

GEM & JEWELLERY News

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Gem-A Conference 2001

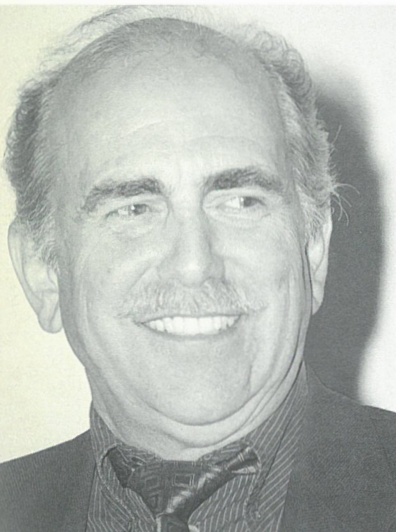
The first weekend of November saw London basking in an Indian summer that proved an added bonus for members and students visiting London for the Gem-A Conference and the Presentation of Awards.

Despite recent world events, many of those attending had travelled from as far away as China, Japan and the USA as well as many European countries.

The Annual Conference, held at the Barbican Centre in London on Sunday 4 November, included a varied programme of lectures as well as plenty of opportunity for delegates to socialize and to view the displays and demonstrations during

the breaks. A diamond that had undergone the new technique of clarity enhancement using a laser (KM treatment, see *The Journal of Gemmology*, 2001, Vol. 27, No. 5) could be examined under the microscope with the guidance of Stephen Kennedy (stone courtesy of Signet). Dr Simon Lawson of DTC Research, Maidenhead, demonstrated type Ia and type II diamonds as well as a synthetic moissanite with the DiamondSure™2 referred to in his lecture. The Brewster Angle meter was another hands-on attraction, demonstrated by Peter Read who had originally developed the instrument with Noel Deeks.

The morning session was devoted to diamonds with talks by the keynote speaker George Bosshart from the Gübelin Gem Lab and Dr Simon Lawson, and was chaired by Professor Alan Collins, the Gem-A President. Jean-Paul van Doren introduced the afternoon session that included talks by Haywood Milton and Stephen Whittaker (who provided a stimulating double-act!), and Terry Davidson, with George Bosshart giving the concluding lecture.



Keynote speaker George Bosshart.

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A review by Stephen Kennedy of the lectures is given on p.8.

Visits to the Diamond Trading Company, and a guided tour by Cally Oldershaw of the gem and mineral collections in the Mineral Gallery and the Earth's Treasury at the Natural History Museum were also arranged for delegates.

The Presentation of Awards and Reunion of Members was held at Goldsmiths' Hall on Monday 5 November. Awards were presented on this occasion by Raymond Sancroft-Baker of Christie's. A full report of the ceremony will be published in the January 2002 issue of *The Journal of Gemmology*.

Mary Burland

Earlier this year the Office of Fair Trading (OFT) in England issued a consultation paper proposing a set of principles to establish a general code of practice for behaviour and trading. The principles include:

- The code sponsor must have a significant influence on the sector and have disciplinary procedures for non-compliance.
- In compiling a code, consumers, enforcement bodies and advisory services must all be consulted.
- Complaints procedures and conciliation services must be clear.

The paper went to a wide range of associations and a general response has been summarized and published by the Association Journal. Response to the proposals was lukewarm with consultation and monitoring being seen as too costly; the idea of a single-format set of principles was also seen as inappropriate for such a wide range of activities and situations. Specific questions about how to reconcile conflicting views, the effectiveness of policing and how to ensure compliance were raised and the latter two issues were considered to be major obstacles.

In one sense, codes belong to

another era where there was a considerable measure of trust and confidence among the general population that the right thing would be done – and codes were there to jog the memory when perhaps circumstances were a little unusual.

In the last twenty years, trading patterns certainly in the jewellery industry have changed and increasingly traders may be dealing with people they have not met and don't know. This change may have strengthened the case for codes.

Consider what the alternative to codes might be: there can be a legal enforcement, or an absence of regulation. A legal system can either lead to an ordered and acceptable situation if it is seen to be working fairly or, if it is not seen as fair and is not policed adequately, it can promote an environment of evasion and anarchy. If the latter situation exists, then there is a role for a code of conduct or practice.

This leads to the question of what kind of code might be appropriate for jewellers and gemmologists.

In considering a possible code of conduct for Gem-A, the codes of both professional and trade organizations will be reviewed – the most immediate being those of the Geological Society of London, the National Association of Goldsmiths and its Registered Valuers Scheme (which has its own code) and the

regulations of the London Diamond Bourse and Club. There are comprehensive codes also in the international arena and the Code of Ethics of Canadian geologists in Alberta (APEGGA) is a good example to be studied.

Does anyone pay attention to codes? In normal circumstances – perhaps not – but when something goes wrong or litigation is in prospect, the absence of laws relating to a particular problem will force the conflicting parties to seek the next best thing – a voluntary code accepted by the majority in a profession.

For example, in the UK, Trading Standards officers investigating misrepresentation of goods (such as wrong labelling of glass/sapphire) will look at all aspects to make a case and achieve a just result. This will include any claimed qualifications of a party involved and if, for example, a claimed FGA is not a member of Gem-A, this will undermine credibility. Likewise, non-adherence to a code that is accepted generally as fair will undermine a position.

Any organization strong in a particular sector will have more chance of making its code of conduct effective than a weak one, and it follows that in the gem trade, co-operation between the various bodies would be beneficial.

Roger Harding

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Disclosure: the origin debate

Are all light blue sapphires from Sri Lanka and dark blue from Australia? What price differential if any should there be for rubies of equal quality but with different origins? Harry Levy explains the misconceptions and arguments that surround the current origin debate.

Some of you may wonder why I refer to origins as a part of the disclosure debate. By origin we mean informing the customer about the geographical source of a stone.

The origin may be referred to by the name of the country, by the name of the continent, by the region within a country or by the actual mine itself. Thus we can have a Burma ruby, African ruby, Mogok ruby or a Mong Hsu ruby. Like a connoisseur of wines or teas who can say where the product comes from, most of us with any experience in handling stones can talk of Australian sapphire, Ceylon sapphire, Kashmir sapphire, and so on. The more experience and knowledge one has, the better one can make such deductions. The ultimate experts are the laboratories although even at that level of expertise some do have a better reputation than others in this field.

Colour is not foolproof

The shade of colour of a stone is usually considered to be the first clue to its origin. For example, Ceylon sapphires are generally of a pale powdery blue colour, whereas Australian ones tend to be dark royal blue. But unfortunately this is not a foolproof method, as not all stones fall within the recognized colour range from any one locality. We then have to revert to the other optical method which is to look at the types of inclusion. Like colour, stones from one locality tend to have a consistent range of inclusions.

Whilst there is a universal cry for disclosure for treatments (discussed in the September issue of *GJN*) from all trade bodies, deal-

ers and jewellers, with disagreement occurring only on how this should be done, when it comes to disclosing the origin of a stone all these bodies and people claim that this should not be done.

CIBJO view on disclosure

This topic comes up for discussion regularly in many trade conferences and has been a controversial issue for several years within the International Jewellery Confederation (CIBJO). Before the redrafting of the Gemstone Book, the position was that origins should not be given and CIBJO laboratories were barred from putting an origin on their reports. The present position of CIBJO is to highlight that the presentation of geographical origins of gemstones is a matter of opinion and that the place of origin does not imply a level of quality.

So why did this situation arise?

Why do those who advocate 'full disclosure' on the treatment or enhancement of a stone fall strangely silent when disclosure of origin is requested, and some become hostile on this point demanding that origins should not be given? In this article I would like to try to explain why this situation has come about and explain the various arguments that are produced by both sides.

Trade definitions

Many of you who in any way handle stones, know that the trade speaks of Ceylon sapphires, Burma rubies, Colombian emeralds and so on. So why do I say that some traders discourage and, where they can, ban the use of such terms? As a dealer, one of the the questions I will ask when I am approached to supply a stone is what type of stone is required, for example an Australian, Ceylon or Thai sapphire. The crucial

Fraud alert

Composite stones

Artificially coloured composite stones and paste being fashioned to imitate ruby and emerald rough are currently being submitted to the Gem Testing Lab for identification. Roy Huddleston has told us that he has also seen many of these stones. The stones are being used by groups of individuals to obtain money by false pretences. We were reliably informed recently that there were around fifty cases being followed up in London alone.

A recent stone we saw was a 'green quartz crystal'. It appeared to be a classic quartz crystal – a hexagonal prism with rhombohedral terminations. It had been broken into pieces and stuck back together again with a green glue. It did seem very obvious that it was artificially coloured since colourless areas could be seen when you turned it around. The fractures were hidden by covering over the surface junctions with an adhesive 'earthy' matrix.

Another stone recently submitted was a quartz crystal with the green colour applied to the surface. A deposit of £1250 had been paid for the stone.

*Stephen Kennedy
Gem Testing Laboratory*

word is 'type' – I am asking for a type in order that I may determine the colour of the stone that is required. What I am not doing is saying that I am supplying a stone that has, say, necessarily come from Australia.

