

Gem & Jewellery News

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A RARE SURVIVAL



Pendant and chain sold at Sotheby's, with original drawing. Photograph courtesy of The Worshipful Company of Goldsmiths.

Towards the end of May a very interesting Arts and Crafts pendant on a chain was sold at Sotheby's, fetching almost four times its estimate. Stylistically characteristic of the work of the Artificers Guild, the piece set seven black opals and five rubies in an elaborate filigree of gold wirework and small stampings, on a chain of baton links and wire beads.

On the reverse of the central element Sotheby's catalogue entry

noted a 'maker's mark HYB'. Since jewellery is rarely marked or signed this feature prompted speculation as to authorship. Research in the Artificers Guild archive stored at Goldsmiths' Hall revealed a detailed drawing for the piece, showing that it was executed with only minor modifications, and that the present clasp may be a replacement. The drawing is annotated 'Necklace & pendant setting for clients own black opals in gold. £15.15.0' and in

another hand, 'Dr Basil Walker', presumably indicating the client. The surname is partly illegible, with Walker the best guess.

Among the Artificers Guild drawings for jewellery, the bulk of which are signed by its Director, Edward Spencer, are about fifty signed by or attributable to his principal assistant between 1904 and 1908, John Houghton Maurice Bonnor. The

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EDITORIAL

Most readers know what is meant by three Gs. Those who don't may have heard of the three bears and anyone not fitting into one of these two categories will know who the three Kings of Orient were or at least know the time of year when you are most likely to find out!

But what are the three Ws? Gemmologists, jewellery historians and the gem trade are all well known for being up with events, so you will all know that WWW stands for the World Wide Web. Acting with Internet the WWW allows the transfer of any amount of printed or graphic information from one person to another, irrespective of place, in such a way that it can appear on a VDU simultaneously with transmission or be stored on a 'bulletin board'. It is the logical development of E-mail but with virtually universal capacity and capability. Access to the Internet is easy and provided you have the appropriate receiving equipment linked to a telephone line, pay the line access charges and know how to use a computer terminal, you can send and receive any information you want to anyone you want. At the moment there is no monitor (this was tried with some British Telecom interactive premium rate numbers when the system was first set up but later abandoned) so in practice you can send quite sensitive information, perhaps the RI of spinel, to someone who might want to know it.

Yes, the Internet and WWW are especially useful for the transmission of raw (untreated/unedited) data so scientists are beginning to send large amounts this way instead of in hard copy (i.e. the printed page). Clearly this has implications for the future of the scientific journal (oddly enough the more specialized the journal the greater the implications; general-topic journals should be less affected). For some time I have edited a journal dealing with mathematical geology (the application of data-processing to earth science problems) and contributors use this type of data transfer exclusively now.

Readers should seize the opportunity to get hands-on WWW/Internet experience, perhaps at a computer show (there are loads of them). The possibilities are scarcely all realized yet. It will be a long time before the scientific journal as we know it is superseded, however, though some will change more quickly than others. Biochemistry and medicine are obvious examples. Nonetheless large amounts of report material – perhaps between two gem testing laboratories – can be sent this way and thus escape publication in hard copy. There are different implications here. Can photographs be sent this way? – of course. Is the quality good enough to show features of, say, an inclusion pattern? – yes.

Is what I have said sufficient to make you try the system for yourself? Good: go on and try it!

M.O'D.

AROUND THE TRADE

In this column we endeavour to keep you informed of business matters affecting dealers from a trading perspective. We welcome views and questions from all readers handling gemstones and jewellery on a commercial basis.

Colour stability

Maxixe beryls

The judgement from Singapore continues to reverberate around the international gem trade. No, not the Leeson affair with Baring's Bank but the case of the treated Maxixe beryls (reported in *Gem and Jewellery News*, 4, 3, p.36). Here a Singapore jeweller and gemstone dealer, House of Hung, in 1988 sold a collection of stones including Maxixe-type blue beryls to a dealer from Abu Dhabi, Darwish M.F.K. Al Gobaishi, without informing him that the beryls were irradiated and the colour could fade.

Most jewellers have probably never heard of Maxixe blue beryls. This is because they are a comparatively rare type of beryl; they can turn to a strong blue colour under irradiation but the colour is unstable.

Attempts were made to market them many years ago from Brazil; some dealers bought them, found the colour faded, were unable to sell them on and finally tried to return them to their suppliers. I hear they had initial problems, in that the original suppliers did not wish to take them back, but I understand those disputes were eventually resolved.

In the Singapore case the stones were reportedly sold without any declaration about the stability of the colour or about its possible origin by artificial irradiation.

The case did not address the issue of whether or not jewellers or dealers have an obligation to inform customers about routine gemstone enhancements. CIBJO and ICA

rules both insist that artificial irradiation has to be declared (viz. the case of white topaz irradiated to the various shades of blue from light sky blue to the dark London blue – when bought from reputable dealers these will always be sold as either 'irradiated blue topaz' or 'treated blue topaz', irrespective of whether the process is stable or not). In the light of this fact it is surprising that the seller refused to refund the money.

The judge argued that the case rested on the purpose for which the stones were purchased. They were bought with the purpose of reselling them and they were not suitable for that purpose. The judge concluded:

'Maxixe-type stones attract very little, if any demand in the gem trade as they are rarely used. . . . A gemstone to be called so must withstand the wear and tear of constant use and exposure to heat and light. In the case of a coloured gemstone, it must possess the ability to retain its colour even when subjected to heat and light.'

