actual process of replicating them must progress – cutting each facet naturally affects the shapes and sizes of the ones next to it. As John has said: "I know what the cutter 700 years ago was up to. I am tracking him down. It is as if he had a fishing net that he threw over the crystal, its skin becoming a skin of facets." John carefully recorded and measured each facet, and planned the precise order of their re-creation, in a series of three large and highly complex drawings **(4)**. Such drawings – works of art in their own right – are the hallmark of his approach and are perhaps the most graphic demonstration of the complexity of what he does.

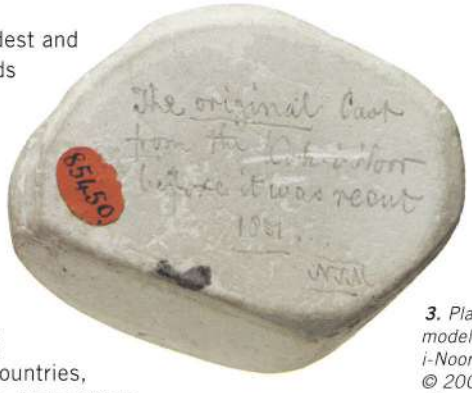
Then using these drawings and a conventional lapidary wheel, the cutting began.

So now, one of the oldest and most coveted diamonds in the world has been reborn. Since its discovery, the Koh-i-Noor has passed through the hands of Mogul rulers, emperors, Sikh kings and finally British monarchs, and has resided in many countries, including India, Persia, Afghanistan and England. The Koh-i-Noor in its present form enthrals visitors to the Tower of London.

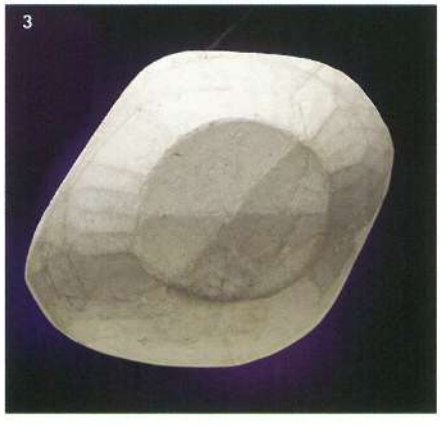
John described the recutting as "drawing and redrawing the surface of this jewel as much as cutting it away." He adds: "I love this process and its result." ❑

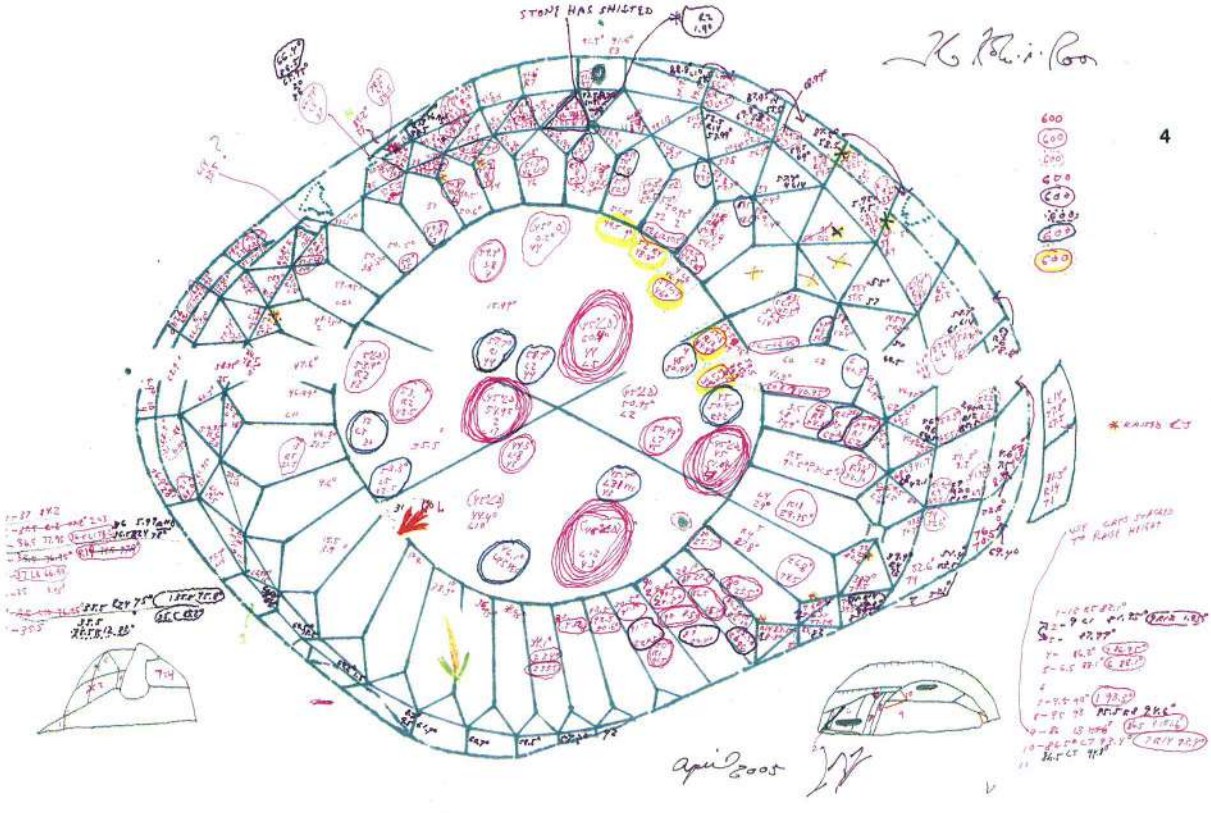
We are grateful to John Hatleberg for permission to reproduce his drawings and photographs – all are strictly copyright.

Tara Veitch



3. *Plaster cast (above) and model (below) of the Koh-i-Noor before recutting. © 2005 Natural History Museum, London.*





One of John Nels Hatleberg's working drawings of the Koh-i-Noor showing the details of each facet.

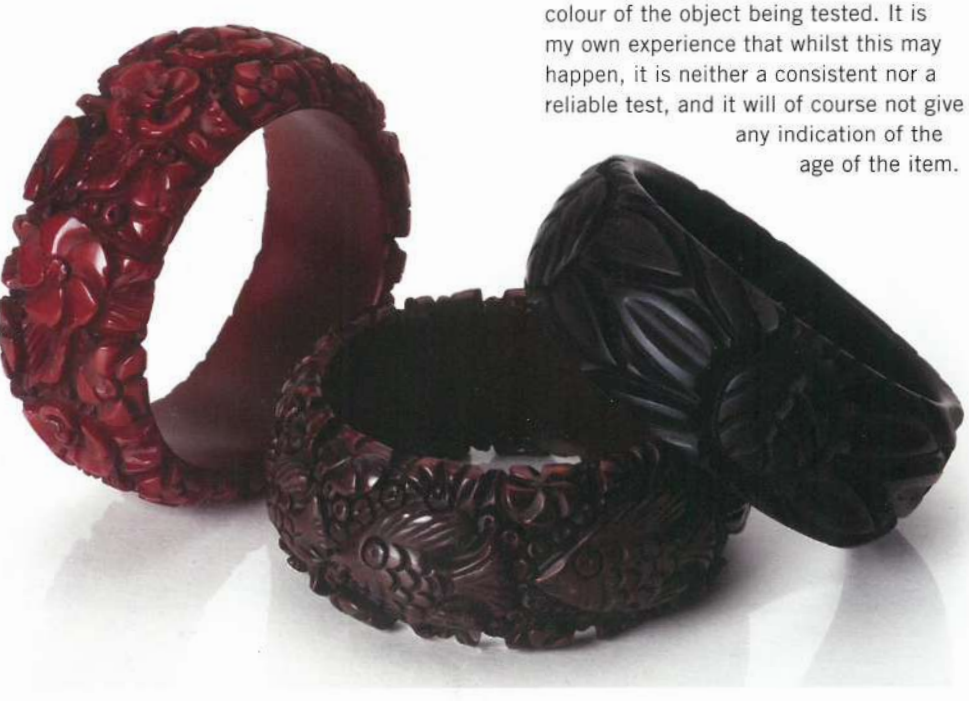
Bakelite bangles

Organics expert MAGGIE CAMPBELL PEDERSEN takes a look at these sought-after collectibles

Gemmologists and antique dealers are familiar with Bakelite as it was sometimes used to copy amber – especially the red amber from Myanmar (burmite). But today original Bakelite bangles and other pieces of jewellery – once considered cheap imitations and 'just plastic' – are sought-after collectibles. For this reason they are being copied, and sold to the unwary as valuable, early plastic originals.

Bakelite was developed by Leo Baekeland in the early 20th century and was the first totally synthetic plastic. It was made of phenol formaldehyde and was thermo-setting. A stabilizing filler – usually wood flour – turned the material opaque and counteracted the brittleness of pure phenol formaldehyde.

Bakelite was advertised as 'the material of 1000 uses', and was indeed used in a multitude of ways from lacquers to casings. As jewellery it first became popular in the 1930s. It was fashioned into various items – with bangles being the most common – and made in a huge selection of colours and opacities. A clear, amber colour was popular, as were red, green, black and beige opaques. Some material had swirls of different colours or shades. It was produced in varying degrees of intricacy of design, from totally plain to heavily carved and patterned.



There is a common misconception that the bangles were carved after moulding, but it was the moulds themselves that were hand carved, enabling items to be mass-produced with a minimum of work, though the moulded bangles were sometimes given a final polish by hand.

Bakelite jewellery was compression moulded, that is to say the material was poured into one section of a mould, and a second section then pressed it into shape.

Various tests have been reported for verifying that a material is Bakelite. For example: "Tests positive to 'Scrubbing Bubbles'" is often listed by American sellers on internet auction sites. It is believed that bakelite, when rubbed with a cloth soaked in certain strong detergents, gives a yellow streak regardless of the colour of the object being tested. It is my own experience that whilst this may happen, it is neither a consistent nor a reliable test, and it will of course not give any indication of the age of the item.

Another test is to measure the refractive index. Bakelite gives a reading of about 1.66, whilst other plastics have lower RIs. This test can be awkward to execute, depending on the size and shape of the object being tested. Also, there are many new plastics (often containing additives and fillers) available on the market nowadays, so the refractive index can only be regarded as an indication that the object may be made of Bakelite.

Whilst it is difficult to tell by sight which polymer has been used to copy old jewellery, the choice of polymers was much more limited when the originals were made and it is often possible to identify the polymer from the style of the piece, the way it has been produced, and the way it has aged.

Old Bakelite develops a patina that is lacking in new copies. The surface usually loses some of its gloss, becomes a little scratched, and the colour can also deteriorate, though it does not degrade and crack as do some other early plastics. A new item such as a bangle will invariably be much more glossy, and have identical mould marks repeated around its circumference. This indicates that only a small portion of the original mould was hand carved, while the rest of the mould has been calculated and produced by a computer. The more obvious marks left by the moulding process on a new piece can be removed by an air grinder, which tends to leave lateral marks on the object.

The term 'Bakelite' is generally accepted to cover both the opaque and transparent varieties of phenol formaldehyde. To the purist, the latter should more correctly be termed as 'cast phenolic'. More importantly, anyone tempted to buy jewellery at antiques fairs or on the internet should be wary as the term 'Bakelite' is often used generically and can cover a multitude of plastics. ❑

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The things that turn up

GRENVILLE MILLINGTON looks at two early synthetic stones, a spinel and a padparadscha-type sapphire

GRENVILLE MILLINGTON is a Director of Hinton Millington Ltd, jewellery manufacturers, and has provided a gem testing service in the Birmingham Jewellery Quarter for many years.

Hope for an early synthetic spinel

A three-stone ring, described as sapphire and diamond, was sent to us by a retail jeweller who had purchased it (amongst other items) at an auction. The request to us was to check it over and give it a clean. The ring had a good blue centre stone with two older- style diamond brilliants **(1 a,b)**.

The centre stone colour was of a blue that is not often seen in sapphire; it was more like the synthetic spinel made to imitate sapphire (rich, royal blue). Looked at through a 10× lens, the stone showed dozens of gas bubbles **(2)**. A quick spectroscope viewing showed the well-known, distinctive set of three bands due to cobalt and the refractometer reading was 1.730. The stone was synthetic spinel. Nothing exciting there, you might think.

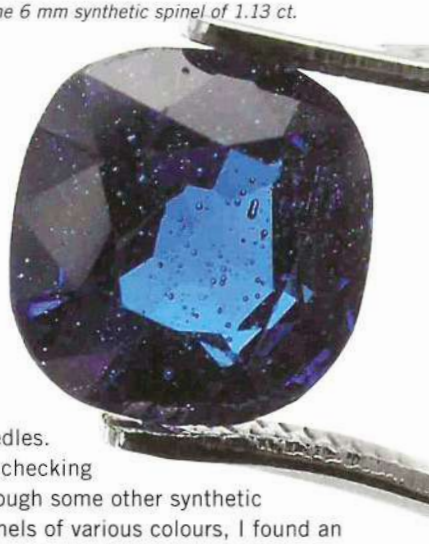
18ct gold three-stone ring dating from about 1900 -1915.

Well, the first point was that on hearing this news, the customer asked us to provide a decent sapphire replacement – not a bad development. The second point was that I was allowed to keep the synthetic stone. Once out of the setting I thought it merited another, closer look.