The arguments against

So what exactly are the arguments against giving the origin of a stone on a factual basis? Basically there are two, but I shall give them in the reverse historical sequence in which they occurred.

The main argument now used is that in most cases the origin of a stone has to be deduced from the appearance of the stone but there is no guarantee that this is always correct. Since we cannot always be accurate then, to avoid giving a wrong answer, we should never give the origin. This is a somewhat weak argument as some dealers can claim that with some stones they have the provenance of the stone from when it was mined to the time that they acquired it. Against this we all know that stones in the rough can be taken to different countries and sold from those countries as 'proof' that they originated from that place. Thus African, Cambodian and Vietnamese

rough rubies have been smuggled to Burma and the cutters who buy them there can swear that the rough originated in that country.

The method by which most of us determine origin is by the shade of colour of the stone. I do not wish to give an exhaustive list of colours of gemstones in this article but, for example, dark sapphires come from Australia, lighter ones from Sri Lanka, very red or pink rubies come from Burma, brownish or mauve ones come from Thailand, and so on. With some experience in handling stones, many can use their knowledge as a 'party trick' or to impress their friends and family, when shown, say, a sapphire ring, to say that the stone came from Thailand or Sri Lanka. If the owner has bought the ring in the stated country they are impressed by such a remark.

Inclusions as an aid to origin

On a more sophisticated level, if we are uncertain of the origin by the colour of the stone, we can look at the inclusions and, if we are good gemmologists, this too can be an indicator of origin. Of course we know there are rogue stones; for

example, amongst the many thousands of stones found in Australia there will be a few light stones that could be confused with a Sri Lankan stone. Further, with the heating techniques now available, stones are thus treated to change their colour, dark stones can be made to become lighter in colour and lighter coloured ones can be made to appear darker. These are precisely the arguments that are used to support the claim that colour alone is not a definitive test.

Further, the laboratories that will give an origin report claim that they rely not on colour alone, but that they have accumulated a sufficient database to enable them to give an accurate origin report. If they are not convinced that a stone has a provable origin, they will not give one, and declare on their report that the 'origin is indeterminable' or similar. But then again two reputable laboratories who specialize in giving origins can disagree over the origin of a given stone. Many people have come to me claiming they sold a stone on the basis of a written origin report from a reputable laboratory, but later discovered that their customer had had the stone re-examined by another similarly reputable laboratory to be doubly certain of the origin, only to be given a different opinion.

Stories abound in the trade of how such things can occur. For example, Kashmir sapphires are highly desirable, but the mines that produced them have done so only intermittently. Some Sri Lankan stones can look like Kashmir stones. These stones changed hands on the basis of being Kashmir and when laboratories searched for stones of known origin to enable them to set up their databases, some of these Sri Lankan stones were submitted as having the provenance of being 'Kashmir'. Thus it is possible that the databases are not all totally accurate, but the laboratories specializing in this type of work are aware of such problems. There are similar stories for other types of

Origins of Diamonds

While we are looking at origin reports, let me try to clarify the situation as to the origins of diamonds, especially with regard to the conflict diamond issue. There are those people outside the trade who advocate that the problems of conflict diamonds can be overcome if we certify the origin of all diamonds. To remind you, conflict diamonds are those that originate at present from places such as Sierra Leone and Angola and are sold by rebels in these regions to purchase arms and continue their struggle against the existing governments of these countries.

Such a solution would be perfect if it was possible. The main ways to determine coloured stone

origins are by colour, inclusions and composition. Since diamonds are colourless this method is not available, and at present there is insufficient data available to determine origin by looking at the inclusions in the stones. Even if we had a database for such a project it would not work as many of the conflict diamonds are alluvial ones that can drift and move across many miles and national boundaries before they are discovered. Colour shades do not work as, for example, the so-called 'Cape' diamonds that have shades of yellow in them, can originate from most diamond-producing countries and not just from the Cape in South Africa.

Harry Levy

HPHT Diamonds

In my article in the September issue of *GJN* I mentioned high pressure, high temperature (HPHT) diamonds and said that when these were first marketed a disclosure of the treatment was given by the producers. I am corrected on this assumption in a letter from Jean-Pierre Chelain of the SSEF laboratory in Switzerland (p.7). Jean-Pierre was one of the first to do research to determine the HPHT treatment, in co-ordination with the research of the Diamond Trading Company (DTC), and one of the first papers published was by him in *The Journal of Gemmology* (2000, Vol. 27, No. 2). His letter again shows the importance of the marketing of gemstones and why treatments are not widely advertised by those who carry them out.

While we are on the HPHT issue, the given history is that these stones were produced by General Electric (GE) and the method has been patented by them. It is not known if there exist colourless HPHT diamonds which have not been produced by GE. I am told that GE have now applied to patent the method(s) of detection of this process. If this is true as I have simply stated it here, it seems to be a strange thing to do if the intention is to inhibit laboratories and dealers from declaring this process if they suspect it. Declaring this process by laser marking the information on the girdle of the diamond is not a foolproof method, as such information can very easily be polished out. I am sure we shall hear more on this topic.

Harry Levy

stones. These are all parts of the armoury of those who do not advocate origin reports, but they also form part of the armoury for those who want to give such reports, claiming that whilst they may not be one hundred percent certain every time, they are accurate in enough cases to make this an acceptable science rather than an art.

Value – rarity and desirability

The other main argument in this controversy is one based on the value of gemstones. It is difficult to try to give economic justifications as to how one arrives at the price of a stone. Amongst the many factors there is rarity (i.e. there are a finite number of fine natural gemstones obtainable) and desirability (i.e. marketing). Before the advent of the problems of trying to give correct origins, traders perceived that the public had been trained to expect certain stones to come from certain origins.

I will take the example of rubies to explain this aspect of the problem. Traditionally rubies came from Burma, hence when synthetic rubies

were first manufactured by the Verneuil process they were made to look like fine Burma stones. These were the stones that were cut and polished in India, in the early days of the 20th century. Rubies were then discovered in Thailand (Siam in those days) on a commercial basis. Dealers began to market these, but because they did not look like the Burma stones (tending to be mauish and brownish in colour) there was some resistance in the markets to buy them. The suppliers of the Burma stones exploited this perception in the market place by claiming that some stones from Siam were not even real rubies and should not be so-called – they were mere corundums.

Those trying to market the Siam stones countered by saying that the public were buying inferior rubies, with poor colours, clarity and purity, merely because they were designated as coming from Burma which made them in some sense authentic, and were resisting the better looking Siam stones which should be of better value. The paucity of good-looking Burma stones and the avail-

ability of good-looking Siam stones helped in making the latter more saleable and hence more desirable. Dealers thought that a correct differential was now being seen in the different types of Siam stones, i.e. the value of the better stones went up, and public resistance to buying these stones was being diminished.

As in all marketing disputes the sellers of the Burma stones fought back in trying to work on the old perceptions of the desirability of Burma stones. To this day, a fine Burma ruby is worth far more than an equivalent fine Thai ruby, hence one argument in favour of origin reports.

New ruby finds

To reinforce this side of the argument, new ruby finds are being made in other parts of Asia and Africa now, and each type is developing its own market and its own price differen-

Buyer beware

In the last Notes from the Laboratory (*The Journal of Gemmology*, 2001, 27(8), p.483) I mentioned an advertisement for 'Stunning natural freshwater pearls' being applied to non-nucleated cultured pearls. In subsequent advertisements the description has been correctly changed to 'Cultured Freshwater Pearls'.

Another mail order company is advertising black 'Tahiti-type' Japanese cultured pearls. At the price quoted and the phraseology being used one would suspect that they are selling stained nucleated cultured pearls. They possibly might be stained non-nucleated cultured pearls. In either case the item would be falsely described as no mention has been made that the black colour is artificial. The label 'Tahiti-type' is far too ambiguous and could be taken to mean different things to different people.

Stephen Kennedy
Gem Testing Laboratory

MUSEUM & EXHIBITION NEWS

Pearls

American Museum of Natural History, New York, until 14 April 2002. The Field Museum, Chicago, 28 June 2002 to 5 January 2003.

This stunning exhibition examines the natural history of pearls. With over 600 marvellous objects and almost 500,000 individual pearls, the exhibition brings together many historically and culturally significant pieces of pearl jewellery and decorative objects on loan from public and private collections around the world.

One of the highlights of the exhibition is the section on the decorative use of pearls which features objects, jewellery, fashions incorporating pearls, and pearls worn by royalty and celebrities.

Further information may be obtained from the Museum's website: www.amnh.org

Art on the line

Somerset House, London, until 20 January 2002.

The Courtauld Institute Exhibition 'Art on the line' recreates the early exhibitions of the Royal Academy in Chambers' New Somerset House, includes stones by the RA's two gem engravers, Edward Burcy (one of its earliest members) and Nathaniel Marchant.