The judge's ruling said that the case was decided on the basis that a breach of contract had occurred. He said that the buyer relies on the fact that the shopkeeper is a professional who knows his merchandise:

'... the main inducement to deal with a good retail shop is the expectation that the tradesmen will have bought the right goods of a good make . . .'

The judge concluded that the buyer could not be expected to recognize the 'defect' in the stone because it would require the skills of a 'scientist not a layman'.

The burden is on the supplier to ensure that the goods sold are of

appropriate quality. The judge was of the opinion that the supplier should have known, even if the evidence in the case showed that in all probability the seller did not know. Whether or not the seller knows the goods are substandard is not an excuse: 'Ignorance of unfitness, however, would not excuse the seller of liability'.

I am not a lawyer, nor have I seen the full transcript of the judgement or the evidence given, but it appears from the reporting so far that the case does not enlighten us on disclosure.

In some parts of the trade this would have appeared to be an open and shut case. Irradiation of a gemstone must be declared specifically to the buyer and this was not done in this case. One result of the case is that the responsibility for declaration seems to be placed with the shopkeeper in the retail trade.

CIBJO

Disclosure

The problem of declaration is beginning to be tackled by the trade and at the last CIBJO Congress held in Athens in May for the first time a joint meeting was held between Sector III (representing the wholesalers of gemstones, diamonds and pearls) and Sector IV (representing retailers).

Sector III has advocated two types of disclosure, general and specific. The more traditional treatments, such as the colourless oiling of stones (now including colourless resins) and heating, will require a general declaration, and treatments

such as irradiation, fracture filling with inorganic substances and deep surface diffusion will require the specific declaration as 'treated'.

Retail sales

This scheme has the support of most cutters and stone dealers, and all reputable stone dealers make these declarations on their approval notes and invoices when they sell to manufacturers or to retailers. The problems arise when the retailers have to sell to the public and they are understandably apprehensive of losing a sale if they introduce any indication of doubt about the merchandise – and this is where terminology and the presentation side of the gem business is so critically important. So many new processes are coming on the market and being applied to a variety of small stones that many declarations are simply not finding their way through to the retail end of the market. For example, many rubies are now heat treated to improve their colour and remove silk; this heating is done with the help of borax and should the stones have any small open fissures the molten borax will penetrate and cool as glass. This can readily be seen with the aid of a microscope but who is going to examine every 2mm ruby that sells for a few pence per stone? Similarly many emeralds are now immersed in a resin such as Opticon rather than oil to improve their clarity. This may be more permanent as the resin is less volatile than oil but it may cloud or discolour with time and is

not so easy to replace as oil. Again it would be impracticable to examine every small emerald to ascertain the type of filler used, but a general disclosure should be mandatory.

My own feeling still is that eventually the trade and public will maintain their traditional preferences and seek out stones that have not been treated.

Laboratories

Other achievements at the Congress were the setting up of a new Laboratory Commission under Sector III. This will now provide a forum for the CIBJO-recognized laboratories to state their views to CIBJO themselves rather than through other delegates. Also it is hoped that bringing the laboratories together in this way will promote more consistency in their style of reporting around the world.

Lasering

The Diamond Commission reaffirmed that the lasering of diamonds had to be declared, a position opposed by the World Federation of Diamond Bourses and Diamond Cutters.

The next CIBJO Congress will be held in Vienna in 1996.

I hope to report in our next issue on the ICA Congress held in Japan, as there should again be interesting things to say about the problems of disclosure. It would be nice to have views on these matters from our readers.

H.L.

A RARE SURVIVAL

Cont. from p. 49.

two collaborated most famously on the 'Ariadne' necklace now in Birmingham City Museum and Art Gallery, acquired from the Hull Grundy collection in 1981. Bonnor's drawings, which display a distinctive stylistic 'handwriting' whether signed or not, normally carry his unmistakable monogram, and in one case the sheet is signed by the application of a tiny punch bearing this monogram. Close inspection of the piece at Sotheby's revealed the HYB to be in fact JHMB, as on the drawings, and made by the same punch. Disappointingly, the drawing for this piece happens not to bear the monogram, but its style is sufficiently close to those signed by Bonnor to make a confident attribution. Sotheby's were able to forward a letter to the seller of the pendant on behalf of the researcher, and the response came from Dr Walker's granddaughter, who revealed that the opals were brought from Australia by her grandmother in about 1903, around the time of her marriage.

Bonnor stayed only a short time with the Guild before setting up independently and working with several architects on metalwork detailing for buildings (including a lift-cage for Boots the Chemists in Eastbourne) in addition to continued work on jewellery and commissions for stained glass. Sadly he died in 1917, while working on the interior designs for the Canadian Houses of Parliament in Ottawa. Only a very few attributable pieces of jewellery are known, and more may lurk unrecognized in collections. The provenance of the Sotheby's piece is itself an intriguing story, which could throw light on other examples of work by this important Arts and Crafts designer.

Muriel Wilson

British minerals

A request has been received for information on minerals occurring in the British Isles with a view to publishing a book that would be affordable to amateur mineralogists. Details required include the name of the mineral, formula, locality, crystal drawings, colour photographs/SEM, XRD work and physical properties. Readers willing to provide such information should contact Dave Charlton, 6 Marlborough Avenue, Netherton, Liverpool L30 1SB (telephone 0151 521 1787).