The RI of 1.730 was a little higher than you would expect and all those gas bubbles were decidedly unusual – we are used to seeing no bubbles at all in synthetic, flame-fusion spinels, with just the very occasional single, monstrously-shaped individual or a few worm-like forms. The bubbles in this stone would be 'normal' for older synthetic sapphires/rubies. The standard royal blue synthetic spinel shows a beautiful bright red through the Chelsea Filter, but this one showed a dullish brown. Under the high intensity lamp, no bright red glints flashed as we've come to expect. Next to try was the ultraviolet. Again, blue spinels usually show strongly red under longwave, but this stone was completely inert.

Under the shortwave lamp, the stone at last gave a reaction similar to the standard type – blue with yellowish-green chalky surface. On checking the spectrum again, it showed three very distinct bands with bright areas between them, whereas the bright blue standard synthetic spinel shows a merging of two or all three bands within a single, dark area. The polariscope view **(3 a,b,c)** was quite spectacular, with the expected dark streaky appearance, but also with sharply pronounced colourless lines, almost like needles.

2 *The 6 mm synthetic spinel of 1.13 ct.*



On checking through some other synthetic spinels of various colours, I found an old, pale pink stone that showed the same 'white needles'.

Then there is the ring itself **(1b)**. It is of a style common to the early years of the twentieth century and the two diamonds have a cutting style that matches this period. Could this hand-faceted, cushion-shaped stone belong to that time? We all remember from our initial gemmology studies the fact that, in the period following the introduction of Verneuil synthetic rubies in 1904, the first attempts to produce synthetic sapphire resulted in blue synthetic spinels. The synthetic sapphires were not perfected until 1909/1910. A quote from Herbert Smith's *Gemstones* runs: "By an unsurpassable effort of nomenclature these blue stones were at first given the extraordinary name of 'Hope sapphire', from the analogy with the famous blue

The synthetic spinel at different positions under the polariscope.

diamond." However, a later section of the same book states, "It was found by Paris, a pupil of Verneuil's, that by the substitution of lime for magnesia, blue stones were formed which did not suffer from the disadvantage attending the earlier ones, namely that they turned purple in artificial light."

What does Anderson say? In *Gem Testing* (I have the 9th edition of 1980), I found: "...it was not until the mid-twenties that synthetic spinels were made on a large scale." "Usually, a little chromium is added to the [blue] stone to improve the colour, and this gives rise to a red fluorescence under ultraviolet light..."

Webster's *Gems* has nothing to add to the information above, but the relevant section does show photographs that match this stone, namely lots of profilated bubbles in the same stone, the 'white needles' and dark cross appearance under the polariscope (the dark cross I associate more with paste). However, like a good many photographs in my version of *Gems* (1975), they seem to have been taken in the 1940s or early '50s. (My experience of examining gems and the start of my collecting goes back to the 1960s, so what I regard as 'old' is something that pre-dates this, i.e. over forty years ago. I realise that for many people, 'old' means pre-1985.)

So, my efforts to tie the stone to the same date as the ring seem to point to a substitution. I would have liked it to have been a 'Hope sapphire', but this stone retains its good blue colour in all types of light. However, the Chelsea Filter and longwave ultraviolet reaction seem to indicate that the stone was produced before the addition of chromium was the norm. This last date I can only guess, but it may well be within a spread of say, 1920 to 1950. Does anyone else have any knowledge of when chromium was added? I would suggest that the proliferation of gas bubbles and hand-faceted cushion-shape would point to the earlier years rather than the later ones.

Whatever, it is a good addition to my collection of oddities. ❑

An early padparadscha-type synthetic sapphire

A 15 ct gold necklet with natural half-pearl and old-style cut diamond of approximately 0.08 ct had as its main feature a pretty golden stone with hints of pink that showed relatively high surface lustre **(1)**.

First thoughts were of topaz, and second thoughts were of the newer 'Mandarin' type hessonite garnets (but this piece was supposed to date back to around 1920).

The item was a necklet with long feature drop, typical of the early part of the twentieth century, and was marked 15 ct. This quality of gold alloy ceased to be legal in the UK in 1932 but for some years before this, had been little-used, so 1915 to 1925 would be a reasonable date **(1)**.

The half-pearl looked natural and the diamond was of suitable cut and appearance for a 1920s' date. The main stone was 13 x 10 mm antique-cut and was hand faceted. The lustre was noticeable as being better than paste or citrine would be able to show. Yellow topaz, when well-polished, can show a deceptively high lustre, but the lustre on this stone suggested sapphire or garnet.

Examination with a 10x lens over white paper showed what seemed to be a clean stone, then two or three tiny bubbles were detected at one end. Turning the angle of examination seemed to show possible curved bands and when viewed obliquely from the back broad, slightly curved colour zones were distinct. Immersion in water showed more clearly the curved zones, with the central banded area being of distinct pinkish hue, compared to the yellow and golden colours either side **(2)**.

1

1920s necklet/pendant with natural pearl, diamond and orangey-pink synthetic sapphire.

2 *The stone immersed in water, showing curved, broad colour bands. The centre bands are pale pink compared with the other, more orange bands.*

The microscope revealed isolated very tiny bubbles, plus the three small bubbles just visible with the hand lens.

The RI was 1.761 – 1.769, and a fluorescent chromium line in the far red (with very little else) was observed through the spectroscope.

Longwave ultraviolet reaction was orangey-red and dull orange under shortwave.

The colour and lustre suggested several possibilities, but the 10× lens was all that was needed to identify the stone as synthetic sapphire, with the spectroscope showing the presence of chromium.

The golden colour with just a hint of pink would make this an attempt to imitate the padparadscha sapphire. It is unlikely that this stone would date back to the 1920s, but it could well be 1950s, supplied as a replacement for a lost original stone which could have been peridot, aquamarine or something similar that was fashionable in the '20s.

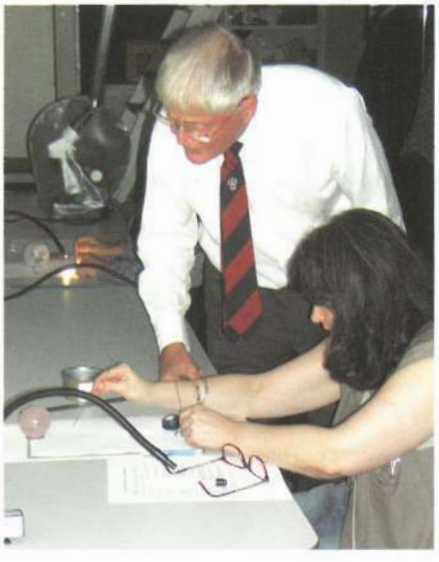
Certainly, the modern (i.e.1970s to present) synthetic sapphires of padparadscha colour are more orange, do not seem to show any pink, and are extremely clean without showing curved lines. So the very broad, easily visible bands of this stone with the central bands showing a pinkish colour, could point to it being an early example of a padparadscha-colour synthetic sapphire. ❑

The Gem Discovery Club

'Levitating' stars, the latest research on heat treatment detection and the rarest of gems

Star spangled

Harold Killingback is renowned for his interest in, and expertise concerning, gems that display chatoyancy and asterism – cat's-eyes and star stones. On 5 October Harold was our guest specialist at the Gem Discovery Club. After a brief introduction to the subject, illustrated by some of Harold's remarkable slides, participants were able to examine a wide variety of star and cat's-eye gems and make their own observations and measurements of these and a selection of polished spheres in a diversity of materials – from optical fibre spheres to rose quartz.



Harold Killingback helps Gem Club member Carol Gollance to trace the light rays to the quartz sphere.

It was interesting to observe that the image of a star is indeed actually seen to be above the surface of the stone. Harold had pointed this out in his article 'Stereoscopic effect in asterism and chatoyancy (*The Journal of Gemmology*, 2005, 29(5/6), 312), but as he explained in his talk (and in a letter published in *The Journal of Gemmology*, 2005, 29(7/8), 482), this 'star in the sky' effect had actually been noted in the early 1980s, although the cause of the effect is still debated. The height of the image above the stone surface has been variously quoted as half the radius of the stone divided by the difference between the RI of the stone and air, and the radius of the surface divided by the RI of the stone. The cause of the effect has been attributed by different researchers to reflection, scattering and dispersion. As Harold said in his lecture, "I am happy to believe that all three phenomena, reflection, scattering and diffraction, may play a part, depending on conditions in a particular stone."

Following the meeting, Harold very kindly donated the rose quartz sphere to the Gemmological Association.

Inside information from John Koivula

On 1 November our Conference Keynote Speaker, John Koivula, entertained Gem Club members with ground-breaking information about inclusions in gemstones with particular reference to the detection of heat-treated corundum. He explained that the original growth of crystals could result in colour diffusion on a microscopic level that was contrary to that observed in heat treated stones. In essence, inclusions tend to 'suck' the colour out of their immediate vicinity when the crystal forms, while with heat-treated stones colour tends to diffuse out from the inclusions. John's research in this important area will be published in a future issue of *The Journal of Gemmology*.

An excellent example of chromophore consumption is shown by the colourless zone surrounding the minute inclusions in this unheated blue sapphire. The exact opposite of internal diffusion which proves treatment, chromophore consumption, as shown by colour depleted zones around inclusions, provides excellent microscopic proof of natural colour. Photomicrograph by John I. Koivula, courtesy of microWorld of Gems.

After a conference where the papers included advanced gemmology using Raman spectrography and oxygen isotope studies, it was reassuring for many Gem Club members to hear from John that, in his view, the majority of gem identification could still be carried out with basic gemmological equipment, including, of course, a good gemmological microscope.

Rare gems

The regular weekly Gem Discovery Club meetings continue to provide members with some unusual gemstones for hands-on examination – including, recently, some intriguing and often awkward to identify composite stones. On 25 October the guests of honour were some crystals of painite from Myanmar. The crystals were a pale brown with a hint of red and a notably bright lustre. Gem Discovery Club 'facilitator' Michael O'Donoghue has provided some information about this mineral:

Painite was named in 1957 for the collector A.C.D. Pain after its discovery in Burma where he worked as a teak merchant. The original dark red hexagonal crystal can be seen in the Natural History Museum in London – at least one thin section has been cut from it. Pain's collection, consisting mainly of fashioned stones, is kept and displayed together at the same museum. The crystal was recovered from gem concentrates from Ohngaing, Mogok district, Sagaing, Myanmar (information from Dana's New Mineralogy, *1997, page 315).*

The crystals shown at the Gem Discovery Club were kindly presented to the Gemmological Association by John Ho FGA of Hong Kong, one of our Diploma Graduates this year whom we were delighted to welcome in London for our annual Graduation and Award Ceremony held at Goldsmiths' Hall on 31 October. ❑

The Gem Discovery Club meets every Tuesday evening at Gem-A's London headquarters. For further details visit www.gem-a.info/membership/gemclub.htm or call Dawn on 020 7404 3334.

The blunt truth about the sharp end

Gem dealer Guy Clutterbuck, one of a breed that we might class as 'Extreme Gemmologists', enthralled Gem-A Students at a special lecture on 22 November.

His talk was entitled 'The blunt truth about the sharp end: An explanation of how to buy gems at source' and described the hazards, fun and excitements of buying gems in some of the more remote parts of the world. With a splendid series of slides showing everything from Kalashnikov-wielding Mujahdin to Sri Lankan gem gravels to the breathtaking views from 18,000 feet up in the Hindu Kush, Guy passed on his unrivalled experience. His talk ranged over many aspects of gem dealing at the sharp end, from the differences between judging Afghan and Zambian emerald rough to how to pass safely through areas where a rival could have you killed for as little as US $80.

Guy rounded of his talk with a list of vital things to take with you – from water filters to medical certificates – and the advice to always deal ethically, not to try to cheat suppliers, and don't try to smuggle anything back into Britain. As to whether he carried a gun, the answer was that firearms or kung fu would be of little use in a tight spot – far better was good manners and politeness. For him this approach had never failed.

Following his lecture, there was a display of a wide range of gemstones from the regions Guy visited. These included rare spessartine garnets, emeralds and very fine coloured amethysts from Zambia; rubies and emeralds from Afghanistan; sapphires from Madagascar; spinels from Myanmar; and chatoyant and deep blue aquamarines from Mozambique. ❑

Orange fluorescing diamond

Recently a polished diamond of 2.29 ct was brought into the lab for grading.

Going through normal grading procedures, it was established that the diamond was a type IIa (using spectra from a Thermo Nicolet Avatar 370 Fourier transform Infrared). It did not have any identifiable inclusions, had a strong fluorescence under both long- and short-wave ultraviolet (UV) light, and therefore possessed all the characteristics of a synthetic diamond produced by the chemical vapour deposition (CVD) process.

Fluorescence under UV light: the natural type II left and a CVD synthetic diamond right.

The diamond was subsequently tested with the DiamondView™. This uses UV light to cause the diamond to fluoresce in such a way that the growth structure can be observed. The growth structure of natural diamond is different to that of synthetics; that of natural diamond is patchy, whereas CVD synthetics may show a linear structure.

The diamond under examination showed a patchy growth structure and was therefore proved to be a natural diamond of high colour and clarity with a strong orange UV fluorescence.

The natural type IIa diamond.