Museum fees

Readers are reminded that entry fees for the Natural History Museum and the Victoria and Albert Museum, South Kensington, are no longer charged. They join the British Museum in allowing free entry.

tials – again the need arises to identify origins. The purists argue that all rubies should be regarded as being the same and price differentials should exist only on the quality and appearance of the stone, and not on its origin. In this way the public will be protected from paying an excessive price for an inferior stone and not pay a premium based on the source of the stone.

Similar stories occur for other types of stones. For example, padparadscha sapphires, those with a distinctive pink/orange colour, are those that come from Sri Lanka. These are very rare and hence the fine ones sell at very high prices. For a number of years now orange sapphires have been mined in Africa and the dealers handling these stones wish to sell them as padparadschas on the market. Because this increases the number of such stones on the market, the stones are less rare and prices should drop. So again we have a differential in the price in the market, and thus a need to know the origin.

The differing views

As one who sits on several committees who are discussing the problem, I can only be impartial in this debate – I have merely tried to give you the arguments that exist on both sides. At present part of the trade regards those that use origin reports to sell stones as doing something to

the detriment of the trade. They argue that determining origins is not an exact science and errors can be made and are being made when giving origins. Also by selling a stone on the basis of its origin alone the price can often be inflated and fool the customer into paying an excessive price for what can be after all a fairly common stone.

However, an important part of the trade, including auction houses and those at the upper end of the trade, do depend on the origin to sell a stone. They claim they cannot side-step and ignore an important part of their clientele, and long established traditions in our trade by refusing to give origins. Often the differentials in price are justified on pure economic factors and, for example, fine 3 carat rubies from Burma are far rarer than similar fine stones from other origins so they are worth more.

Fortunately or unfortunately, depending on which side of the fence you are on in this issue, origin is an important marketing tool at the upper and certainly at the top end of the trade, and very few such stones can now be sold without an origin report.

We really would like to hear your opinions and experiences with regard to origin reports, this is very much an open debate and no real survey has been done to find out what traders feel about this.

Harry Levy

Chief Executive Officer of Gem-A

At a meeting of the Council of Management of Gem-A on 22 November, it was agreed that Jean-Paul van Doren and the Association should part company.

Gem-A would like to thank Jean-Paul for his contribution in raising the profile of the Association both in

the UK and overseas, and wish him well in his future endeavours.

The Council will immediately review the management situation in the light of this development and plan to advertise for a new Chief Executive Officer in the very near future.

HPHT Diamonds

I read with much interest Harry Levy's article entitled 'Improving the colour and purity of gemstones' (*G&JN*, September 2001, Vol. 10, No. 4). Unfortunately, the enthusiasm communicated by the 'exception' introduced by the sentence: "...the [HPHT] treaters have declared the process as soon as the goods have come on to the market" must be cooled down by reality.

It is true that in March 1999 Lazare Kaplan International (LKI) and General Electric (GE), (the 'HPHT treaters' in Harry Levy's article), declared that they would put on the market colourless treated diamonds on 1 April 1999. But they certainly did not 'declare the process' as Harry Levy claims. On the contrary, they declared that the process was secret and that it was not identifiable and would remain so. We should consider the following points:

1. As early as 1997 greenish-yellow to yellow HPHT treated diamonds of type I were on the market.
2. When announcing the treatment of colourless diamonds, LKI also declared that they had previously submitted the treated stones to several major diamond grading laboratories and added that not one of them had detected the treatment. Thus, these stones might have put on the market prior to 1 April 1999 without disclosure of the treatment.
3. When announcing the treatment of colourless diamonds, LKI was about to put these treated diamonds on the market with only a disclosure to its clients but with no way to trace the treatment. It is only thanks to a strong mobilization of the diamond market that GE POL was inscribed on the girdle of these treated stones. At this time the treatment was new and not identifiable.
4. When announcing the treatment

of colourless diamonds, LKI justified its decision to sell the treated diamonds at the same price as their untreated counterparts by declaring that the treatment was not identifiable and would remain so! In contrast to the sentiment expressed by Harry Levy, this does not make an exception to the arrival of other treatment on the market.

Finally, now that a few gemmological laboratories are able to determine the HPHT treatment of colourless diamonds which encompass the diamonds treated by GE,

I understand that this company is attempting to patent the method of detection of HPHT natural diamonds by means of an international patent filed on 2 October 2000.

Therefore, it is my opinion that by announcing a new process to create colourless diamonds the 'treaters' have behaved in a politically correct fashion – albeit as businessmen rather than gentlemen.

Jean-Pierre Chalain

*Director of Diamond Department
SSEF Swiss Gemmological Institute,
Basel, Switzerland*

Blue John Tiara

On the front page of the September issue of *G&JN*, volume 10, number 4, you are showing a picture of the Blue John Tiara winning different awards, also in respect for 'imaginative design'. I am sending an illustration of a steel tiara made by Cartier in 1914, of which I was immediately reminded when I looked at this tiara by Victoria Harper.

Comparing the designs, you can easily understand my thoughts about 'imaginative design'.

Eric Nussbaum

*Director of Art of Cartier Collection
Cartier, Geneva, Switzerland*

Response from Victoria Harper:

All educated jewellers are informed by the works of others. The very best seek to translate images resonant with the past into their own idiom. Cartier themselves are amongst the greatest and most successful exponents of this, for instance with The Egyptian Style from c 1910 to the 1930s.

I expect my client's brief was very different from any of Cartier's: a Blue John tiara with a budget proscribing the use of more precious gemstones and metals. It is not obvious in a black-and-white photo how the dappled, reflective finish of the blue steel mirrors the natural



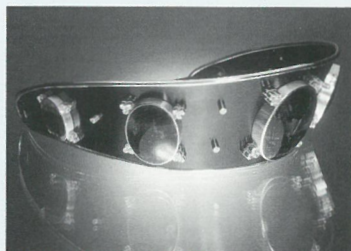
*The steel tiara made by Cartier in 1914.
Photo Nick Welsh © Collection 'Art de Cartier'.*

pattern and lustre of the Blue John, which is set in a contemporary manner.

I am delighted by the acknowledgement that as a new student I am striving to honour this tradition.

Victoria Harper

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*Blue John and blue steel tiara by
Victoria Harper.*

Stephen Kennedy reports on lectures presented at the 2001 Conference held on Sunday 4 November at the Barbican Centre, London.

HPHT-annealed diamonds

George Bosshart, who is the chief gemmologist at the Gübelin Gem Lab, delivered the keynote lecture. His aim was to talk about the high pressure high temperature (HPHT) annealing of pink and blue diamonds. First, he set the scene with an overview of how structural defects within the crystal lattice of diamonds can affect colour. He explained that natural diamonds without defects are unknown. Defects can then be categorized as small scale, intermediate scale and large scale. The small scale category includes point defects, which arise from chemical impurities such as nitrogen, boron and hydrogen substituting for carbon atoms. In addition, vacant lattice sites and carbon present interstitially to the normal lattice positions are also small scale or point defects. When single nitrogen atoms replace carbon atoms in the lattice (causing strong yellow 'canary' colours) the diamond is classified as a type Ib.

In the intermediate scale (or extended) lattice defects one considers platelets (a nitrogen and carbon combination), dislocation loops, various growth defects (e.g. lattice stacking faults) and plastic deformation

layers. Larger scale defects are stress lamination, microscopic Tatami disorder, growth zoning and glide twinning. To date, it is understood that the HPHT process results in the partial or complete restoration ('healing') of several colour-causing types of plastic deformation.

The HPHT treatment producing fluorescent green/yellow type Ia diamonds was not being discussed but as an aside George Bosshart stated that the green fluorescence became less marked as annealing temperatures were taken over 2000 degrees Celsius. The US company, Novatek, who carry out the treatment, are operating at temperatures and pressures in the highest areas of the graphite stability field. George believes that General Electric are operating at higher temperatures and pressures within the diamond stability field for colourless diamonds.

Natural pink colour group

Natural pink colours exist in both type Ia and IIa diamonds but exhibit a wider colour range in the first group. In a Gübelin Gem Lab study of over 100 gem-quality pink diamonds 75% of the stones were classified as type Ia, 2% as the mixed type Ib/IaA, and 22% as type IIa (of which 15% revealed nitrogen free infrared spec-

tra, whereas 7% showed trace amounts of nitrogen as A or B aggregates or as single nitrogen). In pink type Ia diamonds in particular, an irregular colour lamination and patchiness can frequently be observed under magnification. These obvious disturbances are plausibly interpreted as being caused by internal plastic deformation which itself is a reaction of the diamond structure undergoing geotectonic shear stress.

Natural blue colour group

The only colour modifier of any importance in blue coloured diamonds is grey. Natural blue diamonds are exclusively type IIb, which is due to the substitution of carbon atoms by parts-per-billion amounts of boron in the lattice sites of diamond. This causes a characteristic absorption pattern that is superimposed on the inherent diamond absorption in the infrared spectrum (with a main band located at 2802 wavenumbers). Without exception the absorption decreases through the near infrared into the visible and ultraviolet region of the spectrum.