Toxic Shock

Most readers know that amalgam or mercury gilding is rarely carried out today due to the toxic nature of the mercury vapour produced in the process. The innocuous word 'toxic' shields us from the real horrors, but readers two hundred years ago were spared none of the details. W. Richardson in his study of the *Chemical principles of the metallic arts* (Birmingham 1790) discusses diseases and injuries of those working with the various metals. After noting that gold was, in itself, harmless, he explains that this was not true with mercury gilding and describes the nasty effects of mercury fumes:

'The chief complaint which they induce is a trembling and palsy of the limbs; but these are accompanied with many other distressing symptoms. The countenance looks heavy, pale and yellow. The gums are corroded, and easily bleed; the teeth, which are turned black, become loose, and sometimes fall out; the inside of the mouth is covered with ulcers, and there is a continual flow of spittle. The breath is very foetid, and the respiration is obstructed. The neck, arms, and legs become quite paralytic. Along with all this, there is commonly some degree of stammering, and now and then a total loss of speech; together with deafness, and general dullness and stupor of the senses. Such persons, unless they change their employment, seldom live to an old age.'

Mercury gilding wasn't the only problem. Enamellers could be exposed to arsenic fumes, but I will spare readers Richardson's description of their effect on the human body and how 'they never fail to disorder it to a violent and even dangerous degree.'

Jack Ogden

EDUCATION

Filled diamonds



Tina O'Donovan, FGA, DGA, demonstrates the correct way to examine a diamond at the workshop held for the staff of David M. Robinson.

Many Southport jewellers were dismayed about the presence of 'glass filled' diamonds in the mainstream jewellery trade earlier this year (*Retail Jeweller*, 9 February 1995) and decided to become more closely acquainted with diamond clarity enhancements. An afternoon seminar was organized on 22 May by Nigel Weldon of Weldons Jewellery and Antiques, in conjunction with the GAGTL. Nine Southport jewellers spent the afternoon studying clarity enhanced diamonds at the Scarisbrick Hotel under the supervision of Doug Garrod from the GAGTL's Education office.

Continuing the programme of travelling tutorials, two-day workshops are to be held in Scotland and the North of England in the Autumn. As well as the identifica-

tion of diamond and diamond treatments, the agenda will cover natural, treated and synthetic emerald, ruby and sapphire. Instruction will also be given on the use of the 10x lens and instruments including the refractometer and spectroscope and the information that can be gained from them. The cost of the two-day workshops will be £140.00 plus VAT and they are to be held on the weekends of 21-22 October and 28-29 October in Edinburgh and Sunderland respectively. Dates are also being arranged for individual firms to inform their staff of the most recent developments.

Home study retake programme

For those who wish to re-sit the GAGTL gemmology examinations, the GAGTL home study re-take programme provides a most convenient way to gain the Diploma in Gemmology by continuing with the help of a correspondence tutor. Students may start the programme at any time - all examinations are available twice a year in January and June. The fee includes an appointed correspondence tutor for a maximum period of two years for each part of the course, a new set of homework assignments and examination fees.

Preliminary retake: £385.00

Diploma retake: £515.00

For information on any aspect of gemmological education contact the Education Department on 0171 404 3334 (fax 0171 404 8843) or write to the GAGTL, 27 Greville Street, London EC1N 8SU.

GAGTL Gem Tutorial Centre

- 29 September** **Visual optics**
This inexpensive method for gemstone identification is presented by Alan Hodgkinson who has developed its use over many years. Practise this fascinating and useful technique with a range of gems.
Price £58.75 (including sandwich lunch)
- 11 October** **Preliminary workshop**
A day of practical tuition for Preliminary students and anyone who needs a start with instruments, stones and crystals. You can learn to use the 10× lens at maximum efficiency, to observe the effects and results from the main gem testing instruments and to understand important aspects of crystals in gemmology.
Price £47.00; GAGTL students £33.49 (including sandwich lunch)
- 19 October** **Enquire within: pearls**
A concentrated look at all aspects of the subject, including the origins and detection of natural, cultured and imitation pearls. Gain experience from a member of the Laboratory staff.
Price £76.38 (including sandwich lunch)
- 28–29 October** **Weekend diamond grading course**
This successful course concentrates on the practical aspects of clarity and colour grading of polished diamonds, using 10× lens, microscope and colour comparison stones. Mounted stones, simulants and clarity-enhanced stones will be seen. Of great value to all involved in diamond trading and appraisal, the course is taught by Laboratory staff.
Price £246.75 (including sandwich lunches)
- 22–23 November** **Synthetics and enhancements today**
Are you aware of the sheer numbers and varieties of treated and synthetic materials that may be masquerading amongst the stones you are buying and selling? Whether you are valuing, repairing or dealing, can you afford to miss these two days of investigation?
Price £223.25 (including sandwich lunch)

Please phone the Education Office on 0171-404 3334
for further information

NOTE: All prices include VAT at 17.5%

RECENT EVENTS

Edward Burch, seal-engraver to His Majesty and reluctant Neo-Classicalist

*Résumé of a lecture delivered by
Gertrud Seidmann to the Society of
Jewellery Historians on
12 December 1994*

The industrious cockney Edward Burch (1730–1814), a self-taught seal-cutter, was both talented and ambitious enough to join the burgeoning London artists' academies to study anatomy and drawing in order to become a gem engraver during the heyday of the taste for the Antique. Successful in the newly instituted premium competitions of the Society of Arts, he achieved the status of 'sculptor in little', not only in his own estimate, but recognized as such by the newly-founded Royal Academy to which he was elected an early member. He was popular and respected among fellow-artists, who commissioned him to engrave portraits of illustrious friends and revered idols, such as a head of Michelangelo for Reynolds. An early patron was the great gem-collector George 3rd/4th Duke of Marlborough, but this association faded out, perhaps because the Duke preferred Burch's gifted pupil Nathaniel Marchant, but most likely because Burch began to strike out in a very idiosyncratic fashion. Forsaking taste in the form of the faithful copying of antiques for nature – gem engravings based on studies in the life class – he paid only lip-service to fashion by giving them such classical titles as