It is not unheard of to have natural diamonds with an orange fluorescence, although those previously seen have been type Ia and the UV fluorescence has not been as strong as in this diamond. ❑

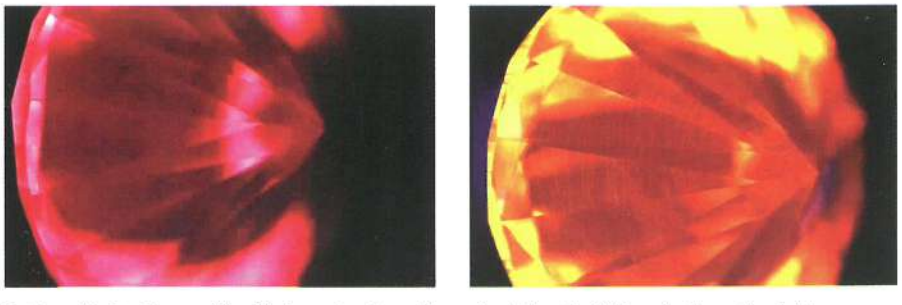
Doug Garrod and Carole Gordon

CVD diamonds

Synthetic diamond can be grown from hydrogen and methane gases, in a vacuum, at about 1000°C on a suitable substrate. This is termed chemical vapour deposition (CVD). Diamonds grown by this process have various characteristics:

- they are all type IIa diamonds
- they are free from characteristic inclusions
- they often possess brown or pink tints but can be colourless
- many have an orange fluorescence under UV light

At the time of writing we are unaware that synthetic diamonds made by the CVD process are commercially available.



Testing with the DiamondView™: the natural type IIa on the left and a CVD synthetic on the right.

The Great American Platinum Controversy

The 1920s debate over the composition of platinum jewellery alloys

In November 1923 the celebrated gemmologist Dr George Frederick Kunz, who ran the diamond department for Tiffany & Co., wrote an article in *The Jewelers' Circular*. Here he advocated limiting platinum jewellery alloys to platinum-iridium and decried the use of other 'adulterants' such as palladium.

Dr Kunz's voice was just one that was raised in a controversy that swept through the American jewellery trade in the early 1920s. Terms like 'unscrupulous', irresponsible', 'adulteration', 'deception', 'farce', 'unfair competition' and 'prostituting the platinum jewelry business' were bandied about and increasingly strident arguments led to what was described at the time as a schism in the industry.

What caused such strong feelings? It had been accepted since the early 19th century that platinum alone was too soft for jewellery use. The normal practice had been to alloy it with 5 – 10% iridium to harden it. The resulting alloy was ideal for the delicate settings and lace-like constructions of early 20th century jewellery, particularly diamond-set jewellery. However despite the growing use of platinum for jewellery in the early 1900s it had been ignored in the National Gold and Silver Stamping Act of 1906 and thus there was no real legislation in the United States covering its fineness or composition. It would seem that this was not much of problem until after World War I when two factors came into play.

The first was the assumption by some in the jewellery industry that 'platinum' meant any combination of the platinum group of metals (platinum, palladium, iridium, osmium, ruthenium and rhodium). In part this had been implied by the long-established addition of iridium to platinum. The second factor was a fall in palladium prices. Before and during the First World War I palladium was generally more expensive than platinum even though, like platinum, prices rose during the war. However between 1918 and 1922 palladium prices fell from about $150 per ounce to about $80 per ounce while platinum first dropped from $100 per ounce to $65 in mid 1920 and then rose to $118 in 1922.

So, by the early 1920s the alloying of platinum with palladium made good economic sense – it was slightly cheaper than platinum and less than a third of the price of iridium. Besides, palladium was a bona fide member of the platinum group of metals. In 1920 New York had passed a state law – the New York Stamping Act. This legislation stated that for platinum jewellery, "The standard is 925/1000 fine which not only includes the platinum metal alone, but also the other metals in the platinum group." Illinois passed a similar law.

The Jewelers' Vigilance Committee applauded this new law, but in many ways it marked the beginning of the battle. The presence of legislation in just two States created an imbalance across the USA, a Federal Law was clearly needed, but the most controversial aspect was the inclusion of platinum metals other than the long-established platinum and iridium. This meant that in theory a ring made of platinum with 50% palladium could be legally sold as 'platinum' – and potentially provide a very good profit for the maker. The traditional high-end faction, led by Tiffany & Co. was steadfast in its desire to keep platinum jewellery of the highest quality and prevent 'unscrupulous manufacturers' making much cheaper platinum-palladium jewellery and passing this off to customers as the same thing.

The argument had rumbled around the American jewellery industry for a year or so until, in November 1922, Julius Wodiska, who claimed an association with platinum from 1883 and a personal involvement "all the way from the refining process to the completion of the finished article, for many years", wrote a letter in *The Jewelers Circular* headed 'Why Palladium should not be used with Platinum'.

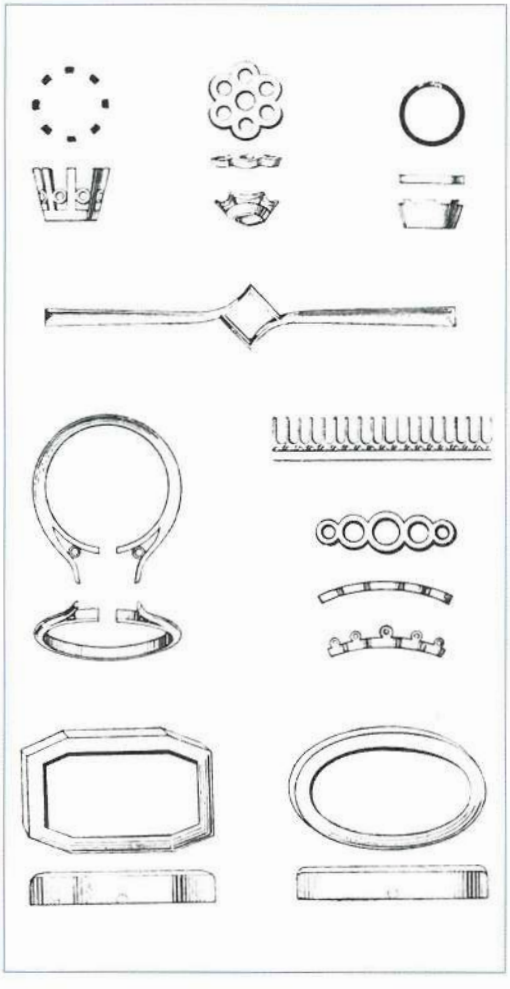
He complained that he had encountered 'platinum' jewellery containing up to 35% palladium. The cost saving this entailed constituted a serious handicap to the manufacturer of 'pure platinum and iridium jewelry'. Retailers who bought platinum alloyed or adulterated with such 'inferior metals' as palladium cheapened their stock and would, sooner or later, regret it. As was pointed out the metal costs of a ring made from a platinum-palladium alloy with 25% palladium worked out about 40% cheaper than one made from a traditional platinum-iridium alloy. Clearly those manufacturers only selling platinum-iridium were fearful of losing out if the 'poorer' platinum alloys were not readily distinguishable by the buying public. It was rather as if there was no mark to distinguish between 14 and 22 carat gold – and both could be described as gold. Not only was the actual per-ounce price involved, but also palladium is lighter than platinum and iridium and so size for size there was an additional saving in metal.

Wodiska's arguments were almost entirely financial and as Charles Engelhard, then General Manager of Baker & Co., in Newark, New Jersey noted, "The controversy would probably not have arisen if palladium had retained its position of being a costlier member of the [platinum] group." But controversy it was and increasingly heated arguments filled the American jewellery trade press, and industry association meeting agendas, for the next two years.

At their convention in August 1922 the American National Retail Jewelers' Association proposed the resolution "that manufacturers discontinue the practice of using any other metal than iridium for the purpose of hardening platinum used in the manufacture of jewelry." However it was realised by most that legislation could not, and should not, forbid any particular combination of metals, but that customers had a right to know what they were getting. So a draft for a new Federal Stamping Law proposed in December 1922 said that, in essence, platinum could only be described as platinum if it contained 925/1000 pure platinum, and that alloys of platinum with other platinum group metals with between 500 and 925 parts platinum, and containing at least 925 parts platinum group metals, must be marked with a number representing platinum content. For example, '700 Plat.' would mean the alloy had 70% platinum and 25% other platinum metals – in other words having a total of 95% platinum group metals. The following year much the same was agreed in a major conference held in New York, combining American jewellery manufacturers, refiners and retailers, though the accepted fineness was raised from 925 to 950. It was proposed that this resolution should be transmitted to the Jewelers' Vigilance Committee for incorporation in the envisioned new National Stamping Act.

This type of compromise was generally accepted and an editorial in The Jewelers' Circular in January 1923 noted that as long as the customer knows what he is getting, and pays a fair price for it, the alloying of platinum with palladium cannot be described as dishonest and that to describe "palladium as an 'adulterant' or in any way classify it with a base metal, is both foolish and futile." Even Mr Wodiska, who remained "firmly opposed to the manufacture of jewelry from platinum containing any alloy other than iridium", agreed that there could be no real objection if other alloys were clearly stamped as such – but they should not be sold as platinum.

In Britain Ernest Smith observed that "Within the past few years the use of an alloy of palladium with platinum, has been practised to an undue extent in America, despite the timely protests that have been made against it." He noted the unfair cost advantages of using platinum-palladium alloys and such negative factors as their relative lightness and greater susceptibility to attack by acids. This susceptibility to tarnish had already been pointed out by Mr Wodiska, but is perhaps exaggerated. In his 1941 study of platinum metal alloys, R.F. Vines notes that alloys of platinum with up to 25% palladium "have essentially the chemical properties of platinum" and that a "10% platinum palladium alloy is completely resistant" to nitric acid.



Platinum stampings from the early 1920s. It was argued that platinum-palladium alloys were better suited to such production than platinum-iridium alloys.

Of the numerous scientific arguments raised both for and against the use of palladium, not all were accurate and some were perhaps deliberately misleading. But there was one irrefutable fact. Platinum-palladium alloys lacked the hardness of the platinum iridium alloys and this was a serious consideration for finer work, such as stone settings and the delicate 'knife-edge' struts in the diamond jewellery of the period. As Wodiska said: "Manufacturing jewelers who use iridium only as a hardening agent in platinum are those of the higher class, who produce the better grades of artistic diamond jewelry." In contrast, the more workable platinum-palladium alloys were far more suited for mass production by die stamping. It was estimated that about 20% of the US jewellery industry – led by Tiffany's – insisted on platinum-iridium only, while the other 80% would be happy to accept 'platinum' with up to 20% palladium.

However, the iridium-only proponents were up against another problem. As early as 1915 we hear of worries about the "steadily increasing demand for hard platinum (a general trade term for platinum-iridium)" but "the limited supply of iridium and its high cost." It got worse. Russia had been the major supplier of iridium, but the Russian revolution had almost totally cut off this source. The quantity of newly mined iridium entering American refineries halved between 1918 and 1922, and the industry was largely reliant on recycling scrap. In 1922 the American jewellery industry consumed about 2600 ounces of iridium, the electrical industry about 1500 ounces – demand had exceeded supply. Quite clearly the expansion of the market for platinum jewellery was impossible unless alternatives to iridium were permitted. Also other voices outside the jewellery industry were being raised – scientists feared that if the jewellery industry cornered all the available iridium it would cripple the electrical and scientific industries. In 1924 Dr J.M. Hill of the US Geological Survey complained that if jewellery could only be made of platinum with iridium, the price of iridium "will go out of sight".

But by 1924 the possibility of renewed imports of iridium and other platinum metals from Russia were brighter. Although prices were still likely to rise, Dr Hill admitted that "jewelry is a luxury, and those who can afford to insist that their gems be set in platinum 10% iridium can also pay and will pay for the higher priced alloys."

What Dr Hill, a geologist not a jeweller, had pointed out was that the market was probably large enough to accommodate all types of platinum jewellery products. Besides platinum jewellery producers and sellers now had new competition to focus on – white gold. Between 1921 and 1923 palladium consumption by the jewellery industry in America increased more than ten-fold, a significant part of this was accounted for by the growing popularity of white gold alloys. Over the same period platinum consumption showed little change.

So what had the great platinum controversy accomplished? First of all it greatly widened the jewellery industry's knowledge about platinum – until the debate had been played out in the trade press most jewellers were probably ignorant of the existence of other members of the platinum group of metals. Next I think we can argue that the controversy marked a major step in the jewellery industry's realisation that consumers should know what they are buying – in many aspects the debate recalls the gem-treatment disclosure discussions of recent years. And then there is marking legislation. Way back in the mid-1920s such legislation was still some way off, but the current US Federal Trade Commission platinum marking guidelines and the International Standards Organisation's standard for the 'Fineness of Precious Metal Alloys' have their roots in the proposals that arose out of the great platinum-palladium controversy in 1920s America.

Perhaps the Editor of *The Jeweler's Circular* was not entirely correct when he wrote that the platinum-palladium controversy was "to a large extent unnecessary and hurtful to the trade." ❑

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The research for the article was kindly sponsored by Platinum Guild International

The return of colour

TARA VEITCH reviews the Goldsmiths' Fair

The demand and appreciation for innovative jewellery continues to be as strong as ever, as proved by the enthusiastic response from the public to the 23rd Goldsmiths' Fair. This year over 7000 people flocked to Goldsmiths' Hall to admire, buy and commission work designed and made by the 90 participating exhibitors from around the UK.

As always at the Goldsmiths' Fair, the work exhibited the highest quality of craftsmanship.