The identification of HPHT-annealed pink and blue diamonds

In the year 2000 General Electric managed to add convincing pink and blue colour replicas to the wide range of already existing treated diamond colours. The experience gained by the Gübelin Gem Lab in studying 'Bellataire' (GE POL) diamonds before and after HPHT-annealing told them that the starting material was type IIa browns and type IIb grey to brown specimens of fairly high clarity grades. The pink stones investigated evidenced that only type IIa and nominal type IIa (very low nitrogen levels) had been selected. The pink and blue colours and colour modifiers were virtually identical to naturally-coloured diamonds.



(Left to right) Keynote lecturer, George Bosshart, speaking with Laurent Kellerson, Catherine Verney White and Dr Simon Lawson.

As with colourless Bellataire HPHT-treated diamonds standard gemmological testing methods do not provide evidence of the treatment except in rare cases. Infrared and visible spectra of these HPHT-annealed pinks and blues were similar to their naturally coloured counterparts. X-ray topography and cathodoluminescence were found to be of some assistance with colourless Bellataire diamonds but were not discussed. The most promising results came again from Raman photoluminescence using a helium/cadmium laser and an argon ion laser. The colour enhanced diamonds showed a smaller number of photoluminescent bands than recorded for natural colours and the intensities of the bands also differed noticeably. For instance the 575 nm and 637 nm (N-V centre) bands were definitely stronger than in natural pink diamonds. A few additional bands appear to occur in both treated pinks and blues. A larger database will provide more exacting criteria in the future.

Practical screening of HPHT diamonds

The second talk of the morning continued with the same topic but dealt with the practical screening of HPHT-annealed colourless diamonds. Dr Simon Lawson, Manager of Gem Defensive Projects at De Beers DTC Research Laboratory in Maidenhead, explained how the problems posed by HPHT-annealed colourless diamonds were being overcome since their advent on the market in March 1999. Only 1% of gem quality diamonds are the prerequisite type II browns suitable for this treatment, which provide the colourless stones, some pale yellows and a few pinks and browns. The nitrogen concentration in these brown stones is typically less than one part per million. In the HPHT-annealing process to produce higher colour graded diamonds the A-aggregate of two nearest neighbour nitrogen atoms may be broken up into isolated nitrogen atoms surrounded

by carbon atoms. In the case of nominally type II diamonds with 'I' or lower colour grades the presence of the 270 nm band and other infrared diamond characterization information allow us to discriminate between natural and treated stones.

However, the main method for discriminating HPHT diamonds from natural stones is using photoluminescence spectroscopy, typically



(Left to right) Dr Simon Lawson, James Evans Lombe of DTC, Gem-A President Professor Alan Collins and Gem-A Director Terry Davidson.

using an argon ion laser with the diamond placed in a cryostat, which reduces the temperature to -196° Celsius (77 K). The peaks are normalised against the diamond Raman peak for meaningful comparisons to be made between samples. It is found that the intensity of a peak at 637 nm is stronger than that of a peak at 575 nm in HPHT-annealed stones, whereas the reverse is normally true for natural diamonds. The 575 nm band is due to a single nitrogen next to a vacancy, referred to as (N-V) $^{\circ}$ and the 637 nm band is due to the N-V defect receiving an electron from another nearby nitrogen atom and becoming a negatively charged centre, the (N-V) $^{-}$ centre. Both of these centres arise from the HPHT treatment process, with the dominance of the 637 nm feature over the 575 nm feature being a direct consequence of the production of isolated nitrogen atoms during the HPHT process. Other defects can be affected or even destroyed.

To address detection of syn-

thetic diamonds and diamond simulants, DTC have developed the DiamondSureTM2 instrument which will explicitly identify synthetic moissanite and refer all synthetic diamond and diamond simulants whilst referring only 1% of natural diamonds tested on the instrument. Referrals are then tested on the Diamond ViewTM instrument, where examination of a surface fluores-

cence image can be used to unambiguously identify synthetic diamonds. DiamondSureTM2 will also explicitly refer colourless type II diamond. This type of diamond is tested on DiamondView in order to determine whether it is synthetic. If it is natural, it is then tested on an HPHT screening instrument that has been developed by DTC and is currently under evaluation. In trials all of the 180 HPHT diamonds tested were referred and of the 250 known untreated diamonds 70% were passed as untreated and 30% were referred for further testing on more sensitive photoluminescence spectrometers, where they were subsequently identified as untreated.

So the situation is not as dire as predicted by the first marketing in March 1999 where HPHT-processed diamonds were claimed to be identical to natural stones. In February 2000, Gemkey stated that four out of ten stones cannot be detected. By Spring 2000 DTC research scientists could claim that a combination of

features enabled the detection of the vast majority of HPHT-treated diamonds could now be detected. Finally, and coming full circle, according to the *JCK* magazine General Electric now state that the Pegasus process is detectable. During questions it was revealed that the stones are often part shaped for the HPHT process. Also that considerations of the 637 nm peak width would not be a reliable discriminatory feature of HPHT treatment. Dr Lawson considered that a very occasional diamond may eventually be regarded as an HPHT-treated diamond when the evidence is so finely balanced that a pragmatic condemnation of the stone is the best outcome for the trade.

Auctioneers and Pawnbrokers

After lunch we were treated to a double bill of Stephen Whittaker and Haywood Milton. Stephen Whittaker is the managing partner of Fellows Auctioneers, Birmingham, which is probably the UK's largest by volume jewellery auctioneers. They have eight jewellery sales a year, where the average lot value is about £250.

There are also about twenty-three auctions of unredeemed pawnbroker pledges. The types of people selling at auction range from private clients, executors, traders (acting for themselves or on behalf of a client), to those acting on behalf of corporate or personal bankruptcies. They send out 650 catalogues and another inter-

esting comment was that telephone bidders and bidders through the eBay internet auction site add about 500 to 700 extra buyers each sale.

Haywood Milton is from the family jewellery and pawnbroking business, Miltons (Liverpool) Ltd. It is

the busiest pawnbroker in Britain – they have 38 staff and take in 300 items a day at the shop at which he is based. Pawnbroking is about giving short-term loans, which range from £10 to £15,000 with the average being about £75. People from all walks of life use a pawnbroker, especially the one-in-ten who still do not have a bank account. According to a recent survey, 47% use the loans to pay bills, 35% for a special occasion like a meal or a holiday, and the remainder for a variety of other reasons. Ninety per cent of pledges are redeemed or renewed. The remainder are sold by auction or by private treaty. They have a legal duty to obtain a fair market price for an item. Sale by private treaty, where a pawnbroker sells an unredeemed pledge on behalf of the customer, relies on his expertise to ensure that they get fair market value rather than leaving it to the auction process. Selling by private treaty has been found to obtain twice the amount reached at auction and no VAT is payable. There has been no challenge on private treaty sales. The loan, interest and costs of sale (approximately 20% of the sale price) are deducted from the sale price and

the balance is returned to the customer. The shop at which Haywood is based has actually repaid £120,000+ to pledge customers in the last five years.

There are about 565 auction houses in the UK. In contrast to popular opinion they are liable under the Trade Descriptions Act and therefore use their own in-house gem

experts as well as outside laboratories. Pawnbrokers have grown from about 50 in the 1970s to 750 to 800 now. Big chains are Harvey & Thomson and Albemarle & Bond, the latter having 50 shops. A substantial majority of pawnbrokers have no

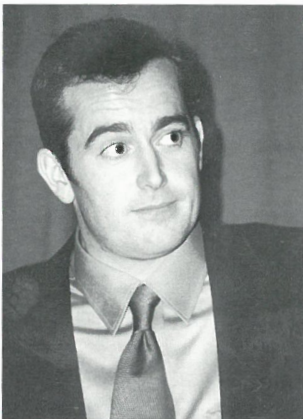
gem knowledge and considering that jewellery probably constitutes over 90% of all pledges in the UK, there are bargains to be had.



Auctioneer Stephen Whittaker.

The expertise of pawnbrokers varies, some being quite inexperienced and lending low prices, whilst others are very professional. For an item of jewellery, £1 to £2 per gram is offered for gold, whereas Miltons offer £3+. Commonly a flat rate of approximately £50 would be allowed for a sapphire mounted in an item of jewellery. However it is in the interest of the pawnbroker to issue as large a loan as possible against an item since 90% of pledges are redeemed or renewed and therefore the majority of their income comes from the accrued interest.

Haywood Milton and Stephen Whittaker then gave comparisons of the prices expected for gemstones as sold through a pawnbroker and auctioneer respectively (it should be noted that the gemstone prices quoted have been calculated according to the system used by Miltons). A 1 ct diamond, colour I/J and clarity vs, would fetch £1500-£2000 at auction, a pawnbroker would lend £1600-£1900 (to sell by private treaty if unredeemed at £3200-£3500). A 1 ct diamond, colour L and P2 clarity would be £600 at auction, a pawnbroker would lend £500 (private treaty £1100). The allowance made against an average quality emerald of 1 ct at auction would be £350/£400, the pawnbro-



Pawnbroker Haywood Milton.

ker would lend £250 (private treaty £500). For an 'average' sapphire the respective figures would be £300, £150, and £300. For a 1 ct ruby the auctioneer would look for £500/£800, and the pawnbroker would lend £450 and sell at £900.