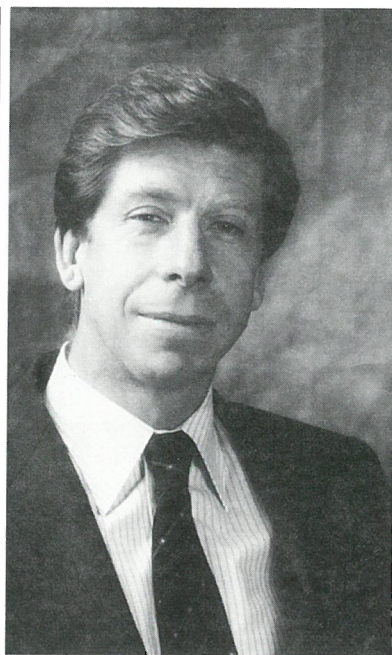
'Reposing Hercules' and 'Venus from the bath', while Marchant was wholly dedicated to the classical ideal. Burch's brilliant engraving, however, at first found abundant patronage elsewhere, not only from his artist friends, but from British and foreign royals and noblemen. His later years, however, were darkened: by rivalry with the more successful Marchant; by poverty, caused at first by foolish speculations, then by fading patronage; finally by gradual loss of eyesight, which made him turn to miniature painting instead. During his years of success, he was prolific, cutting many versions of his most successful gems, such as his exquisite Sappho, but his original stones have been widely dispersed and many, some unsigned, yet remain to be traced. The lecturer, who is preparing a monograph on the artist, has so far traced approximately fifty, which she estimates as about one quarter of the total.

Gertrud Seidmann would be grateful for confidential information about further original stones by Burch, to be sent to her at the University of Oxford Institute of Archaeology, 36 Beaumont Street, Oxford OX1 2PG; fax 01865 278254.

Annual Trade Luncheon

At the GAGTL Annual Trade Luncheon held on 16 June 1995 at the Royal Automobile Club, Pall Mall, London SW1, the speaker was Mr Jeremy Richdale, a Director of the Central Selling Organization (CSO) and Head of the Polished Division.

After stressing the importance of the Gem Testing Laboratory to the diamond industry today, particularly in connection with the identification of diamonds that had been fracture filled, laser drilled or



Jeremy Richdale of the CSO.

bombarded to change their colour, he warned those present that we 'are on the brink of an era of synthetic cuttable diamonds'.

Synthetic diamonds

Mr Richdale did not wish to be alarmist, but continued: 'It is no secret that the means exist to produce cuttable synthetic diamonds even though not on an economic basis, and from time to time they are being detected by various grading laboratories including our own here in London. I think the subject of synthetic diamonds is best dealt with calmly and rationally. Provided they are declared in an honest way and there are the means to easily detect them and to distinguish them from the real thing, we will all be able to live with them just as we are learning to live with the various treatments that improve the appearance of gemstones. De Beers research establishment here in the UK is actively pursuing research into discrimination characteristics of synthetic diamonds and detection procedures, but for the moment we

are all dependent on the expertise of the gemmology laboratories of repute to provide this service. The threat is for the future rather than today because it is still relatively easy to detect synthetic diamonds by conventional gemmological means, but we do know that there are technological developments which may make detection more difficult in due course. As technology makes our lives more complex so we will need the grading laboratories even more. A pattern is starting to emerge in the United States—end users of mass diamond jewellery are protecting themselves against suits or complaints from their customers by requiring a guarantee from their suppliers that stones have not been fracture filled or laser drilled. It won't be long before synthetics are added to that list. The manufacturing jewellers who supply them will in turn require guarantees from their suppliers, the polished diamond wholesalers or cutters, that every diamond is a natural one. With the onus of proof pushed back onto them, the importers are going to need all the help they can get from up-to-date equipment and the specialized expertise that only a proficient grading laboratory can provide. So my message is brief but blunt—all of us are going to be more dependent than ever on the gemmological expertise of organizations such as the GAGTL in the future, so to protect our businesses we need to give the laboratory our fully committed support and we should each make it our personal responsibility to make sure that our laboratory has the best, most up-to-date equipment and the most skilled staff. Gemmology is a growth business these days and grading laboratories are going to see an increased volume of stones submitted to them. Education is equally important, but that is another big subject. I wanted to reserve a few minutes of your precious time to tell you a little about our Polished operation here in London.

CSO Polished Division

I am frequently asked why De Beers or the CSO has a polished division, and though it is a perfectly sensible question, just a few moments reflection on how one could run a business that prices and distributes nearly 80 per cent of the world's rough diamonds without a polished backup will tell you why. The Polished Division of the CSO supports the rough business, but because of the capital that is inevitably locked up in polished inventory, it is necessary for it to cover its costs by making some margin on its transactions. Also, because we are designed to emulate in every possible way the conditions under which other sight holders operate, it would be artificial if we did not try to make a profit. Yes we are indeed sight holders, and every month we get an allocation of rough of plus two carat size which we send to a factory in Portugal which we own jointly with our Portuguese partners. We also get an allocation of smaller rough in the melee sizes which we send to a contractor in Sri Lanka to have manufactured for us. When the polished is returned to us here in London, we sort it onto a standard assortment that does not vary and we make up sales blends according to the tastes of our clients. The major part of our sales take place here in London, mainly to the sight holders who come here to buy rough from the DTC. Whereas rough is only sold every five weeks at the sights, we are open every working day of the year to receive clients from all over the world. Many of the sight holders in fact prefer to come back between the sights to examine the polished in a more leisurely way. As much of our production is suitable for the United States market, many of our clients come from New York. This is something of a challenge to us considering that we cannot go to the States or do business directly with anyone situated there. We cannot

even telephone the States because of the antitrust implications.