Especially noteworthy this year was the innovative use of coloured gemstones by many of the jewellers. Some exploited the natural shape of rough in their work, such as the aquamarine crystals used in jewellery by Daphne Krinos, while others accentuated the natural features in the gemstones, such as Swedish designer Ulla Hörnfeldt who highlighted the inclusions in gemstones for her jewellery.

(Above) Salamander ring set boulder opal by Charmian Harris. Photo courtesy of Charmian Harris.

Said Ulla: "I search out stones with unusual markings and strong shapes as a starting point for my work."

Jeweller James Fairhurst from Surrey offered many colourful gems in his booth. His simple, elegant designs focus on large gemstones of saturated colour. He explains that his inspiration for making jewellery "comes primarily from the qualities held within the gemstone. Finding a stone that gives you a tiny buzz of excitement is the key!"

Today some jewellers even work as their own lapidaries. Charmian Harris says that she sometimes cuts and shapes stones using a diamond saw and carborundum wheels. She often works with moonstone and tourmaline, or boulder opal, her particular favourite. Harris sometimes travels to choose her own stones for her work, otherwise she acquires them from collectors, dealers and, in the case of Australian opals, from the miners themselves. ❑

Goldsmiths' Fair will take place next year from 2 to 8 October. Information regarding the Goldsmith's Company can be found on their website www.thegoldsmiths.co.uk.

(Below) Rutilated quartz pendants by Ulla Hörnfeldt. Photo courtesy of Ulla Hörnfeldt.

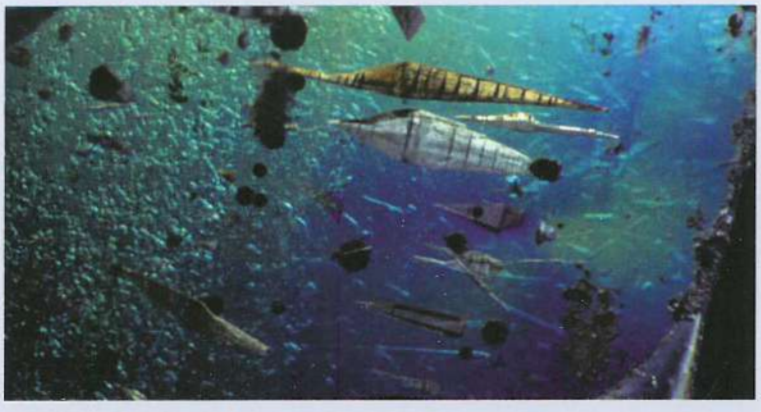
The inside story: inclusions in gemstones

This year's Gem-A Conference, dedicated to the late Professor Dr Edward Gübelin, was held on Sunday 30 October at the Renaissance London Heathrow Hotel. The theme of the Conference, 'The Inside Story: the inclusions in gemstones' recognising Professor Gübelin's lifetime study of inclusions in gemstones, attracted record numbers of members and students. Gem-A President Alan Jobbins opened the event with his personal memories of Professor Gübelin* and delegates stood in silent tribute to this great man. Following are highlights of the presentations made by the panel of international speakers.

Recent observations of inclusions

The first speaker of the day was Dr Gübelin's great friend and co-author of the *Photoatlas of Inclusions in Gemstones*, **John I Koivula** of the AGTA Gem Testing Center in Carlsbad, California. John illustrated his talk on recently observed inclusions with wonderful photomicrographs of the high quality anticipated from the co-author of the *Photoatlas*. The slides illustrated the various methods used to view inclusions under the microscope, two of which are shown below.

1



Muscovite 'fish' in a beryl 'aquarium' from Pakistan, photographed in polarized light. Magnification 10×. Photomicrograph by John Koivula courtesy of microWorld of Gems.

2

Fibre optic illumination and darkfield were used to capture the image of these bright red spinel crystals with accompanying white marble trapped in a booklet of phlogopite from Myanmar. Magnification 5×. Photomicrograph by John Koivula courtesy of microWorld of Gems.

*A tribute to Dr Gübelin by Alan Jobbins was published in *The Journal of Gemmology*, 2005, 29(5/6), p. 257.

Professor Dr Edward Gübelin – Memorial Presentation

Edward Boehm, Dr Gübelin's grandson, presented a memorial to his grandfather, highlighting his lifelong fascination with the inclusions in gemstones. Edward Boehm kindly provided copies of the wonderful Gübelin Memorial Brochure for Conference delegates.

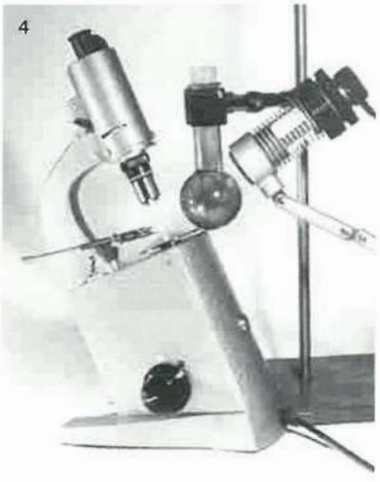
A series of photographs catalogued Dr Gübelin's life, bringing back memories for many of those present.

3

After one of his many presentations to eager gemmologists from around the world, Dr Gübelin is seen above (second from the left) **(3)** in a lively exchange with his long time friend and mentor Basil Anderson, circa 1940s. Photo courtesy of the Dr Edward J. Gübelin family.6

Along with many other gemmological instruments, Dr Gübelin developed the first desktop spectroscope in 1950. **(4)**

This instrument gave gemmologists the freedom to take notes and sketch the spectrum they were viewing. This spectroscope also had a rheostat that enabled the user to adjust the strength of the incoming light. Photo courtesy of the Dr Edward J. Gübelin family.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5

Dr Gübelin captured tens of thousands of microphotographs during his 70-year career. He authored and co-authored 15 books, and over 250 publications. He is seen above in 1997 **(5)** in his much beloved private laboratory. His enduring legacy carries on in the knowledge that he shared and the inspiration that he provided us all.

Fluid inclusions as indicators of the origins and heat treatment of gemstones

Professor Andy Rankin spoke about recent research carried out in the School of Geological Sciences, Kingston University, examples of which follow.

Exceptionally large (*c.* 1 cm) two phase (V+L) aqueous fluid inclusion in an interpenetrating twin crystal of fluorite from Heights mine, Weardale **(6)**. Macroscopic examples such as these are rare, but microscopic (*c.* 10-20 microns) fluid inclusions are common in minerals from a wide range of geological environments. Despite their small size it is possible to determine their compositions using modern micro-beam methods such as Laser-Raman and Laser-ICP-MS as well as their minimum trapping temperature using the homogenisation temperature method. A variety of different fluids may


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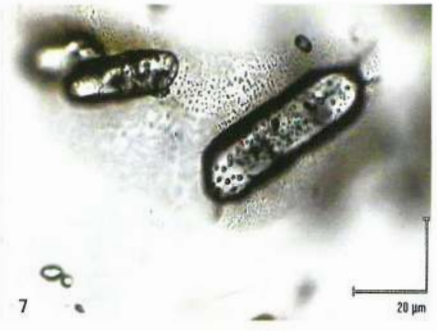
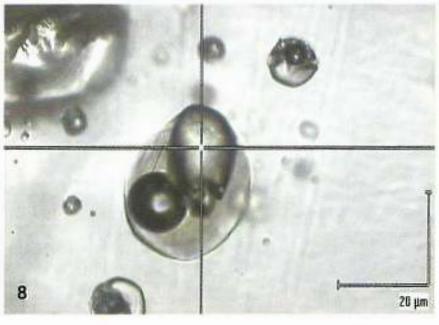


7

be trapped in gem materials ranging from dilute to concentrated aqueous brines through to silicate melts attesting to the range of geological processes responsible for their formation.

Fluid inclusions usually represent portions of the fluids responsible for the primary growth of minerals (primary inclusions) or portions of external fluids introduced into the crystal along healed micro-fractures at some stage after growth has terminated (secondary inclusions). The inclusion contents may be released into associated micro fractures or 'decrepitation aureoles' if the inclusions are subjected to differential stresses, for example accompanying temperature and pressure changes during ascent in a magma. Such aureoles may help determine whether a sample of gem material has been artificially heat-treated. In extreme cases of heat treatment such as the example shown **(7)**, solid inclusions of zircon can react with the surrounding corundum to form a silicate melt that enters stress-induced micro-fractures, leaving behind a decomposed, mottled zircon.



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Close-up of a recrystallised, three-phase, melt inclusion in the aureole surrounding the mottled zircons described above (in corundum from the Chimwadzulu deposit, Malawi) **(8)**. The three phases, identified by Laser Raman and Electron Probe Microanalysis, are silicate glass, a low-density vapour bubble and a crystal of baddeleyite (ZrO_2) located under the cross-wires. Based on these observations, and with reference to the phase diagram for alumina-zirconia-silica, a heating temperature of 1750°C is indicated.

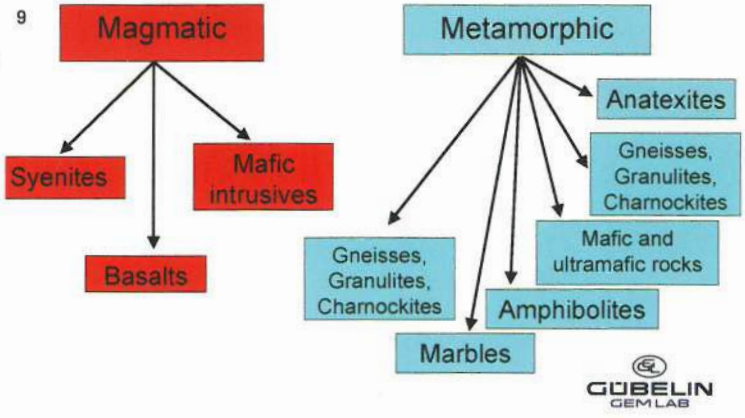
Origin determination in coloured stones, then and now

In the recent decades, the number of countries producing corundum has more than doubled. In addition, the number of mines in many of the old countries and of the new sources has increased. This results in an increased complexity and variety of gemmological features generally found in corundum. **Dr Daniel Nyfeler** of the Gübelin Gem Lab, Lucerne, explained how the GGL is addressing this increased complexity with various projects. Two of them are presented here:

At the time when Dr Gübelin developed the methodology of origin determination, it was very much an empirical process, based on phenomenology: the distinction of one source from another has been achieved on the observation and description of internal features in the stone, sometimes without fully understanding the reason why a certain characteristic is present in a stone.

Meanwhile, scientific research in the field of geology, petrology, geochemistry, mineralogy and tectonics has progressed, and the support of models to better understand, interpret and even predict the findings from gemmological analysis is available.

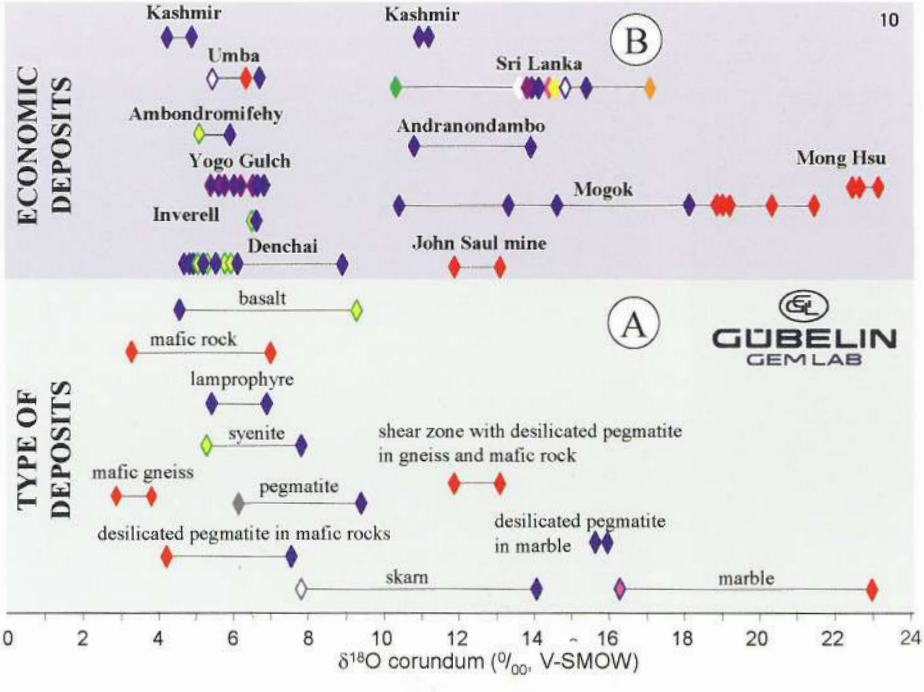
A geological model was developed (by Prof. Gaston Giuliani and co-authors, including Dr Dietmar Schwarz, GGL) for the classification of the types of corundum sources, on the basis of the type of host rock **(9)**.This work allows merging the concepts of geology with the empirical observation of gemmological analyses. For example, the bi-modal corundum suite observed in basaltic host rock in Barrington (Australia) is explained with the support of such geological models (Sutherland, *et al.*, 1998).



Types of gem corundum deposits (based on the lithology of the corundum host rocks). (Schwarz et al., *2004)*

Another method to address today's challenges in origin determination is the use of oxygen isotopes for the determination of origin in corundum **(10)**. Giuliani and co-authors, including Dr Dietmar Schwarz (GGL), presented their results in a recent paper.