Haywood Milton explained how they arrive at loan/sale prices for jewellery items. He would refer to *The Guide* (by Drucker), price lists from Backes & Strauss, and consider the new price for an item. The problems encountered with some disreputable customers were:

- simulants such as synthetic moissanite being passed off as diamonds;
- treated diamonds not being declared (interestingly Miltons have seven treated diamond rings for sale in their shop which they offer at 30% discount);
- lots of small diamonds mounted in jewellery being overvalued (referred to as 'flash for cash' items) and
- certain elements of the trade attempting to pawn their stock, which means that they avoid it going through their books and thus paying VAT.

Miltons are constantly trying to eradicate these bad practices.

Who or what is a jeweller?

The fourth talk was by Terry Davidson, who is the Head of Jewellery

at Asprey & Garrard, and was entitled 'Who and what is a jeweller?'. Dictionary definitions were considered: 'a jeweller is a maker or dealer of jewels'. A jewel is an article of value used for adornment, a costly ornament, an ornament worn as a badge of an order or as a mark of distinction or honour, or a precious thing or person. A jewel is suggestive – like a primitive emblem – it carries one meaning for the wearer, another for those setting eyes on it. The name given to the jewellery craftsman tends to be goldsmith, who deals from everything to do with the precious metals, from mining, refining, banking and making jewellery. Robert

Amada, goldsmith to Henry VIII, ran the Mint, lent money to Cardinal Wolsey and the Duke of Buckingham, made embroidered jackets for the Kings Guard, supplied jewels, gold chains and plate for Royal weddings. Is this the definition of an all round goldsmith?

The desire for self-adornment has seen the use of many materials, be they animal, vegetable, mineral or man made. We only have evidence of those that were able to survive the ravages of time. In 5000 bc Hazaf jewellery found in a grave comprised

a bead necklace of obsidian and cowrie shells. By 3000 bc beads of garnet, coral, turquoise, faience mother-of-pearl, lapis lazuli, carnelian, chalcedony, bone and ivory were being used. Teeth were one of the oldest materials used in jewellery. An Egyptian flint bangle has been discovered, which is

believed to pre-dynastic. The hieroglyphics on a pectoral of gold and silver in Tutankhamun's tomb pick out his name in chalcedony, carnelian, calcite, lapis lazuli, turquoise, obsidian and coloured glass. From about 2000 bc metal working had developed and was being applied throughout the Middle East. From

2500 to 200 bc gold jewellery was produced in ancient Babylonia by the Sumerians spreading west-wards to Greece. A number of gold items were illustrated as well as a gilded copper ring.

In the 3rd century AD a Roman ring was set with an octahedral diamond crystal. It was not until the 15th century that the diamond would become significant in the sense that it was symbolic of a declaration of love. Gemstones have always had great significance in relation to their attributed mythical properties. Pliny describes gemstones available during Roman times and advises on the detection of glass imitations. Paste gemstones were made in Milan during the Renaissance period so the jewellery seen in many portraits of the time would not be mounted with natural gems, even if the designs were the same. The 18th century, the age of the dandy and exuberant fashion, produced jewellery of extraordinary finesse but also objects of functional beauty. The Industrial Age produced decorative steel work in Woodstock, Oxfordshire. Other materials were



Terry Davidson.



Peter Read demonstrates the Brewster Angle Meter to Varsheet Shah.

the black lace-like Berlin ironwork, the use of zinc and copper alloy Pinchbeck, and Vauxhall Glass from the Duke of Buckingham's glass-works. Buttons being always in use on garments were often decorated. The pique point and pique pose process inlaid silver or gold into tortoiseshell. Even the Alaskans bejewelled their ivory buttons.

In the second half of the 19th century, the customer was demanding revivalist, more naturalistic jewels. Certain craftsmen rose to the challenge – Castellani, Giuliano, Fabergé and Cartier. Castellani made a demi parure in agate, which was based on Greek prototypes of the 4th century BC. Fabergé's skill lay in applying 5-6 layers of enamel chosen from 144 different shades of colour to a metallic base of silver and 14 ct gold. The firing took place at 700-800°. The discovery of diamonds in South Africa created an explosion of their use in jewellery – this was illustrated by Cartier jewellery. Cartier was founded in 1847 and was run by the family for three generations before its sale in 1974.

So who and what is a jeweller? Could not any of the above be called a jeweller in their own right? Perhaps the jeweller needs to have a knowledge of all of the foregoing or at least a combination of some of the skills. Mr Davidson finished with three relevant quotes: 'The lyf so short, the craft so long to lerne' (Chaucer), 'Fine Art is that in which the hand, the head, and heart of



President Professor Alan Collins (left) speaking with Vice-President David Kent and Examiner Evelyn Stern.

man go together', and 'Few know how much one must know in order to know how little one knows'.

Heat treatment of rubies

The last presentation of the afternoon was from George Bosshart on the recent problems posed by the heat treatment of ruby. The trade has been struggling with how to disclose the topic of heat treatment and the solid foreign residues that may be present within cavities and healed or partially healed fractures in rubies and sapphires. As a result there has been a crisis of confidence in the trade of these gemstones. The established gemmological system of describing the relevant quantity of residue present in a particular gemstone uses the terms minor, moderate, or prominent/significant. Although relevant information is provided on lab reports, many found the terminology confusing as well as alarming. The trade and consumers alike were interpreting the comments being made on the reports simply as a quantification of 'glass filling'. As a result less heated rubies and sapphires were being submitted for reports, thus avoiding the issue of disclosure all together. The Gübelin Gem Lab undertook a project to better understand what was happening during the heat treatment of rubies, and then developed

a new disclosure system to characterize and classify the issue of healing and residues in heated rubies.

Although heat treatment of corundum had been known for a long time, it was in the mid-1970s that dramatic new developments in technology were introduced that could be applied in the processes. In addition to achieving considerably higher temperatures chemicals were also incorporated to coat the gems and help protect them against thermal shock. In the early 1980s surface cavities of resulting heated rubies were found to be partially or completely filled with solid, foreign glass-like substances. The disclosure of such filled cavities on gemmological reports led the trade to remove any foreign material that was present at the surface by the use of hydrofluoric acid. The laboratories at the behest of the trade then focused more closely on the remnants of these chemical additives within the healed and partially healed fractures. This led to such comments as 'minor residues present in fissures' being added to heat treatment disclosure. In the trade's view this was still being equated with 'glass filling', which was originally applied to the larger volumes of the material filling surface cavities.

At this time there was still a degree of uncertainty about the nature of the residues within healed fractures. The uncertainty was com-



GJN Editor Michael O'Donoghue speaking with Cecilia Pople, with Gem-A Director Vivian Watson in the background.

pounded by claims from the heat treaters that they were not using additional chemicals and yet laboratories were still condemning their stones as having residues within the healed fractures. It is common knowledge that the heat treatment of corundum improves, sometimes dramatically, the colour and appearance of a ruby and sapphire. As a part of this process, fractures may also heal, or seal, as a result of partial dissolution and recrystallization of fracture walls. Typically various chemicals used to protect the gemstones against thermal shock also assist as a medium in the process of the fractures healing. Once the treatment is complete, vitreous remnants of these chemicals may remain along the healed fractures and in surface depressions. However the research of the Gübelin Gem Lab has further shown that naturally occurring inclusions (such as silicates) may also melt under high temperatures and assist in healing fractures, without the use of additional chemicals, and leave an amorphous residue behind. It was found that all of the residues encountered were by-products of the treatment process. They were identified generally as amorphous materials of variable chemical composition. It was impossible to distinguish between the remnants present in chemically-induced healed fractures and those



GJN Editor Corinna Pike examines a lasered diamond, with Stephen Kennedy.

remnants of naturally-occurring associated minerals, which have melted and solidified amorphously. The primary issue in considering this problem in the opinion of the Gübelin Gem Lab are that the amount of residues present in a fracture is inversely related to the degree of healing that the fracture has undergone in the heat treatment process. The aims of the Gübelin Gem Lab system are to be clear, concise, non-alarmist, and consistent. The devised thermal enhancement scale firstly classifies the degree of healing and secondly the amount of residue present in heat-treated corundum. The system does not differentiate between the residues as to whether they originate from foreign chemicals or natural inclusions. The degree of healing is evaluated microscopically with reference to a set of master rubies.

As with most other laboratories, if there is no evidence of heat treatment then this is noted under comments on the report and the particular wording used is 'No indications of thermal enhancement'. If evidence of heat treatment is found then the phrase 'Indications of thermal enhancement' is seen on the report with one of the following codes following in brackets.

- TE1: No healed fractures are present or only a small number of fractures that consist primarily of

tiny droplets and fine tubules.