We also have an office in Antwerp where we mainly sell fancy shapes. It was set up by Gabi Tolkowsky who runs it with Sylvain Ajdler and they have been there since 1975. By covering the full range of sizes, colours, qualities and cuts we attempt to keep up-to-date with the general market situation for all types of polished and to track price movements. The conversion back to rough prices is too complex to provide a direct conversion, but if we observe that a certain range of polished is in demand or that prices have weakened in a particular area, the CSO can add to or trim supplies of rough to the market at the next sight. They have many sources of information to help them make decisions and we are one of those sources. And of course, once we are there, we are able to provide many other services to departments of the CSO such as the Consumer Marketing Division with whom we work very closely and Research and Development. I like to think that we have brought to the CSO a better understanding of how the polished market works and have helped them understand that to sell polished one has to have a very different approach to that used to distribute rough. We were set up in 1967 when the Portuguese started to polish the Angolan production in Lisbon, and after ups and downs and a great deal of diversity we are a little bit wiser and a great deal older. You may be wondering what it means for your business that we are situated here in London – I think the answer is probably very little, because we have a policy not to interfere with or change in any way the normal business patterns of the established trade wherever it may be and we are very concerned not to be accused of competing with our own clients. But even if we never do business with each other, I am most anxious that we should have a regular and friendly dialogue and exchange of information.'

Jeremy Richdale concluded by mentioning that 1995 was a significant year for the GAGTL. It was the 70th anniversary of the laboratory, having been founded by Basil Anderson in 1925, and the fifth anniversary of the merger between the Gemmological Association and the Gem Testing Laboratory, and he wished them many more successful years.

Scottish Branch

The inaugural meeting of the Scottish Branch of the GAGTL was held in Edinburgh in the grand surroundings of Goldsmiths' Hall, on 19 May. An encouragingly large turnout of some 48 members and friends, some of whom had travelled from as far afield as Durham, Carlisle, Saltcoats and Dundee, attended and listened to a talk on 'Gem testing in the laboratory' from Ana I. Castro.

A committee was formed and it was planned that a programme of events would be prepared for the autumn.

MUSEUM NEWS

New exhibitions of decorative arts from the fifteenth to the nineteenth centuries were opened in the British Museum in July 1994. Much jewellery is included in the new displays, and the Hull Grundy jewellery, formerly displayed in a room apart, is now integrated chronologically with other decorative arts in the Museum's collection.

The newly opened Metalwork Gallery in the Victoria and Albert Museum exhibits Berlin Iron jewellery in a permanent installation.

On 22 April 1995 the Art Institute of Chicago opened a permanent installation, The Alsdorf Gallery of Renaissance Jewelry.

GEMSTONES – FACT AND MYTHOLOGY

Ruby

Ruby is a crystalline form of aluminium oxide, which has enough chromium to make it appear red. Generally corundum appears in almost all colours and specimens other than red are known as sapphire. Today fine rubies, especially those of five carats and over, are the most expensive of all gemstones, including diamonds!

Myths and legends

The value of ruby was recognized in biblical times when Job put the price of wisdom above rubies and Solomon declared the price of a virtuous woman is 'far above rubies'. (This seems to be the accepted translation of the Hebrew word Peninim, but in Hebrew as used today that word is used for pearls – any wisdom from our readers on this point?)

In ancient times rubies were recommended as a cure against 'wasting diseases'. A Chinese traveller in

Beware the darkening ruby!

In the time of the Borgias the ruby was regarded as an antidote to poison, and the stone was also thought to be possessed of prophetic powers which would alert the owner of impending danger. In such cases the stone would lose its glow and darken. At the time of the Great Plague people were advised to carry a ruby with them to forewarn them of danger and the Tsar, Peter the Great, is reported to have always carried some loose stones as a talisman in his pocket.

the thirteenth century tells of the King of Ceylon who holds in his hand a wonderful ruby burned by fire and which shines in the night like a torch.

'He rubs his face daily with this jewel and it restores to brow and cheek the bloom of youth. Though he live to more than ninety, yet by the touch of this ruby he is as though he was twenty.'

Red stones misidentified

The ancients classified stones by colour rather than by chemical and physical characteristics. So many 'rubies' mentioned in classical and biblical literature may have been other red stones. One stone so confused with ruby is the red spinel. Famous 'rubies' in the British Crown jewels have long since been identified as spinels. The most famous is the 170 ct Black Prince's Ruby (see Hughes, 1994), worn on the helmet of King Henry V in the Battle of Agincourt, which can now be seen in the Tower of London. Staff of our own Laboratory were allowed to examine this stone several years ago and confirmed it to be a spinel.

Probably there are many other so-called 'rubies' lying in museums and treasuries which have been mislabelled, and their curators are reluctant to have them tested, citing fears of cost and security, rather than reveal their exhibits as lesser stones or fakes.

There are claims that the famous 'ruby' jewellery of Queen Therese, comprising tiara, earrings and armlets, at Bavaria's Munich Residenz is mislabelled. There are similar doubts about the eighteenth-century full uniform garnitures created for King Augustus the Strong in Dresden's Green Vault. Our own Victoria and Albert Museum dis-

Ripe for the picking?