Oxygen isotope composition as a tracer for the origins of rubies and sapphires. (Giuliani et al., *2005)*



Rubies and sapphires from 106 mines have been analysed. This diagram shows on the x-axis the variations of the delta ^{18}O. The horizontal bars represent the variation of isotope composition of individual locations. The colours of the symbols indicate the colour of the stones analysed. On top, various corundum localities are represented. On the bottom, you see the different geological regimes. The oxygen isotope composition allows distinguishing different geological environments, thus it is a useful indicator of the origin of corundum. In addition, this method is not affected by heat treatment of the samples.

References

Giuliani, G., Fallick, A.E., Garnier, V., France-Lanord, C., Ohnenstetter, D., Schwarz, D., 2005. *Geology*, 33(4), 249-52.

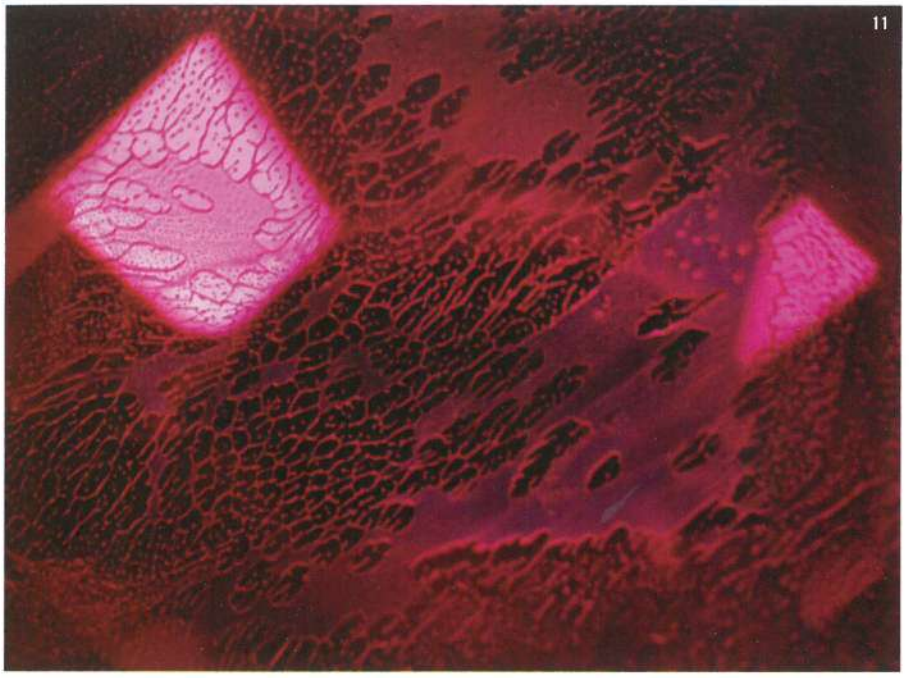
Sutherland, F.L., Schwarz, D., Jobbins, E.A., Coenraads, R.R., Webb, G., 1998. Distinctive gem corundum suites from discrete basalt fields: a comparative study of Barrington, Australia, and West Pailin, Cambodia, gemfields. *J.Gemm.*, **26**(2), 65-85.

Schwarz, D., Giuliani, G., Garnier, V., Ohnenstetter, D., 2004. Types of gem corundum deposits: based on the lithology of the corundum host rock. IGC Meeting Wuhan, China, and also presented during Tucson 2003.

Ruby feelings

A general overview of the treatment of ruby, as revealed by its internal features, was presented by **Professor Dr Henry Hänni** of the SSEF Swiss Gemmological Institute, Basel, from classical heat treatment to heat plus glass infilling and the latest lead-glass infilling.

For more than 20 years ruby heat treatment with additives has become a standard procedure because most natural untreated rubies do not match with market requirements. Heat treatment alone at low temperature can already enhance the colour. Heat applied at higher temperature may dissolve inclusions (e.g. rutile). When heated with additives such as, for example, borax, fissures are filled with boracic melt and partially healed. Such rubies look more transparent and the neo-healing fissures resemble coarse naturally healed fissures. Glassy residues remain, however, on the former fissure planes as a network of tubes and hoses **(11)**.

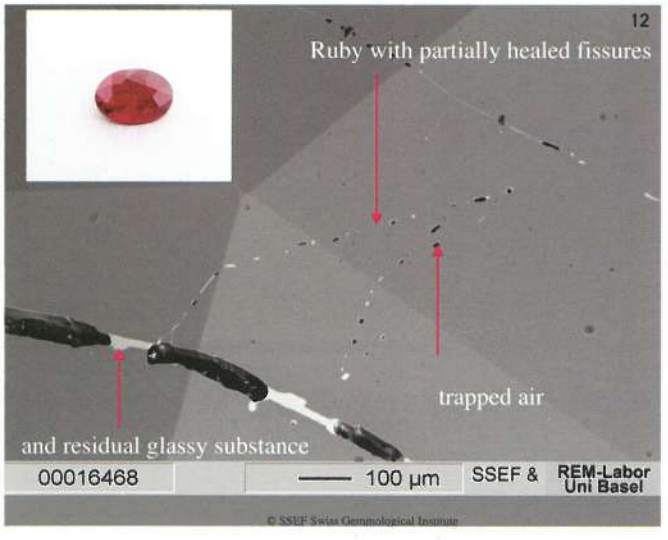


Microscopic indications for glassy residues may exist in round droplets, channels with drop-like extensions or turbid films.

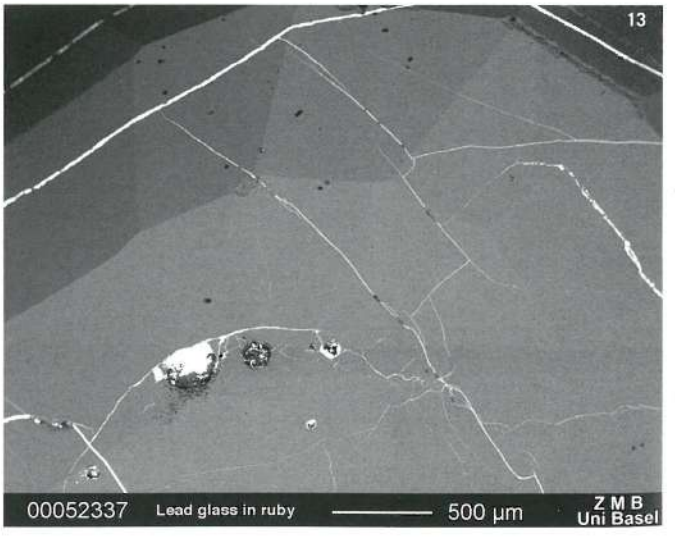
An international laboratory harmonisation committee has achieved regulations about how to express the treated nature and the quantification of foreign glassy residues in the rubies (see also www.ssef.ch/en/news/news.html).

The healing of former natural fissures progresses from precipitations of alumina that was dissolved in the boracic melt as is visible on the SEM (scanning electronic microscope) picture **(12)**. Trapped gas bubbles and portions of solidified melt indicate the extension of the former fissure. A higher treatment temperature (about 1800°C) and the presence a solvent catalyst (borax) is required for the fissure healing.

For a few years glass-like fissure fillers with lower melting points (e.g. soldering glass, lead glass) have been used to improve fractured rubies. The application of lead glass under lower temperatures leaves rutile unaffected. Bubbles in the glass are still diagnostic, as are purplish-blue flashes which appear along the fissure planes. The SEM picture **(13)** also indicates clearly the distribution of lead glass across the stone. Trained gemmologists and laboratories identify these treatments without difficulty.



Ruby with partially healed fissures.



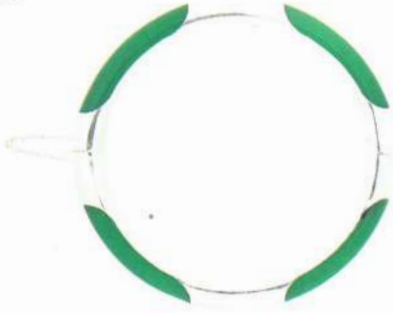
Lead glass fillings. In the SEM picture using back-scattered electrons the heavier elements, such as lead, appear brighter.

The ins and outs of gems in UK jewellery

Stephen Kennedy gave a laboratory perspective on the problems of coloured stones and pearls used in jewellery within the UK.

Examples are given below of items recently submitted to the Gem-A Gem Testing Laboratory.

14



A watching brief of newspaper and magazine advertisements led to the purchase of this 'jade bangle' **(14)**. The price of £39.95 had to be too cheap for jadeite jade, the only jade to have this rich emerald-green colour. The identity of the material was confirmed to be dyed quartzite as suspected. The bangle was returned for a refund and the Times newspaper reported to the local trading standards authority from whom nothing further has been heard. Applying the description of jade to dyed quartzite is quite a common false description.

Yellow/green amber can be produced by burning the base of yellow amber, and this can be described as burnt amber. However, there is also a practice of adding an artificial black base. The reverse of the yellow/green amber cabochons in this cross pendant **(15)** shows an opaque polished base **(16)**. When a hot point was applied to the base, a plastic smell was given off, in contrast to the normal aromatic smell of natural resins such as amber and copal obtained from burning the upper portion of the stones in the pendant. A member of the Polish Amber Dealers Association reported that this was being done on smaller stones.

15

16

First appearances of this monogram ring with a difference **(17)** pointed to it being some sort of composite, which was true to some extent. However the fact that the individual eight-cut colourless stones forming the M-shape are distinctly observed through the table of the stone indicated that this was not a doublet in the sense of an adhesive holding the upper and lower halves together. This was a montage where an upper crown portion consisting of yellow diamond was mounted above a lower half of an anisotropic colourless material (maybe something like quartz). The wide collet of the ring probably had a ridge on the inside of a few millimetres width. The two halves of the gem are mounted to be a matter of a few millimetres apart. The only glue present was that holding the eight-cut stones (untested but assumed to be diamonds) in the prepared drilled holes in the lower colourless half. ❑

17

Graduation Ceremony

Conference keynote speaker John Koivula gave the address and presented the awards at Gem-A's Graduation Ceremony held at Goldsmiths' Hall in the City of London on Monday 31 October.

Graduates from Australia, Canada, Hong Kong, India, Korea, Madagascar, and New Zealand, as well as those from Europe and the UK attended the ceremony to collect their Diplomas and awards.

John Koivula giving the address at the Graduation Ceremony. Photo Lewis Photos Ltd.

A report of the ceremony will be published in the January/April 2006 issue of *The Journal of Gemmology.*

John Koivula was also the guest specialist at the Gem Discovery Club on 1 November (see p.84). ❑

Conference Sponsors

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The Warning Carriers

NIGEL ISRAEL reviews a fascinating book which brings to light a remarkable system of communication used in 18th-century London

The Warning Carriers: How messengers of The Goldsmiths' Company warned the luxury trades of criminal activities in eighteenth-century London. Judy Jowett. 144 pages, soft cover, 65 illustrations and 42 pages of maps in colour. ISBN 0-9549144-1-4, The Silver Society, London.

Available from the Silver Society, Box 246, 2 Lansdowne Row, London, W1J 6HL (email: secretary@the silversociety.org) or Thomas Heneage, 42 Duke Street, London SW1Y 6DJ. £12 plus £3 UK p&p

From the title one might have expected this publication to be a dry academic work. Whilst its academic credentials are certainly not in doubt it is far, far more than that. In 18th-century London, messengers from the Worshipful Company of Goldsmiths criss-crossed the City bringing urgent news of the latest thefts and other crimes to the capital's goldsmiths, bankers, watchmakers, pawnbrokers and jewellers.

A notebook (described as: 'similar in size and shape to an old school exercise book') dating from about 1730, held in the Company's archives for over 250 years but only now the subject of research, contains tantalising information about these messengers, known as Warning Carriers, and their work. Judy Jowett's investigations into this document, which lists some of the most famous craftsmen of the period (and many more previously unknown to historians), have brought to light a remarkable system of communication that was effective and efficient. An advertisement issued by the Company in 1722, reproduced in her book, starts: 'A useful Advertisement for any Persons who shall have had the misfortune of losing any Bank Notes, Sword Blade Notes, Goldsmiths or other Notes for Money, or any Diamonds, Jewels, Rings, Plate, Watches & c. Upon Application to the Beadle of the Goldsmiths Company at Goldsmiths Hall in Foster Lane, you may have Warnings printed and delivered, in three Hours time, at all the Goldsmiths, Jewellers, Brokers, and Watchmakers Shops, within the Bills of Mortality; to prevent and forbid the taking such Notes in payment, and desiring them to stop and detain such Goods.' If only current systems, 283 years later, were anything approaching that efficient!

The book is split into four sections. The first part describes what the notebook contains and explains the various terms used. It gives the story of the Walks taken from the Company archives, and their impact on the luxury goods trade, crime and criminals. The second part deals specifically with the three Walks described in the notebook, giving maps showing both the routes taken and the locations of the premises visited by the three Walkers. This illustrates how the trades were clustered in different parts of London. The third part consists of an alphabetical list of goldsmiths, jewellers, watchmakers, toymen, brokers and pawnbrokers listed in the notebook, together with much diligently researched biographical detail. The final section has a Concordance of Tradesmens' Names, lists of Streets and Notices, a Bibliography and a General Index. The illustrations throughout, particularly of Advertisements and Notices, are well chosen and draw one into the subject.