- TE2: The constituents of healed fractures consist primarily of tiny droplets and small tubules.
- TE3: The size and number of the healed fractures increases and consist primarily of tiny droplets, small tubules and fine thin films.
- TE4: The healed fractures become more extensive, consisting of small droplets, networks of tubules and thin films.
- TE5: The partially healed fractures consist of coarse droplets, networks of coarse tubules and thick films. Small cavities with residue may be present.
- TE6: In addition to the features described in classifications TE1 –TE5, these gemstones possess large cavities filled with residue.

Accompanying the report there is a comparison chart in colour explaining the scale, which also provides other relevant information. For instance there are reminders that the thermal enhancement of corundum is a common trade practice, the effects of which are stable and permanent. The sheet finishes on an important note that the scale is not a classification of quality. George Bosshart expressed his hope that the Gübelin Gem Laboratory's thermal enhancement scale had contributed towards resolving some of the problems faced by the international ruby trade.

Sponsors

Gem-A is most grateful to the following for their generous sponsorship of the Conference:

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International Gemmological Conference

The 28th International Gemmological Conference (IGC) was held from 6-12th October in Madrid, Spain, hosted by the Instituto Gemologico Espanol (IGE).

The first day was an Open Day where prominent members of the Spanish jewellery trade could meet IGC delegates and hear five of them – Edward Gübelin on garnets, Margherita Superchi on report terminology, Alan Jobbins on jewelled swords, Menahem Sevdemish on fancy sapphires and Henry Hänni on pearls – present a range of topics. Very interesting Spanish contributions came from Juan Cozar on glass fillings in sapphires and from Ivan Larrea on stone organ pipes.

After visits to the monument of El Escorial and the Roman aqueduct and cathedral in Segovia on Sunday, the 38 delegates and 24 observers (from 24 countries) met in the formal sessions of the conference to listen to and discuss 44 lectures and nine poster presentations. Topics included new finds in Madagascar, work on the characteristics of gems from East Africa, a new emerald mine in

Brazil, reviews of demantoids and peridots, jadeite jades, Queensland mabe pearls, developments in hardness testing, Vatican museum gems, and emeralds and synthetics from Russia.

On the diamond front, there were discussions of current work in Canada and Thailand, on Type IIa crystals, and on how best to deal with stones treated at high pressure and high temperature (HPHT). A poster presentation from IGE reviewed the statistics of diamonds reported on in their laboratory in Madrid.

From the pre-conference tour north of Madrid, numerous fine specimens of pyrite (mostly beautiful cubes, with some twins) were supplied to delegates not fortunate enough to participate in that trip and now none at the conference should be unfamiliar with Navajun pyrite! On the post conference tour it was planned to visit Almaden (for mercury minerals), and Caceres for turquoise and rose quartz.

At the IGC business meeting following the lectures, future venues for IGC meetings were discussed. These are held every two years. For 2003, delegates voted by a large majority to accept the Chinese invitation to hold the meeting at Wuhan, Hubei Province.

Cristina Sapalski headed the organizing committee that ran this IGC and all are to be congratulated for a most successful and comprehensive programme. The event was wide ranging both gemmologically and culturally and the surmounting of last-minute obstacles – particularly for the conference week – was very much appreciated.

Roger Harding

Treasury of the World: Conference

Held in conjunction with the exhibition Treasury of the World: Jewelled Arts of India in the Age of the Mughals.

A conference was held on 4-5 June at The British Museum in association with the Society of Jewellery Historians. Following opening remarks by Robert Knox, Keeper of the Department of Oriental Antiquities, Manuel Keene gave the keynote address on regional styles of enamelling in the Mughal period and the influence of Europe. B. Augustin focused on turban ornaments, showing the interaction of Europe and India in this context; Souren Melikian Chirvani provided an insightful interpretation of the inscriptions on Mughal jades, while Amy Poster presented Mughal jades in their context from an American private collection. Rita Sharma of the National Museum of India showed some exceptional pieces in that museum's collection; Derek Content spoke on pearls and their place in Mughal jewellery and Nuno Vassallo Silva discussed the Portuguese role in the gem trade of India.

On the second day Mughal jewels were discussed in other contexts: as jewellery, weapons and a robber's loot in Ellen Smart's paper and as items of personal adornment by Jennifer Scarce. Robert Elgood identified South Asian sources for some Mughal arms and armour, while Susan Stronge presented a range of Mughal thrones. Finally Stephen Markel discussed 18th century jade objects.

Robert Skelton in his closing remarks noted that while the speakers had taught us a great deal about Mughal jewelled objects, much remains to be learnt about this subject.

For those who could not attend the conference or would like a record of the proceedings, the Society of Jewellery Historians will be hoping to publish the papers in a forthcoming volume of *Jewellery Studies*.



Cristina Sapalski (right) handing over the IGC banner to Mrs C. M. Ou Yang, for the next conference which is to be held in China.

Castellani jewels, the Etruscans and the Roman Mosaic Industry

A report by Ted Donohoe on a jewellery tour of Rome

A party of about 22, including many members of the SJH, spent five days in Rome from 17 to 21 October in shirt-sleeve weather on a jewellery tour organized personally by Amanda Triossi (ex Sotheby's London), using the services of a local cultural tour firm. Participants were drawn from Italy, France, Belgium, Switzerland, Sweden, Ireland, Britain and (despite 11 September) four pairs of bright eyes arrived from the USA.

The programme concentrated on the Roman firm founded by Fortunato Pio Castellani. The party had a memorable morning in the deconsecrated church of St Eligio (patron saint of goldsmiths) in the Via Giulia, which serves as the headquarters of the Italian Goldsmiths' Guild, where Museo Giulia curators introduced them by slide shows to both Castellani's work and the Etruscan, ancient Roman and medieval work which he emulated. In the afternoon these morning lectures came to life when the objects they referred to were inspected during a tour of the Museo Giulia. By some extraordinary chance the party met Clare Phillips of the V&A Metalwork Department on a private visit with her husband and small son. Could you blame her for leaving child with spouse, and joining the party for an hour at the Castellani cabinets?

Next day the party visited the Vatican Mosaic Workshop (reconstructed in the 1930s), where the Director, Maestro Narduzzi, gave a show of glass rod manipulation, drawing the rods at will from macro to micro fineness from his electric furnace, techniques well described in Judy Rudge's contribution to the Gilbert Collection book on micro-mosaics. The workshop's commercial production today is confined to macro work (copies of sacred paintings and classical views) of which the party inspected several examples in the making, usually of hang-

Castellani

By the mid 19th century Castellani had inspired a taste for archaeological jewellery designs throughout Europe (famously lampooned at the time in Punch). Castellani's inspiration was largely drawn from the finds from his privately organized digs in the Etruscan tombs near Rome. The revival of interest in this taste among English speaking collectors after World War 2 (clearly noticed on the market) was largely due to three events – the publication of Geoffrey Munn's book in 1983, the appearance of the Hull Grundy gift in the BM with its excellent catalogue *The Art of the Jeweller* in the same year and Sotheby's sale of the Bentley Collection in 1986. Dealers in

London at that time rarely if ever entertained enquiries from Italy for their native Castellani jewels which were somehow regarded, as they might have been in the 19th century, as the preserve of the tourist to Italy. The gift of the Castellani Collection to the City of Rome by Alfredo Castellani after the closure of the shop in 1930 has only recently revealed its full glory to native Italians since the opening, in 1999, of the refurbished Museo Giulia in the splendidly extended Villa Giulia. The collection is shown as laid out in Castellani's shop cabinets, to serve as samples for his clientele from which to pick their models.

ing picture or small table top size, some by apprentices; but Maestro Narduzzi did say that they would undertake micro-mosaic work on special commission and would even do micro mosaic repairs if asked. The unwary client needs to be warned that the Vatican workshop is not the cheapest. Giuseppe Petochi, whose shop in the Piazza Espana the party visited on the following day, has a less costly contact for micro mosaic work. Whilst in St Peter's, the party saw the earlier macro work of the Vatican mosaicists, the huge mosaic copies of paintings as backdrops to side altars, introduced for their practical advantages for cleaning over paintings or textiles. The Museo Vaticano also has a room devoted to micromosaic examples, some of the more interesting being micromosaics mounted in the mid 19th century in jewels by the Fabergé workmasters of St Petersburg. By some delicate negotiation, the party was, as a kind of accolade, led by a chaplain through a locked side door from the overcrowded Sistine Chapel into the

silence of the Papal Sacristy, where papal vestments, mitres, croziers, mon-strances, chalices and jewels dating from the 16th century to modern times jostled with each other, waiting for use or (more commonly) disuse. The chaplain assured us that our party was the only group he could recall to have been taken into this treasure chamber – surely deserving a wider audience.

On an otherwise free day, the party were the morning guests of Giuseppe Petochi (a descendant of a 19th-century family of goldsmiths and jewellers in the Piazza di Spagna) whose brother, Domenico, contributed to an early monograph (in Italian) on micro-mosaics in 1981. Here we were able to inspect his workshop and the nearby workshop of the bespoke goldsmith, Claudio Franchi, who showed us examples of his chased silver (and asked for information on Richard Edgcumbe's recent publication *The Art of the Gold Chaser*).