The Hindus of ancient times exalted the ruby above all gems believing that a spark of heavenly flame burned in the stone. Others believed that rubies were simply sapphires that had ripened and some ancient peoples 'replanted' sapphires in the belief that they needed more time to ripen into rubies.

plays 'ruby' rings which in fact contain spinels or synthetics (*National Geographic Magazine*, October 1991).

Significance of origin

Although rubies are all red corundum, different shades of red are commercially important. Stones coming from different places exhibit different shades of red and these can be very distinctive to anyone who handles rubies. In the trade it is probably the stone most sought after for a place of origin certificate. The oldest precious rubies are those from Myanmar from the mines in the Mogok Valley in Upper Myanmar. The valley is about two miles long and half a mile wide. It is from here that the famous pigeon-blood rubies originated, some of which found their way into the famous collections of the Maharajas of India, the Shahs of Persia and the Sultans of Turkey. One of the recognized titles of the kings of Burma was that of 'Lord of the Rubies'. The fine Burma rubies have a very distinctive pure red hue; they keep their vividness in any kind of lighting and show a strong fluorescence in ultraviolet light. It is this colour that the Verneuil flame fusion synthetics try to imitate.

Another ancient source of rubies is Sri Lanka, but the stones tend to

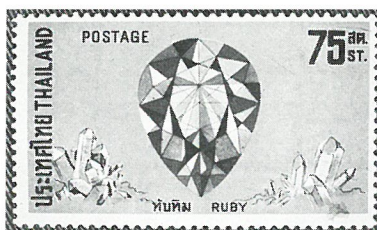
be pinker and paler shades of red than those from Burma. But occasionally an intense red stone can originate from here. Some of the pink stones have a bluish hue to them and have been called pink sapphires. Attempts have been made recently in the trade to demarcate between rubies and pink sapphires but no satisfactory solution has yet emerged. In borderline cases of colour description the maxim seems to be to respond to 'what the customer wants'.

In this century the main source of rubies has been Thailand. The Thai rubies again have their own distinctive colours, ranging from a dark red garnet-looking stone, to those with a purple or brownish hue, while others have a burgundy colour. Fine red stones do come from Thailand, but they cannot be confused with those from Burma. The Thai cutters found they could remove some of the purple and brown hues and improve on the clarity of their stones by removing the tiny inclusions (called silk by professionals) by heating. However, such heating has brought its own problems for the trade (see below).

In recent times Burma, Ceylon and Siam have changed their names. Although the trade now talks of Thai and Sri Lankan rubies, we still refer to Burma rather than Myanmar rubies.

More recently rubies have been discovered and extracted from Kenya, Tanzania, Afghanistan, the Orissa district of India, Vietnam, Cambodia, the Mong Hsu area in Myanmar (see Kammerling *et al.*, 1994) and most recently from China.

The African stones have their own distinctive hues, but some of the stones found in Vietnam and Cambodia and now China have that distinctive old Burma colour. The Thai cutters have been in the forefront buying up these new sources



Rubies of Thailand and Kenya depicted on postage stamps.

of rubies and buying their way into partnerships in these new mines.

Since the demand for rubies has increased in recent years, and everyone prizes the old Burma colour, much deception has come into this trade. Experienced cutters have been sold barrel-polished Verneuil synthetic pieces of rough as real Vietnamese and Cambodian rubies. And to exploit the desire for Burma rubies rough from these new centres in the Far East, India and Africa is smuggled into Myanmar and sold from there to unsuspecting cutters who in turn smuggle them into Thailand as Burma rubies. Thus the cutters themselves may be duped about what they are cutting and this deception passes all the way down the chain to the end user.

At present one of the main sources of rough is Mong Hsu in Myanmar. These rubies are traded mainly in Tachilek in Myanmar and across the border in Mae Sai in Thailand. The stones are cut in Chanthaburi and Bo Rai as well as in Bangkok. Here the stones range from a good red colour to those of a dirty dark red due in part to the content of inclusions. But their advantage is that within the stone they are of a consistent colour and can give calibrated stones up to 9 × 7mm. The older sources only gave

stones in any quantity in sizes up to 6 × 4mm.

Treated stones

The colour and clarity of the new Burmese stones can be improved by heating. This is usually done with the help of borax. Since high temperatures are used in the treatment, the borax melts and goes into any open fissures in the stone. This then appears as traces of glass in the finished stones. I think initially this glass filling was a by-product of the heating process, but the cutters soon realized that they could fill larger cracks in larger stones by this method and the problem started to become significant in terms of added material. Very many rubies are now heated in this way and it is impossible to test every 2mm stone for glass content. This is causing problems for the trade as stones with glass in them have to be declared as 'treated' (see 'Around the trade', p.52).

The demand for ruby has also kept the producers of synthetic ruby happy. About 80 tons of Verneuil synthetic corundum is produced annually (not all for the gem trade) and a considerable quantity is produced by the flux method by Chatham and others. Flux-grown stones may be hard to detect and dealing in ruby has now become quite difficult. One has either to rely on reliable and honest handlers or consult laboratories to confirm the authenticity of stones.

I would like to acknowledge use of material from the ICA Gembureau and Bentley & Co's book *The romance of the jewel*.

H.L.

References

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- Kammerling, R.C., Scarratt, K., Bosshart, G., Jobbins, E.A., Kane, R.E., Gübelin, E.J., and Levinson, A.A., 1994. Myanmar and its gems - an update. *Journal of Gemmology*, 24, 1, pp 3-40
- National Geographic Magazine*, October 1991, pp 119-20.