This is a fascinating, well illustrated, step back into the almost forgotten and largely unrecorded world of real people, below the much written about higher echelons of society. It is the first major research project carried out under the aegis of the Silver Society, and is published as a special issue of the Society's excellent journal, *Silver Studies*. Much credit is due to Judy Jowett and the Society for producing such an excellent publication, at an exceptionally reasonable price, that can be wholeheartedly recommended to everyone with any interest in 18th-century life, but particularly to those interested in the history of the luxury trades. ❑

Congratulations ...

... to Gem-A Fellow Cally Oldershaw (Hall) for appearing not once but twice in the top ten geology books in *The Independent* charts for September.

Her book *Gemstones* appears at number 4 in the charts, and *Philip's Guide to Gems, Stones and Crystals* at number 7. Both books are very similar giving good illustrations and general information on gemstones, with Philip's Guide placing more emphasis on rocks and minerals.

*Gemstones is available from Gem-A Instruments, 27 Greville Street, London EC1N 8TN (shop@gem-a.info) at £9.99 plus postage and packing.

UK Auctions – Winter 2006

BONHAMS www.bonhams.com

Leeds (t: 0113 244 8011)
Silver and jewellery: 28 February, 28 and 29 March

CHRISTIE'S www.christies.com

South Kensington, London (t: 020 7930 6074)
Jewellery: 24 January, 7 March
Jewellery, unredeemed pawnbrokers' pledges: 24 February
Fine jewellery: 4 April

DREWEATT NEATE www.dnfa.co.uk

Donnington, Newbury, Berkshire (t: 01635 553553)
Jewellery and silver: 31 January, 28-29 March

Godalming (t: 01483 423567)
Jewellery and silver: 7 February

Apsely Road, Bristol (t: 0117 973 7201)
Priory sale with jewellery and silver: 31 January

FELLOWS & SONS www.fellows.co.uk

Birmingham (t: 0121 212 2131)
Second-hand Jewellery and Watches (by Direction of Pawnbrokers Nationwide): 12 and 26 January, 9 and 23 February, 9 and 23 March, 6 and 27 April
Antique and Modern Jewellery: 19 January, 2 March, 20 April

GARDINER HOULGATE www.gardinerhoulgate.co.uk

The Bath Auction Rooms, Bath (t: 01225 812912
e: auctions@gardiner-houlgate.co.uk)
Jewellery (some pawnbrokers): 6 and 18 January, 1 and 15 February, 1, 15 and 29 March, 12 and 26 April

LYON AND TURNBULL www.lyonandturnbull.com

33 Broughton Place, Edinburgh (t: 0131 557 8844)
Jewellery and silver: 23 February, 27 April

SOTHEBY'S www.sothebys.com

New Bond Street, London (t: 020 7293 5000)
Jewels: 13 February
Fine jewels: 30 March

WOOLLEY AND WALLIS www.woolleyandwallis.co.uk

Salisbury, Wiltshire (t: 01722 424500)
Jewellery and silver: 26 January

Dates correct at time of going to press but may be subject to alteration.

Magnificent Jewels

Sotheby's November sale in Geneva raised a total of CHF35,812,040 ($26,994,758). The climax of the evening was a pair of emerald and diamond fringe bracelets by Van Cleef & Arpels from the collection of Daisy Fellowes, one of the most glamorous and stylish women of the 20th century, which sold for CHF3,380,000, far above its pre-sale estimate.

A Russian Imperial necklace from the collection believed to have been made for Catherine the Great sold for CHF2,036,000. The diamond necklace with a detachable bow clasp, is a rare survivor of the 18th century, when jewels were usually broken up to produce new jewellery in the latest styles. Its survival, in its original state, is almost unheard of outside royal or museum collections. The necklace consists of 27 large cushion-shaped diamonds set in a row within a border of foliate motifs, with a bow clasp which may be worn separately.

David Bennett, Executive Director of Sotheby's International Jewellery Division, said: "We were delighted to have been given the opportunity to present, not only such an impressive jewel in its own right, but one that encapsulates the luxury and grandeur of the Russian royal court. Its history, survival, beauty and quality make this a truly exceptional piece. We are also thrilled with the price achieved for a Fancy Vivid Pink diamond weighing 10.31 ct, set as a ring, which sold for CHF5,172,000. This illustrates the strength of the market for rare diamonds of superior quality."
Other lots of particular note were two pieces set with Kashmir sapphires; a necklace decorated with five graduated cushion-shaped sapphires and diamonds which realised CHF2,148,000 and a pair of sapphire and diamond earclips which sold for CHF692,000.

A diamond necklace from the collection of the Russian Imperial family. © Sotheby's.

Stone Scoop

A gemiscellany

Light fantastic

Harold Killingback's use of the brushed surface of an aluminium beer can base to demonstrate how finely striated surfaces break up and diffract light (Gem Discovery Club, p.84) will have reminded participants of the even more extraordinary and colourful interference effects seen on the surface of a CD or DVD. The optical effect is essentially the same as that employed in a gemmologist's diffraction grating spectroscope and akin to the play of colours from the surface of an abalone shell (*The Journal of Gemmology*, **29**(7/8) 2005). There is an interesting historical gem-related use of the same effect. A British Patent of 1892 (Number 1566) described the production of glass imitation gems in metal dies. The novel aspect was that the die surfaces had parallel striations spaced at between 3000 and 10,000 lines per inch which gave the resulting glass facets an iridescent appearance – they acted just like a CD or DVD surface (CDs have a groove spacing of about 15,000 per inch, and abalone shell about 13,000).

And, yes, we have tried using a CD as a spectroscope – shining a light through a gem onto a CD surface and seeing if we can discern the stone's spectrum. Initial experiments suggested that there was scope here, but then a member kindly informed us that CD spectroscopes were old hat. See for example

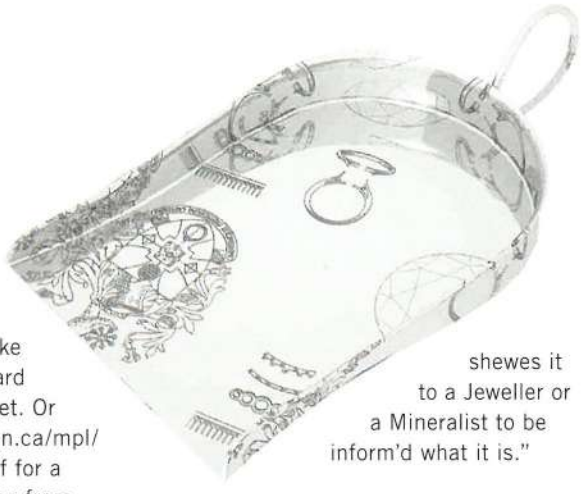
http://www.exo.net/ ~pauld/activities/CDspectrometer/cdspectrometer.html which explains how to use a CD to make a spectrometer out of a cardboard tube or even empty cereal packet. Or their http://maxwell.physics.mun.ca/mpl/Physics1051_MM_F05/lab6.pdf for a more scientific look at diffraction from a CD surface.

Gems of wisdom

The discussion about jewel, jewellery or jewelry (Two LLs and Back, *Gems & Jewellery*, **14**(3), 70) leads on, in a way, to words connected with gem. According to The *Oxford English Dictionary* 'gemmery' was used in the past to mean either 'A jewel house or place to keep jewels' or 'Gems as an object of connoisseurship'. The word was also used in the wider sense of simply 'pertaining to gems or jewels'. The *OED* calls it rare, but perhaps it is becoming a little commoner as the word certainly crops up on the Web – there is even a website of that name. In any case, it seems a splendid word.

The word 'gem' itself derives from the Latin *gemma* meaning a bud. 'Gem' was used in medieval English in our modern sense but, as was normal in the days before printing instilled uniformity, with a wonderous array of variant spellings including gims, gummes, gemmys, gymmes and jemis.

I really don't want to open up the 'gemmology' versus 'gemology' can of worms here, but so far I can't find any use of the term 'gem(m)ology' before the early 19th century and 'gemmologist' until a fair bit later. References to early use of either term would be very welcome. We can note that the double-m form 'gemm' is found in some older British writing. For example, Robert Boyle in his *Sceptical Chymist* (1661) observes that "many a Mine-digger may meet, whil'st he follows his work, with a Gemm or a Mineral which he knows not what to make of, til he



shewes it to a Jeweller or a Mineralist to be inform'd what it is."

Incidentally, mineralist is another nice word.

Jugglers

The upcoming movie 'The Blood Diamond' will star Leonardo DiCaprio as a diamond smuggler operating in Sierra Leone in the late 1990s. Further media focus on the whole conflict diamond issue – following on from Rap songs and celebrity statements – is worrying for the diamond industry. Earlier this year at the first South African Mining Development Association (SAMDA) Global Mining Conference in Cape Town, Jonathan Oppenheimer, head of De Beers's South African operations, said that the movie might damage sales if not handled properly, and consumers told that the conflict diamonds issue was a thing of the past.

But, always on the lookout for the lighter side of things, the *G&J* Editorial team recently noted that when the Toronto Fashion Monitor mentioned the new movie, the copy editor skipped a misprint. It described DiCaprio's smuggler character as 'a juggler specialized in blood diamonds'. That conjures up an interesting picture. But this is not the only association between dodgy diamond dealers and jugglers. Readers might remember the article on 17th century Borneo diamonds in the last issue of *G&J* (p.67). Hugh Greete, the British jeweller sent to Borneo as diamond trader by the East India Company who disgraced himself with private diamond dealings, was described by one contemptuous contemporary as being 'by profession a jeweller, but in practice a juggler'.

Hallmarks

The 'scandal' besetting the GIA as we write, relating to the allegations that certain of their diamond graders may have accepted inducements to 'improve' the reported grade of a diamond, is a sorry story both for the diamond industry as a whole and for the GIA in particular. Whatever the final outcome of the investigations, it is sad that such a pillar of the international gemmology community can potentially be sullied by the unethical actions of just one or two members of its staff.

That said, and by no means judging or prejudging the present situation, we can point out that such allegations regarding testing are by no means new. We can quote from the results of the Parliamentary enquiry published in 1773 as the *Report of the Committee appointed to inquire into the manner of conducting the several Assay Offices in London, York, Exeter, Bristol, Chester, Norwich and Newcastle upon Tyne.*

"Mr W. Hancock, a Silversmith of Sheffield, said that his work had been injured by scraping, and he went to the Hall and gave some drink to the assay-master and scraper, since which time his plate had been less damaged. Mr Spillsbury said that drawers or scrapers, if inclined, had opportunities of delivering to the assayer better Silver than they scrape from the work; that the assayer had an opportunity of wrapping in lead what scrapings he pleased, to put upon the coppels which he delivered to the fireman; and as the standard mark is put upon the Silver by the report of the assayer alone, he had opportunities of favouring any silversmith he pleased; that he had several times treated the workmen with drink, and thought it of consequence to be on good terms with the scrapers, as they had the power of showing favour; for when his plate had been objected to, he had known those difficulties removed by giving liquor at the Hall."

In his *The Book of Hall Marks* published a century after the Report, in 1872, Alfred Lutschaunig and notes that "the Hall Mark of late years is more reliable than that of former times" and with regard to the earlier alleged misdeeds as above, which he quotes, he wisely comments that "good management and supervision can control all." ❑

Midlands Branch honours Doug Morgan

Many congratulations to Alfred Douglas (Doug) Morgan who has been awarded an Honorary Life Vice-Presidency of the Midlands Branch in recognition of the help and support he has given to the Branch. Doug has served on the branch committee for 35 years, has been Chairman on two occasions and still, at the age of 86, gives talks to the Branch and assists at their stand at the Cheltenham Rock 'n' Gem Shows.

Coming from a background of analytical chemistry, Doug became interested in crystallography and mineralogy in 1963 and was awarded his Gemmology Diploma in 1969. Doug has been a skilled gem cutter since the 1970s, and his paper 'Development of concave faceting of gemstones' was published in the October 2002 issue of *The Journal of Gemmology* (p.193).

Doug has designed and constructed much of his own gem identification and faceting equipment, still contributes articles to the publications of the many societies of which he is a member, is known in the branch for his ability to create limericks, and is a keen cook and gardener. "In fact", said Branch Chairman Gwyn Green, "There is nothing that Doug does not do!"

Doug Morgan (right) receiving a certificate of his Vice Presidency from Branch President David Larcher.

Anne Dale resigns from Gem-A USA

Gem-A announce with regret the resignation of Anne Dale as Director of Gem-A USA at the end 2005. Anne has made this decision after much thought and largely because of the demands of her own highly successful jewellery business, demands exacerbated by the effects of the Katrina disaster. She and her family are thankfully uninjured and safe, but it is hardly surprising that such a traumatic event had led to a need to confirm the focus and priorities of her life. We wish Anne all success and very much hope that she will continue in some capacity to offer her wide experience and wisdom to the benefit of Gem-A and Gem-A USA.

The hard work of Anne Dale together with all our USA and Canadian teaching centre organisers, the many ATC and correspondence course tutors and our varied helpers and advisors, has given a great boost to Gem-A in North America in recent years. With such able assistance, we aim to build upon Anne's huge effort over the past years, to build further upon our 80 years of gemmological support and involvement in North America.

Gem-A CEO Jack Ogden and Education Director Ian Mercer will be at the AGTA Tucson show in February as usual, together with our education team members Doug Garrod and Claire Scragg, to continue to advance our work and influence across North America with the aid of our USA Advisory Board and other American colleagues.