The Museo Vaticano houses superb examples of arms, chariots, domestic utensils and jewels from

the Etruscan tombs as does the Museo Giulia. For those unfamiliar with the rich civilization of Etruria from 7th century BC, these finds were as exciting as they must have been to Fortunato Pio Castellani. On a last day which began in heavy rain, the party travelled from Rome striking west, across the former marshes which Mussolini had drained, through avenues of mushroom-topped Mediterranean pine to arrive at Cerveteri (Etruscan Caere) by the coast in later brilliant sunshine; and there walked through a fantastic City of the Dead in the Necropolis of Banditaccia, with its avenues of uncovered domed tombs hewn from volcanic rock (tufa) and formed into dwellings for the dead, each with its individual internal architecture. The culture shock of seeing so ancient a civilization so alive in death and the aesthetic pleasure of a setting of Mediterranean oaks, finger cypresses and pink cyclamen entirely ravished the party, whose memory of their visit must have been tinged with these colours.

One could write a whole separate report on the meals – two suppers in the palazzi of minor Roman nobility, a five-course private lunch in the Vatican and a final lunch high on a hilltop castle in Cere near the coast. The groaning street tables of Trastevere made up the rest.

The Poniatowski Gems

Gertrud Seidmann, who is preparing a publication on the gem collections of Prince Stanislas Poniatowski, with special reference to the cast collections in the Ashmolean Museum, would like to hear of other extant collections of the Poniatowski Casts (1842) in public collections in the UK.

Please contact Gertrud at Wolfson College, Oxford OX2 6UD.

Marbles, Minerals and Mosaics

Both SJH and Gem-A members will be interested in a series of lectures at the Gilbert Collection, Somerset House, London, in 2002.

All ten weekly lectures are on Monday evenings from 6.00 to 8.00 p.m., starting on 14 January. The entire course, entitled Marbles, Minerals and Mosaics, costs £345, or may be booked individually for £35. Details of lectures follow.

14 January. Princely Magnificence: The Manufacture of Pietra Dura in Florence, Prague and Paris. ADRIANA TURPIN.

21 January. Hardstones in Renaissance Treasures. TIMOTHY SCHRODER.

28 January. The Movement of Goods: Hardstone Furniture on the Continent and in Britain. RACHEL LAYTON ELWES.

4 February. Furniture Study in the Gilbert Collection. ADRIANA TURPIN.

11 February. Magnificent Trophies: The Grand Tour Hardstone Cabinet,

its Setting and Significance. TIM KNOX.

18 February. Hardstone Boxes, Handling Session. (Only available to whole-course participants.)

CHARLES TRUMAN.

25 February. Collecting Geology: The History of Collecting Marbles and Minerals.

RACHEL LAYTON ELWES.

4 March. Scagliola. OLIMPIA SERAFIN.

11 March. From Roman to Victorian Mosaics. TIMOTHY STEVENS.

18 March. Grand Interiors: Hardstones for Objects and Architecture in the 20th Century. RACHEL LAYTON ELWES.

For enquiries call Janine Rymer at the Sotheby's Institute of Art.
t: 020 7462 3232
e: janine.rymer@sothebys.com

JEWELLERY SALES

Sale dates from the auction houses for the New Year.

Christie's South Kensington

Jewellery: 29 January, 26 February, 12 March and 9 April
Pawnbrokers Unredeemed Pledges: 1 March
Rings: 26 March (Sunday view)
20th Century Jewellery: 23 April (Sunday view)
Viewing Mondays (0900 to 1930 hours) and Tuesdays (0900 to 1200 hours) prior to sales. Sunday viewing where stated (1300 to 1600 hours).
t: 020 7581 7611 w: www.christies.com

Fellows & Sons, Birmingham

Antique and secondhand jewellery and watches (by Direction of Pawnbrokers Nationwide): 10 and 24 January, 7 and 21 February, 7 and 21 March, 4 and 18 April
Antique and Modern Jewellery and Watches: 17 January, 14 March and 25 April
Viewing Tuesdays and Wednesdays (1000 to 1600 hours) prior to sales, and on day of sale (0830 to 1030 hours).
t: 0121 212 2131 w: www.fellows.co.uk

Sotheby's, London

Modern Jewellery: 18 March
Viewing week prior to sale. t: 020 7293 5000 w: www.sothebys.com

7000 Years of Jewellery

E. Hugh Tait, 11" x 8 3/4", 253pp, numerous col. illus, British Museum Press, re-issue 2001, ISBN 0- 7141- 1710-2, pb £19.99.

It is always nice to welcome back an old friend. This excellent overview had its roots in the catalogue of the splendid 1976 British Museum exhibition of the same name, originated and organised by Hugh Tait. It was the first exhibition to truly reveal the great wealth of the Museum's jewellery holdings, normally held as parts of the separate antiquities collections of seven departments.

Under the guidance of the editorship of Hugh Tait, the material from the catalogue was used as the basis of the first edition of this book, published in hardback in 1986. No less than twenty one of the Museum's renowned specialists contributed, and, with numerous colour photographs of items from the

collections, the reader is lead chronologically and geographically through seven millennia of human adornment. An intellectual and visual treat! A revised edition was published in 1996, and it is appropriate that, after a period out of print, it has been re-issued in the first year of a new millennium.

Nigel Israel

Dance of the Peacock: jewellery traditions of India

In the review of the book published in *GJN* (2001 10, 4, p.58) details of the UK distributors were unfortunately omitted. Copies may be obtained from Soma Books Ltd
t: 020 7735 2101
f: 020 7735 3076
e: books@somabooks.co.uk

Gem-A trip to Idar-Oberstein, Germany

21 April to 27 April 2002

Five days of gemstone indulgence!

- Explore a mine
- Workshop Visits
- Museum trips
- Meet the dealers
- Plus free time for business and pleasure!

Price £595 per person

New for 2002!

Optional excursion to the Pieroth Wine Estate. The visit will include a guided tour of the cellars and wine tasting.

For further information contact Doug Garrod on 0202 7404 3334.

Baleen

Maggie Campbell Pedersen looks at baleen, an often overlooked organic gem material.

When worked, baleen is indistinguishable from horn and has been used in many of the same ways, though more common uses were as corset stays ('whale bone'), umbrella ribs and bristles for brushes. Corset stays were often scrimshawed, and whole pieces of baleen were decorated with scrimshaw as decorative items in their own right.

Baleen derives from whales, the mysticetes or non-tooth bearing whales, amongst them the Right, Minke, Humpback and Blue whales. These carry from one hundred and fifty to over four hundred baleen plates on each side, hanging like overlapping curtains from the top jaw where other creatures would have teeth.

The plates are roughly triangular in shape, varying in size, width,

length and colour with each species. They are longest in the middle of each side and can be so long – up to four metres – that they have to fold backwards into the whale's mouth to enable it to close. The plates of the world's largest whale, the Blue whale, are by contrast only about one metre at the longest point. Colours vary from almost white, through browns to almost black.

Baleen is made of keratin, and each plate consists of rows of hairs stuck together and coated for most of its length with horn. The inside edge and the end of the plate are not coated and this forms the fringe that enables the whale to feed. By taking large gulps of water and siphoning it out again through the fringe that acts as a sieve, the food – mostly tiny creatures called krill, or small fishes



A baleen plate

– becomes trapped in the mouth.

Like the horn from cows, sheep, buffalo and so forth, baleen is thermoplastic and can be moulded by heat and pressure. In older items it is difficult, if not impossible to distinguish baleen from different species. Today all whales come under the international whaling bans so baleen is no longer used.

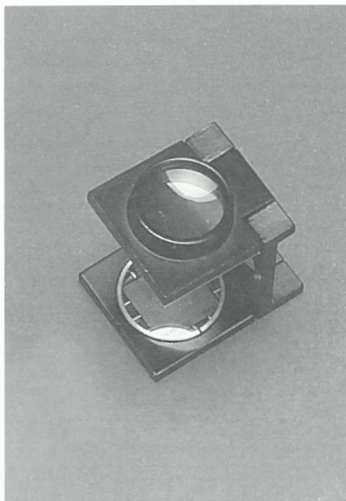
The Measure of a Diamond – the Shindler Scale

Accurately estimating the weights of mounted diamonds has always been a problem. The simplest gauges are merely pieces of metal or plastic with a series of increasingly large round holes drilled in them. Assuming the diamond is a so-called 'ideal' brilliant cut then the holes relate to various indicated weights. A more accurate, and in the past widely used, gauge, is the Moe. This is an X-shaped sprung device with caliper jaws to put across the stone, and a pointer that moves across an arc scale at the other end. The Moe gauge can also be used to measure the depth of the stone, and some versions come with an extension probe to cope with deep settings. The Moe measures in its own units, and comes with a booklet that translates the diameter and depth readings into carats.

The most widely used, and most accurate, gauge has been the Leveridge Gauge. This is a dial (or more recently a digital display) millimetre gauge. It has three specially designed sets of claws; one for diameter, one for depth (again with a fine extension probe) and one for unmounted stones. The Leveridge gauge is accompanied by an amazingly comprehensive set of tables to relate the measurement to weight. These cover not only brilliant but also several fancy cuts. The gauge and tables are, however, quite bulky to carry around, and the gauge is quite fiddly to use, particularly with very small stones. It is also very expensive.