A personal view

by Alec Farn
Vice-President of the GAGTL

I have never seriously considered mythology in relation to gems. I much prefer facts. However, many authors throughout history have mentioned medicinal and curative powers of certain gemstones, and Sir Charles Hardinge in his book *Jade fact and fable* (p.13) quotes that Bibliothèque Nationale in Paris in 1900 has jade listed under medicine, not minerals.

We know that natural pearls consist of approximately 92 per cent calcium carbonate in the forms of nacreous aragonite and prismatic calcite. Despite this mineral content pearl is not listed in Dana's *Textbook of mineralogy* because pearl is an organic product formed by a biomineralization process.

It is worth emphasizing that pearl is not an automatic product of the oyster and it is all the more wonderful that such a magnificent gem can be produced by such a lowly creature. The oyster has no head, no eyes and a very elementary nervous system and who but poets could laud this lowly bivalve?

Sir Edwin Arnold pays tribute with those beautiful words:

Know you perchance how that
poor formless wretch –

The oyster – gems his shallow
moonlit chalice?

Where the shell irks him, or the
sea sand frets,

He sheds this lovely lustre on
his grief.

Thomas Gray in *Elegy Written in a Country Churchyard* describes with poetic licence the oyster's habitat:

Full many a gem of purest ray
serene

The dark unfathom'd caves of
ocean bear:

Full many a flower is born to
blush unseen,

And waste its sweetness on the
desert air.

In different vein, seed pearls crushed to a powder and mixed as a draught are said to have aphrodisiac powers. Because of their concentric and radial structure pearls are much tougher than one might expect and so small seed pearls are more readily crushable than large ones. The story of Cleopatra dissolving a pearl worth a king's ransom in vinegar in order to impress Mark Antony does not seem consistent with our knowledge of the actual length of time it would take to reduce a sizeable pearl in cold vinegar. The fact that the composition of pearl is close to that of common or garden digestion tablets is a convincing reason for crushing seed pearls for medicinal purposes.

Amber, again an organic compound, was and is collected from Baltic shores as, 'the gold of the Baltic'. Said to be the first gemstone ever to have been written about, it was used for ornamental purposes by prehistoric man. Amber worn as an amulet, perhaps because of its electrical properties, was termed 'gintaras', the Lithuanian for 'protector'. In *Larousse des pierres précieuses* is the comment that in some parts of the world modern medicine tends to find mild benefit from the electric field developed when amber is worn. Even

in the 'Midi' (South of France) it is still customary for babies to wear an amber necklace as protection against red blotches and skin irritation.

In past times it was said to have the virtue to prevent sore throats and in the sixteenth century Albert of Brandenburg, Duke of Prussia, sent a fine piece of amber to Martin Luther who was suffering from calculus (stone) hoping that the good stone would chase (hunt) the bad.

Earlier I mentioned jade listed in the Bibliothèque Nationale under medicine. This was due to Alexis Damour's solecism when, as a consequence of his remarkable work which culminated in separating the green amphibole from the green pyroxene, with a stroke of the pen he relegated the important single and unique term 'jade' to a secondary name of jadeite jade to describe the pyroxene from Burma and the medical-sounding nephrite-jade to describe the amphibole. Perhaps with a tinge of resignation about the problems of nomenclature Sir Charles Hardinge soliloquises at the end of his book by quoting from William Shakespeare's *Romeo and Juliet* when Juliet puts the question, 'What's in a name?' she says,

"That which we call a rose, by any other name would smell as sweet."

GEMS

The *ICA Gazette*, June 1995, mentions sapphire from Rwanda. Though supplies may very well be interrupted by unrest in the country, it might be worth while for dealers to try to obtain the dark to light blue crystals which range up to 1 gram in weight. The location is said to be in the south-west of the country, near Lake Tshohohaw.

The Songea gemstone deposit in south-west Tanzania has produced some fancy-coloured sapphires, some of which are blue through purple to mauve, according to the *ICA Gazette*. Further corundum specimens are arriving in Bangkok from areas adjoining the Muhuwesi Forest Reserve, about 230km from the Songea area. Similarities to Sri Lankan deposits have been identified and species found include not only a wide variety of coloured corundum but also chrysoberyl in green, yellow and brown, alexandrite with different degrees of change to purplish red, spessartine, flat blue kyanite crystals, violet scapolite, various colours of tourmaline and of quartz, as well as brown and greenish zircon.

M.O'D.

FORTHCOMING EVENTS

The GAGTL are pleased to announce that Dr Grahame Brown, Editor of *The Australian Gemmologist*, will be giving the following lectures at the Gem Tutorial Centre, 27 Greville Street, London EC1N 8SU, during his visit to Britain in January 1996:

Gemstones, Australia's national treasure

Thursday 4 January 1996

An addition to the GAGTL's programme of evening lectures which should not be missed. Tickets are available at £3.50 for members and £5.00 for non-members.

Hand lens characteristics of biological gem materials

Half-day seminar – Friday 5 January 1996 commencing 2.00 p.m. As organic materials are Dr Brown's specialist subject, this important seminar will be invaluable to all those with an interest in gemmology. The price will be £25.00 plus VAT.

For further details of the above events contact Doug Garrod at the GAGTL on 0171-404 3334.

INTERGEM, a trade fair of gemstones and gemstone jewellery, is to be held in Idar Oberstein, Germany, from 22 to 25 September 1995.

Goldsmiths' Fair, 2–8 October 1995. Goldsmiths' Hall, Foster Lane, London EC2V 6BN, 11.00 a.m. to 7.00 p.m. Monday to Friday, 11.00 a.m. to 5.00 p.m. Saturday and Sunday.