New Chairmen for Gem-A North East Branch

At the meeting of the North East Branch held on 14 September Mark Houghton and Sara North were appointed joint chairmen, replacing Neil Rose who had resigned from the post for personal reasons. Neil founded the branch in 2003, and Gem-A is most grateful to him for his hard work in getting the branch established.

Said Neil: "I wish the new chairmen the very best of luck in their endeavours to guide the branch to an even stronger and more prominent position."

The contact details for the new chairmen are given on p.104.

Gem-A members respond to international disasters

I know what it means...

On 29 August New Orleans and the Mississippi Gulf Coast region were devastated by Hurricane Katrina. Anne Dale, a Fellow of the Gemmological Association who lives and works in Louisiana, has designed a Katrina Relief Badge. The net proceeds of the sterling silver badge, produced by Stuller Inc. of Lafayette, Louisiana, will be placed in the Stuller Inc. Hurricane Katrina Relief Fund that will be used to make a difference to the people of New Orleans who have been affected by this disaster.

Said Anne: "Katrina has affected me personally, my business, my family, my community and my state. I felt compelled to contribute what I could to assist the victims of Katrina."

Anne has recently stepped down as Director of Gem-A USA (see p.97).

To order a Katrina Relief Badge visit www.iloveneworleansbadge.com or call Anne Dale on 001 985 626 4266.

Tsunami aid

Colin Winter and other members of the South East Branch were horrified by the devastation caused to the island by the Tsunami on Boxing Day 2004.

It was decided to send a donation, and to expedite matters Gem-A Fellow Gamini Zoysa was contacted who, as President of the Rotary Club of Mount Lavinia, was in a very good position to advise.

It was agreed that the money should be donated to the Devapathiraja Vidayalaya, a college in Rathgama, near Galle, to buy much needed replacements for musical instruments and sound recording equipment and calculators that had been ruined or lost in the tsunami. During a visit to Sri Lanka, Colin Winter and other members of the Branch were invited to visit the school for a formal reception and a tour. Said Colin: "We were shocked to see the state of the makeshift classrooms and the teaching facilities, even though it was seven months since the tsunami. They had managed to salvage a pathetically small amount of equipment and books but were intensely proud of their achievements with what they had left to work with."

Colin Winter addresses the assembled school.

Branch Conference

Regrettably the South East Branch had to postpone the its conference which was to be held in Sri Lanka 2005, as it was not known how long it would take to get everything up and running again or what impact it would have on the infrastructure. ❑

High Value days

Gem-A's two one-day workshops on the valuation of antique and modern jewellery held in London in November proved a great success. They were presented by jewellery valuation expert Brian Dunn FGA, RJDip, PJValDip, who has had many years' experience in jewellery valuations with companies such as Garrard & Co. Ltd and Asprey London.

Over the two-day period Brian covered identification of styles, methods of manufacture, dating jewellery and valuation factors, interspersed by interactive discussion and practical sessions.

Participants travelled from all over the UK as well as from as far afield as Hungary and India to learn the techniques of jewellery valuation today. As Gem-A Fellow Pauline Gregory said in an email to us: "I have rarely attended such an informative event. I had to travel over 800 miles there and back and it was well worth it!"

Brian Dunn.

Valuation workshops planned for 2006

Due to the enthusiastic response that was generated by these workshops, two valuation events with Brian have been scheduled for 2006. The first will be Valuing Antique Jewellery to be held on Tuesday 9 May, followed by an extended two-day workshop on Valuing Modern Jewellery scheduled for the autumn.

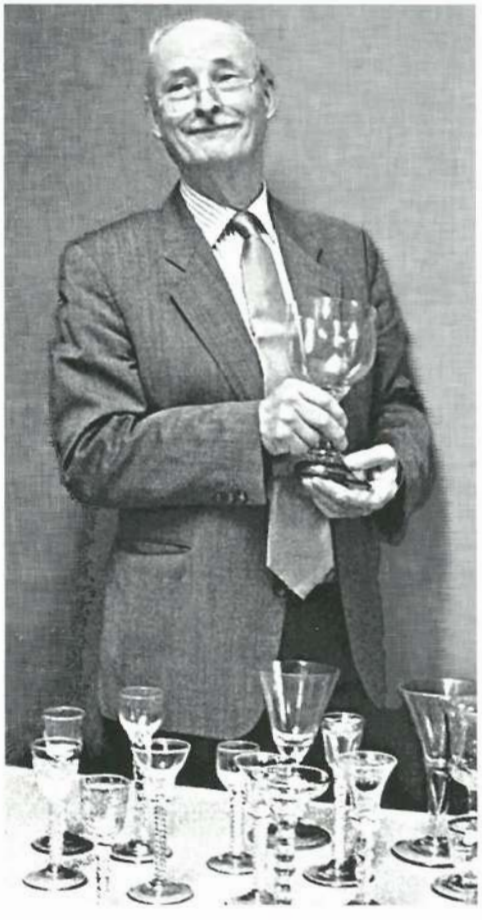
For information regarding these or other Gem-A workshops please visit the Gem-A website at www.gem-a.info or contact Claire in our education department on 020 7404 3334.

Hugh Tait, MA, FSA: 1927–2005

Hugh Tait was a senior curator at the British Museum for forty years, and his career exemplifies the honourable tradition of museum-based scholarship in the decorative arts. He had an instinctive eye for objects, spotting, for example, a rare polished obsidian disc as 'Dr Dee's Mirror' when a visitor brought it to the Museum for an opinion. Tenacious in the pursuit of truth, he questioned even such iconic pieces as the supposedly Elizabethan Canning Jewel in the V&A: the Canning Jewel is now recognised as a 19th century confection, made shortly before 1840. Only a fortnight before his death he was actively considering with a fellow-expert how best to investigate the origins of some problematic enamelled Venetian glass, in the characteristic setting of a lunch at the Athenaeum.

Hugh Tait chose his career against his father's wishes. After army service in the Second World War, he entered Fitzwilliam House (now Fitzwilliam College), Cambridge, where he read Economics Part 1 and History for part 2 of his Tripos, and where he met Audrey Clark, whom he married in 1951. He took his MA at the Courtauld, and in 1954, was appointed Assistant Keeper in the (then) British and Medieval Department of the British Museum, where he had almost sole responsibility for the important post-medieval collections, ranging from clocks to glass, ceramics and metalwork. In all these fields, he became a master, and from 1956, his energy and scholarship bore fruit in a stream of articles, notably in *Apollo*, the *Burlington Magazine*, the Connoisseur, the British Museum Quarterly, *Jewellery Studies, the Silver Society Journal* and *Ars Ceramica,* which are extraordinary in their range; from clocks to Venetian glass, from Tudor jewellery to cannel coal busts.

Hugh understood the importance of provenance and context, took a keen interest in the archaeological evidence for dating ceramics and glass, and pioneered the systematic analysis of construction as an aid to dating complex items of Renaissance metalwork. In analysing



Hugh Tait.

objects in minute detail he was greatly aided by the technical illustrators at the BM, who created exploded diagrams of the silver and 'Curiosities' acquired by Anselm and Ferdinand de Rothschild between the 1840s and 1898. His catalogue entries in the second and third volumes of the Waddesdon Bequest (1988, 1991) set out in exhaustive detail the evidence for and against the presumed Renaissance and 17th-century metalwork.

Hugh was equally at home in the study of glass, ceramics and jewellery, and was one of the founders of the Society of Jewellery Historians. In 1976 he had curated the major inter-departmental exhibition *Seven Thousand Years of Jewellery* at the BM; his work on this and the accompanying catalogue, and his involvement with the Hull-Grundy Collection, prompted his realisation that a serious society for the study of jewellery was needed. He was President of the SJH from 1983 to 1987, a frequent lecturer, and was still serving on the committee at the time of his death.

His ceramic researches helped to establish a chronology for the Bow porcelain factory, while in horology he was instrumental in the Museum's acquisition of the Ilbert Clock and Watch collection. He published Clocks in the British Museum in 1968 and the first volume of the watch catalogue in 1987, drawing on the expertise of the late Philip Coole. He became a Liveryman of the Worshipful Company of Clockmakers in 1979. His long and energetic involvement with glass, which began with the British Museum's *Masterpieces of Glass* exhibition in 1968, led to his being honoured as Founder-Fellow of the American Museum of Glass at Corning and to his international role in the *Association Internationale pour l'Histoire du Verre.* He became a Fellow of the Society of Antiquaries in 1959 and was elected to the Athenaeum at the unusually early age of 35, where he became a loyal and popular member of the Club, serving on the Library Committee, editing with Richard Walker the handsome catalogue of the Club's collections published in 2000 and leading the campaign to restore Decimus Burton's original interiors.

Hugh's questioning intelligence could sometimes make him a discomfiting companion. Yet he was also an excellent host, an appreciator of good food and wine, and was generous with advice and support to younger curators, scholars and serious students. He maintained his formal and reserved manner at the Museum but was an amusing travelling companion, remembered for his willingness to play 'Mr Nasty' with obstinate Customs officers and security men on courier journeys and then to relax with wit and humour over a bottle of wine. Friends sometimes described him, with rueful affection, as 'charming and utterly infuriating'. ❑

Philippa Glanville

Otto Künzli – his life and work

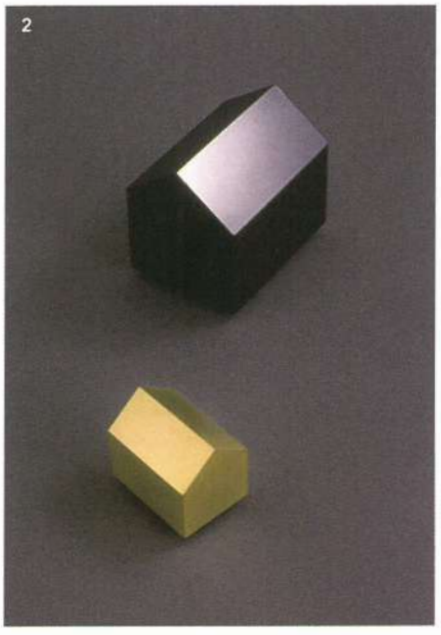
SJH lecture held on 28 June 2005

The SJH invited members of the Association for Contemporary Jewellery (ACJ) and students of the Royal College of Art to attend Otto Künzli's talk about his work. This report on his lecture, written by Mark Lewis, has been published in the September 2005 issue of *Findings*, the ACJ journal, and is printed here with the kind permission of the ACJ and the author.

Otto Künzli is a Swiss-trained goldsmith, now a professor at the Munich Academy of Fine Art. During the last thirty years he has established an international reputation as one of the most inspiring artist-jewellers and curators of his time. This was Künzli's first lecture to the SJH and it was both a stimulating and focused survey of his work, and an exposition of his philosophy.

Most contemporary jewellers associate Otto Künzli with provocative conceptual approaches that subvert the conventional values and traditions of our craft, and this lecture reassured us of his radical credentials. Künzli opened with images of his early work, which is crisply reductivist and minimalist in character. These pieces displayed a simple vocabulary of geometric shapes and forms crafted with hard-edged clarity. His later work, however, is more playful and becomes social and political commentary. The iconic piece (Oh, say! 1991) **(1)** plays on the Mickey Mouse icon and is one of a succession of barbed political comments on American culture. Some of Künzli's early pieces were shown – the famous cubes and blocks and mounted picture postcards sported by middle-class professional stereotypes are amusing and witty, teasing the wearer into asking questions about their relationship with objects because of their uneasy juxtapositions. Künzli is also preoccupied with traditional symbols and the dialogue between opposites, notably black and gold, (Gold and Black House,1985/1990) **(2)** representing darkness and light. Künzli reminded us that 'imagining the opposite' is very much a significant part of his current working philosophy. But what is overwhelmingly apparent in all of his work, however subversive or playful, is an unwavering, meticulous attention to craftsmanship and materials.

Oh, say! 1991. Photograph courtesy of Otto Künzli.



Gold and Black House, 1985/1990. Photograph courtesy of Otto Künzli.

The second half of Künzli's talk focused on his increasing concern with exhibition and curatorial challenges. It is certainly true that the way in which we contextualise crafted objects says much about the values we place upon them and Künzli described some of the strategies he has used in his continuing exploration of these relationships. Recent exhibitions of his students' work provided overtly human contexts, and examples shown included images of a custom-built temporary café and a line of seated middle-aged women in a corridor; these offered refreshing interactive alternatives to the more clinical glass-case strategies. Much of Künzli's jewellery seems to have a strong installational or performance character, and as in many published illustrations of his work, the wearer is given equal, if not greater, prominence than the work itself. His ideas are articulated by this interaction with the organic human context and it was clear throughout the lecture that Künzli is always fascinated by the continual dialogue in value judgements between the wearer and what is worn.

Otto Künzli is an experienced speaker, and here he presented his work to a large and receptive audience. We were left in no doubt that he holds an important, enduring place in the world of contemporary jewellery and the impact of his work on modern practice cannot be over-estimated. ❑

Mark Lewis

Princely Splendour at the Gilbert Collection

Members of the SJH and the Silver Society enjoy a private viewing of this magnificent exhibition

While the Green Vaults in Dresden are being totally refurbished, a magnificent collection has been able to tour. Entitled 'Princely Splendour: The Dresden Court 1580-1620', the final venue, before the objects returned to Dresden, was the Gilbert Collection in Somerset House.

It is extremely unlikely that such a large selection of these wonderful items will ever be seen outside Dresden again.