Bernard Shindler comes from a jewellery background. His father's firm, J. Shindler of Hatton Garden, was one of the leading manufacturers of jewelled watchcases. He, himself, spent many years as a diamond buyer. He set out to produce a really small pocket gauge that was also easy to use and relatively cheap.

His gauge is basically a modi-



The Shindler Scale.

fied 'linen' tester. These folding devices were designed as fixed focus magnifiers when placed on a flat surface. The bottom aperture commonly has a measuring graticule in inches or in millimetres. In its true linen use it would have been used to check the stitches per inch, but it has also been extensively used to measure many other things including the perforation pitch of stamps. The Shindler version is only 35 x 23 x 10 mm, and comes in a tiny pouch that is ideal for a ticket pocket.

Over the course of several years Mr Shindler has devised and refined a graticule specifically for measuring the weights of diamonds. A brilliant-cut stone, from 1 point to 5 ct is held against the graticule with its edge lined up with the datum line of the centre scale. The weight of the diamond is read off where the furthest edge of the stone meets the scale. The magnification makes this reasonably easy with practice. The angle of the magnifier can be altered slightly to bring the graticule into sharp focus, according to individual eyesight. There are similar scales on the same graticule for measuring baguettes and marquises. The bottom of the magnifying section is

coloured orange, and with the screen aside, a brilliant-cut stone will be of 'ideal' proportions if the orange reflection is total.

The latest addition to the graticule is a vertical 11.5 mm scale. This, as well as the horizontal 10 mm scale, can be used to estimate the depth of stones, where the bottom is visible. The depth is, of course, a very important factor in estimating diamond weight, and the Shindler gauge is at a major disadvantage in this compared to the Moe and Leveridge gauges with their specially designed claws and extensions. Both Shindler millimetre scales can also be used to measure the dimensions of fancy cuts. Various formulae are supplied that give results almost identical to using the same dimensions with the Leveridge tables.

This is an extremely convenient gauge which greatly increases the ease and accuracy with which the weights of a large number of set stones, particularly the very small ones, can be estimated, although the depth problem means that it must be used with particular caution on larger stones. Bernard Shindler is to be congratulated on his perseverance in both producing the original version and then continually refining the graticule to its present state.

Nigel Israel

Special offer

The Shindler Scale is available from
Gemmological Instruments Ltd,
27 Greville Street,
London EC1N 8TN
t: 020 7404 3334,
f: 020 7404 8843,
at a discounted price of
£33.50 plus VAT
and postage and packing.

Offer ends 31 January 2002.

Gem-A and SJH London events

Details of times, venues and prices are given on p.20

9 January: Gem-A lecture

An orgy of organic gem materials.
E. ALAN JOBBINS

Alan Jobbins was Curator of Minerals and Gemstones at the Geological Survey and Museum in South Kensington for over 30 years, and was responsible for the former gemstone displays there. He has worked on geological and gemmological projects in many famous gem-producing areas. He was Chief Examiner of the Gemmological Association and Editor of *The Journal of Gemmology* for many years.

Alan will provide a wide survey of many organic gem materials and how they have been used. There will be much pictorial presentation.

22 January: SJH lecture

Greek jewellers at the ends of the earth.
DYFRI WILLIAMS

Dr Dyfri Williams has been Keeper of the Department of Greek and Roman Antiquities at the British Museum since 1993. He is a distinguished Classical archaeologist, and a leading authority on Greek vases. His work on Greek and Hellenistic jewellery and gold-working has broken new ground. Working with British Museum scientists and with Dr Jack Ogden (their exhibition catalogue *Greek Gold: jewellery of the Classical world*, 1994, has become a standard work of reference), Dr Williams has integrated the evidence of technological and scientific investigation with sophisticated art-historical analysis to identify and trace workshop styles in Classical gold jewellery.

26 February: SJH lecture

A lecture on her own work.
CATHERINE MARTIN

Living in Japan in the 1980s, Catherine Martin learned kumihimo, an ancient silk-braiding technique of great complexity, necessitating four years of training. She achieved a level of skill unprecedented for a gaijin or westerner. Before long she had begun experimenting, substituting fine wires for the silk threads, and has developed the textile technique into an astonishingly sophisticated metal form, resulting in subtly beautiful jewellery. Her move from working solely in silk to using metal led her to a basic jewellery course at the Sir John Cass College, and from there to the Royal College of Art, where she was tutored by Jacqueline Mina.

The ideas are tried out in silver or copper wire before being translated into combinations of coloured golds and platinum. Catherine frequently now incorporates dark glossy silk threads into some of her work, emphasizing the rich textural effect. The finished pieces are presented in shallow boxes of pale wood – another traditional Japanese touch.

30 April: SJH lecture

Hot flames, cold steel: the manufacture of Georgian and Victorian jewellery.
JACK OGDEN

Jack Ogden was one of the founders of the SJH in 1977, and is a past-president. For many years he organized both its publications and its conferences. A member of a well-known jewellery family, he dealt in ancient jewellery. He then moved to its analy-

Competition

We were stocktaking the other day and found we had 1017 stone packets. None of them were empty as we do not list the empty ones. We counted the number of stones in each packet and noted our rule that no packet should contain more than 1000 stones had been adhered to. What are the chances that two packets should have exactly the same number of stones in them?

The story of the attempted robbery of the Millennium diamonds from the London Dome continues. As I write this article, the trial of the alleged robbers is ongoing and I have again received phone calls from the press asking if I knew what they were going to do with the stones had they got away with them. The theory that the whole thing was a hoax to bring publicity for the Dome or De Beers, which in fact it did, is now discredited as the perpetrators were caught and are now being tried. So this puzzle is still open for a realistic or a bizarre solution.

Harry Levy

sis and authentication. He had a large involvement in the British Museum's Greek Gold exhibition and its accompanying catalogue. After five years as Chief Executive of the NAG, he has returned to lecturing widely on jewellery techniques, and has recently organized a major British Museum conference on metal conservation.

Court Jewellers: Splendour, Finance and Intrigue

London, Thursday and Friday 26/27 September 2002.

A two-day symposium on Court Jewellers will be held jointly by The Society of Jewellery Historians and The Society for Court Studies. It is intended to cover their roles as both suppliers of jewels, and as financiers. Suggestions and offers of contributions would be extremely welcome. Please write to the SJH Chairman, Nigel Israel.

Gemmological Association and Gem Testing Laboratory of Great Britain

London

Unless otherwise stated, meetings will be held at the Gem-A Gem Tutorial Centre, 27 Greville Street (Saffron Hill entrance), London EC1N 8TN, at 6.00 for 6.30 p.m. Entry will be by ticket only at £5.00 for a Gem-A member (£7.50 for a non-member). Further details of winter meetings are given on p.19.

9 January. E. ALAN JOBBINS

An orgy of organic gem materials

Midlands Branch

Friday meetings will be held at The Earth Sciences Building, University of Birmingham, Edgbaston at 6.30 for 7.00 p.m. Admission £2 for a member. For further information call 0121 445 5359. Gem Club is held from 3 to 6 p.m.

25 January. Gemmology Quiz and Bring and Buy.

22 February. E. ALAN JOBBINS

An orgy of organics

Sunday 24 February

A day in celebration of fifty years of gemmology

A one-day Conference, including celebration lunch, in celebration of the 50th Anniversary of the Midlands' Branch. To be held at Barnt Green near Birmingham.

Speakers will include

PROFESSOR DR HENRY HÄNNI

E. ALAN JOBBINS and

IAN MERCER

Society of Jewellery Historians

Unless otherwise stated, all Society of Jewellery Historians' 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. Further details of winter meetings are given on p. 19.

29 March. MARTYN PUGH

The art of the goldsmith and silversmith.

26 April. GWYN GREEN and KATE HOPLEY

The Importance of the microscope in Gem ID.

North West Branch

Meetings will be held at the Church House, Hanover Street, Liverpool 1. For further details contact Deanna Brady on 0151 648 4266.

20 February. IRENE KNIGHT

The Chairman's mantra: don't forget the speakers.

20 March. Visit to the Geology and Archaeology Room at the Liverpool Museum.

Scottish Branch

For further details of Scottish Branch meetings contact Catriona McInnes on 0131 667 2199.

16 January. Quiz night.

To be held in the College Club of Glasgow University, University Avenue, Glasgow

6 March. ALAN HODGKINSON

Poking in gemmological corners.

To be held at the Hunterian Museum, Glasgow University, University Avenue, Glasgow

South West Branch

Contact Bronwen Harman on 01225 82188.

22 January. AGM followed by

DYFRI WILLIAMS – Keeper of the Department of Greek and Roman Antiquities, The British Museum.

Greek jewellers at the ends of the earth.

26 February. CATHERINE MARTIN

A lecture on her own work.

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Hot flames, cold steel: the manufacture of Georgian and Victorian jewellery.