On the evening of Thursday 20 October (a few days before the end of the exhibition), the Society of Jewellery Historians and the Silver Society were privileged to have a private viewing. This was the first joint event of the two Societies, but it is hoped not the last. A good turnout of members ate, drank and gazed in awe at the exhibits, and generally had a good time. The SJH Chairman welcomed everyone and thanked the Gilbert Director and his staff for their diligence in obtaining yet another great temporary show (the third this year), and for their help in arranging the evening.

Bowl on a Dolphin. Ottavio Miseroni, Prague, c. 1605-10. Rock crystal, gold, enamel. © Staatliche Kunstsammlungen Dresden.

He then pointed out that the present Somerset House had been built as government offices in the 1770s and had housed the Navy Board which was the administrative arm of the Royal Navy. Standing in these premises on the eve of the 200th anniversary of the Battle of Trafalgar, he felt it appropriate to give a short résumé of the battle which he followed by proposing a toast to Nelson, Collingwood and the Royal Navy. Philippa Glanville then gave an excellent talk on Princely Collecting in the late 16th and early 17th centuries, putting it into the context of the time. The SJH Chairman thanked her, and drew the members' attention to some of his favourite objects. These included: a collection of tools (the original foundation of the collection), rock crystal bowls, a pair of chairs with large Saxony agate octahedrons where these would normally be wood-carvings, a sword with a blade that extends when a button is pressed (perhaps the inspiration for the Derringer spring arm pistol *c.* 250 years later), a pair of extraordinarily complicated astronomical clocks with dials on all four sides, gold including many mounted ostrich eggs, other shells and coconut shells, a superbly turned double serpentine cup, two triangular nephrite cups, bronzes, costumes, armour and many amazing ivory turnings. Amongst so many wonderful objects one must not forget the dramatic Hunting and Work Desk of Elector Johann Georg I of Saxony. This gorgeous chest/desk is full of everything that the out-and-about prince could want for working, hunting, ablutions, eating and drinking – obviously no-one should leave home without such a chest.

Two astronomical table clocks. Unknown Master, Augsburg, end of 16th century. Gilt brass, steel, enamel, silver. © Staatliche Kunstsammlungen Dresden.

Catalogue

A superb English language catalogue of the same name accompanied the exhibition. This is published by the Staatliche Kunstsammlungen Dresden and Mondadori Electa S.p.A., Milan. This is soft cover, stitched and glued, 11 x 9 inches, with 320 pages. ISBN 88-370-2718-4, €40. As well as beautiful illustrations of the objects with excellent descriptions, there are Introductions, eight Essays, a most useful four-page tabular Chronology, an extensive General Bibliography including Inventories, and an Index of Names. A very worthy record of a stunning exhibition. ❑

Nigel Israel

The jewels of Paris

BARBARA HEUZEROTH-FURRER recounts the latest SJH trip

In September members of the SJH were able to take part in an exciting four-day trip abroad, focused on the jewels of Paris. Our international group from Australia, Britain, Switzerland and the USA, met at the hotel on the Friday evening before setting off for a very romantic boat trip on the Seine, during which we enjoyed a peaceful impression of Paris in the evening.

On Saturday morning we were given a private tour of the jewellery section of the Musée des Arts Décoratifs (MAD), which forms part of the Louvre. Our tour was led by the Conservatrice, Evelyne Possemé. She explained the planning and thinking behind the new and tasteful presentation of the Galerie des Bijoux, told us about the history of many of the pieces on show, and readily answered all our questions. We were shown superb pieces dating from the Roman period to art nouveau and even to the 1940s, sensibly arranged in chronological order, and enjoyed the play of light on them, assisted by equipment supplied by the ever-ready Chairman. There was also an excellent display of the history of techniques.

The afternoon brought yet another highlight: Chantal Bouchon (Conservatrice of the Department of Drawings in the MAD) invited us to her office high up under the roof of the Louvre. We were shown drawings by the Parisian master jewellers, saw sketches of parts of the crown jewels, and drawings of pieces of jewellery we had actually seen in the Galerie des Bijoux in the morning, for example the sphinx pendant by Falize. What a wonderful experience this was, to see the idea drawn onto paper (the invention) and also the work of art made according to it (the execution). It was also interesting to learn that the Cabinet des Dessins does not acquire actively, but depends on donations alone. As a result that there is an incomplete coverage of the history of jewellery design in the collection.

There was no lying in for us on Sunday morning, but instead an exciting tour of the Galerie d'Apollon of the Louvre. The former Conservateur, Daniel Alcouffe, explained all the details of the recently renovated gallery and of all the gold- and silversmiths' work on display, including the snuff-boxes from the 18th and 19th centuries. Just one example: it was marvellous to see the delicacy of work in the rock-crystal vases, both in the mounts, which were often changed and adapted over time, and in the technique of actually carving such large pieces of crystal at all. They evoked amongst us a silent awe for the achievements of the craftsmen of the past.

We took the opportunity of having a look at the antiques fair in the basement of the Louvre, some of us maybe considering the possibility of taking a souvenir back home. Others wished to have another, or a first, look at the famous pyramid in the courtyard of the Louvre (remember the Da Vinci Code?).

Monday came around too soon, and the last morning offered two events: a visit to the Prints and Photographic Department of the Bibliothèque Nationale, and another to the Atelier Cloutier et Pelletier. We learned how to use this major library and which department to approach for permission to carry out limited research. We were then shown folders containing material related to jewellery and the jewellery business, from prints of actual jewels to photographs of jewellery shops, historic business cards, and newspaper cuttings.

At the Atelier Cloutier & Pelletier we met the owners and their staff, from the designers to the apprentice goldsmith (about ten professionals in all), who offered us a generous insight into their daily work. DCHP works for leading international jewellers in the luxury market as well as for private clients. Their Atelier offers ideas

Admiring the jewellery designs at the Département des Arts Graphiques of the Musée des Arts Décoratifs with the Curator, Chantal Bouchon.

and design collections, and produces unique pieces or limited series for their international clientele. Not only did we see some very beautiful finished pieces on show, but we were also able to talk to the designers, look over the shoulders of the goldsmiths at work, and were able to ask them personally about their work, the forms, the style and the gemstones they would use.

These delightful days in Paris were filled not only with jewels, but also with delicious and convivial meals, and long walks through beautiful gardens and avenues. I returned home with magic memories of the Eiffel Tower illuminated at night and of the miraculous *son et lumière* show at the Grand Palais, created to inaugurate the reopening of the renovated Palais, which dates from 1896. The effects recalled Harry Potter, the coloured floodlights revealing the glass and iron structure of the building, and the electronic music, similar to that of Philip Glass, apparently coming from space. I could have stood there all night long!

I will not forget the interesting conversations with members of our group, who all share the same love for culture and history. A big thank you to Katherine Purcell and David Beasley for these unforgettable days in Paris. ❑

Forthcoming SJH lectures

Tuesday 24 January
CYNTHIA COUSENS
My Life and Work

Cynthia Cousens is a practising jeweller who is at present the subject leader for Material Practices at the University of Brighton. Her work is represented in the permanent collections of many major museums, including the Victoria and Albert Museum and the National Museums of Scotland, and has also featured in special exhibitions such as her retrospective, 'Shift', at Hove Museum and 'A Jewellers Eye' at Manchester Museum.

She was trained in silversmithing and jewellery at Loughborough College of Art and Design and at the Royal College of Art, where she received her MA in Jewellery in 1982. She has lectured on her work in many universities and other institutions in the UK and abroad, including Japan, New Zealand, Australia, Taiwan, Canada and Sweden.

Tuesday 28 February
CLARE PHILLIPS
From Fancy Goods to a Palace of Jewels: the Early Decades of Tiffany & Co.

Clare Phillips is a senior curator in the Victoria and Albert Museum, with specific responsibility for the unrivalled jewellery collections, and has been an active member of the committee of the SJH for a number of years. She has degrees from the University of Birmingham and the Royal College of Art, where she studied Design History. Her publications include the indispensable work *Jewelry from Antiquity to the Present* (London and New York 1996), in which she presents and explains personal adornment from the Stone Age to the late 20th century.

Editorial Board

Members of the Society of Jewellery Historians should note that from the beginning of 2006, the Society's representatives on the Editorial Board of Gems and Jewellery will change. **Jo Whalley** and **Muriel Wilson** will become the new SJH representatives. From now on, any SJH members who wish to contribute articles or other material to *Gems and Jewellery* should contact them.

Corinna Pike and Catherine Johns have served on the board for many years, and have enormously enjoyed the opportunities the task provides for fostering contact between Gem-A and the SJH and their memberships. They wish to thank the other members of the Editorial Board personally for a long and fruitful association, but both feel it is now time to retire and hand over to colleagues who will be able to bring fresh energy and new perspectives to the role.

SJH Meetings

Unless otherwise stated, all lectures are held at the Society of Antiquaries, Burlington House, London W1, and start at 6:00 p.m. sharp. Lectures are followed by an informal reception with wine. Meetings are open only to SJH members and their guests. A nominal charge is made for wine to comply with our charity status.

Tuesday 24 January
CYNTHIA COUSENS
My Life and Work

Tuesday 28 February
Annual General Meeting followed by:
CLARE PHILLIPS
From Fancy Goods to a Palace of Jewels: the Early Decades of Tiffany & Co.

Tuesday 25 April
MARY CAHILL
Gold Boxes, Bobbins and Notion: Late Bronze Age Gold from Ireland

Tuesday 23 May
JAMES ROBINSON
Medieval Spring: Romance, Love Tokens and Gift-Giving

Tuesday 27 June
JUDY RUDOE
Queen Charlotte's Jewellery: Re-appraising a Sophisticated Collector

Tuesday 26 September
WALTRAUD GANGULY
Highlights of Indian Ear Ornaments, their Historical and Mythological Background

Tuesday 24 October
DAVID MITCHELL
17th-Century Jewellers' Practice as Revealed Through Bankers' Records

Tuesday 28 November
MARC BASCOU
Title to be announced

The Society welcomes new members and would ask them to make themselves known at meetings to Committee Members, who wear name badges. The convivial partaking of refreshments after lectures is also an opportunity for members to exchange views and information about jewellery, and is an important part of the Society's activities.

Members' meetings

Midlands Branch

Friday meetings will be held at the Earth Sciences Building, University of Birmingham, Edgbaston.
For details call 0121 445 5359.

Friday 27 January
AGM, Bring and Buy and Team Quiz

Friday 24 February
JOHN MOORHOUSE
Horological jewelling

Sunday 19 March
Loupe and Lamp – A one-day event
Identify gemstones using only a 10x loupe and pen torch followed by a presentation on the characteristic features of the stones.

Friday 31 March
JOHN HARRIS
Chasing rainbows by observing gemstone spectra

North East Branch

For information call Mark Houghton on 01904 639761 or Sara North email sara_e_north@hotmail.com

North West Branch

For further details contact Deanna Brady on 0151 648 4266.

15 February
30th Anniversary Event
Speaker: MARIA ALFEROVA

Scottish Branch

For details call Catriona McInnes on 0131 667 2199, email scotgem@blueyonder.co.uk

Friday 28 April to Monday 1 May
Scottish Branch Conference, Perth
Speakers will include Dr Karl Schmetzer (keynote speaker), Helen Molesworth, Thom Underwood, Mark Newton, Richard Digby and Alan Hodgkinson.
Visit the Branch website at www.scotgem.demon.co.uk for further information.

South East Branch

For information contact Colin Winter on 01372 360290 email info@ga-seb.org website www.ga-seb.org

South West Branch

For information contact Richard Slater on 01635 553572 email rslater@dnfa.com

Gem Discovery Club Specialist Evening

Held once a month at Gem-A's London headquarters. Club members have the opportunity to examine items from the collections of gem specialists.

Tuesday 14 February
HARRY LEVY

Workshops and Short Courses

Gemstones for Everyman

Monday 13 February
Handle a wide selection of gemstone varieties whilst learning more about their beauty, rarity, durability, lore and history.
Gem-A Members £125.00 (Non-Members £138.00)

Bead-Stringing Workshops

Wednesday 15 or Thursday 16 February; Wednesday 5 April
Learn the techniques needed for successful stringing at these popular one-day workshops.
Gem-A Members £149.00 (Non-Members £160.00)

Diamond Buying Guide

Monday 20 February
Discover how to assess a stone based on the 4 Cs and just how different two stones of similar size and weight can be.
Gem-A Members £125.00 (Non-Members £138.00)

Diamond Update

Monday 27 March
Learn about the diamond treatments, synthetics and simulants that are likely to be amongst the stones you are handling.
Gem-A Members £138.00 (Non-Members £147.00)

An Introduction to Gemmology

Monday 3 April
A day of hands-on observation to introduce you to cut stones and crystals, and gem testing equipment.
Gem-A Members £125.00 (Non-Members £138.00)

The Light Fantastic

Monday 8 May
A workshop totally dedicated to light and colour – why we see colour, how light reacts with materials. This is very much a hands-on practical day.
Gem-A Members £125.00 (Non-Members £138.00)

Valuing Antique Jewellery

Tuesday 9 May
Led by valuation specialist Brian Dunn, this workshop will cover the identification of styles, methods of manufacture and dating of antique jewellery. Brian will also give a résumé of the ways in which the valuers' world is changing.
Gem-A Members £145.00 (Non-Members £160.00)

All courses and workshops held at Gem-A London headquarters
Visit www.gem-a.info for the latest information on Gem-A workshops or call Claire on 020 7404 3334

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