The Fair, now in its thirteenth year, has proved to be an exciting sales event and promotion activity for contemporary makers and is the ideal opportunity for the public to buy the very best of modern craftsmanship in precious metals. The items will range from the very simplest modern silver and jewellery to the most elaborate items in gold and platinum set with gemstones at the very height of fashion.

Fred Rich Exhibition at Garrard, 10–21 October 1995. Fred Rich is one of Britain's foremost contemporary silversmiths, best known for his colourful enamelled jewellery lavishly set with gemstones. He is both designer and craftsman, creating diverse art forms displaying highly original concepts.

Principal commissions are wide ranging, most notably the Prime Warden's travelling badge for the Worshipful Company of Goldsmiths in 1984, the 1988 King George VI and Queen Elizabeth Diamond Stakes Trophy, Primate Plaques for the Lambeth Palace 1988/9 Chapel restoration, and the choristers' badges for the Lichfield Cathedral Silver Commission of 1991. The premier accolade bestowed on him was the De Beers Diamond International Award in 1988.

In 1993 Garrard celebrated 150 years since their appointment as Crown Jewellers by Queen Victoria. That year top British silversmiths, including Fred Rich, were invited to design silver for an exhibition 'Royal Goldsmiths' to mark the event. Since then Fred Rich and Garrard have worked in tandem on several notable projects, culminating in this exhibition of pieces hitherto showing a new dimension in his silver forms and enamelling skills. There will be loan exhibits, as well as items for sale.

Exhibition at Garrard, 112 Regent Street, London W1. Opening times: Monday to Friday, 9.00 a.m. to 5.30 p.m. Saturday 10.00 a.m. to 5.30 p.m.

For further information please telephone Corinna Pike on 0171 734 7020.

Coloured gemstones – 29 November 1995

The Institute of Mining and Metallurgy's Annual Commodity Meeting will be held on the topic of coloured gemstones at the ICA, London SW1 on 29 November 1995. International speakers, including Dr Roger Harding of the

GAGTL, will cover a range of topics, and the day will end with a visit to the Geological Museum's gemstone collection that is now held within the Natural History Museum.

Topics will include: bringing coloured gemstones to market; fashion – gemstone marketing and trends; Montana sapphires – swans from ugly ducklings; diamonds – a premium for pink, and aspects of gem identification for the trade.

The fee for the day will be only £50.00 (including VAT). Full details are available from Hazel Anderson, IMM Conference Office, 44 Portland Place, London W1N 4BR. Telephone 0171 580 3802; Fax 0171 436 5388.

Adornment for eternity: status and rank in Chinese ornament, an exhibition of Chinese jewellery and ornament organized by the Denver Art Museum, consists of more than 100 examples of ornamental metalwork ranging from the Shang Period, 13th century BC, to the Ming Dynasty (AD 1368–1644). The exhibition will be on view at Eskenazi Ltd, 10 Clifford Street, London W1 from 10 October to 15 December 1995 and will then travel to the Seattle Art Museum in 1996.

Indonesian gold, an exhibition featuring jewellery which focuses on the sumptuous use of gold in the courts, will be at the National Gallery of Australia in Canberra from 9 December 1995 to 3 March 1996.

Georaman 96 – Raman Spectroscopy applied to the Earth Sciences, 9–12 June 1996, Nantes, France.

A teaching and research congress to promote the diverse applications of Raman Microspectroscopy to the Earth Sciences. For further details contact Professor David C. Smith, Museum National d'Histoire Naturelle, Laboratoire de Minéralogie, 61 Rue Buffon, 75005 Paris, France (telephone (33) 1 4079 3527; fax (33) 1 4079 3524).

MINERALS TODAY

Many gemmologists know little about the literature of mineralogy and many also collect minerals – so the following may be helpful.

At the time of writing there are about 3600 valid mineral species with something like one new species arriving each week. How a substance is discovered to be a mineral new to science will be the subject of a later survey but anyone wanting to know 'what are the names of all known minerals' should have no difficulty. A visit to a comprehensive scientific library will soon show several helpful texts (if the library has a classification system with numbers look around 549 but ask if you don't see what you want). By 'comprehensive scientific library' I mean a university or national library, such as the Science Reference and Information Service of The British Library (no ticket required, free) the Radcliffe Science Library, Oxford or the University Library, Cambridge. These two are hard to get into (you need to be a member of the university) but the good news is that some of the most useful books are not hard to get and not too expensive, so you could actually buy them!

Lists of minerals have been compiled for ages but really old ones are useful only for mineral taxonomists (describers and classifiers): the lists began to become useful later in the last century. In 1892 the third edition of Thomas Egleston's *A catalogue of minerals and synonyms* was published by John Wiley, New York. The author makes the point that most journals up to that time had published no index so that his work is especially valuable. It lists mineral names in alphabetical order, giving synonyms (alternative names) and cross-references where appropriate, but no other details.

In 1897 *Mineralogical magazine* (*Min. mag.*) began to publish annual lists of new mineral names. In 1892 the sixth edition of Dana's

System of mineralogy had been published and the first of the *Min. mag.* lists attempted to assemble names omitted from the *System*, for whatever reason, and to add names newly authorized. Lists still appear in this form but in 1980 Embrey and Fuller published *A manual of new mineral names, 1892–1978*. This brought together all the *Min. mag.* lists up to 1978 and, reprinted in 1983, presents mineral names in alphabetical order. Embrey and Fuller give much more detail than Egleston; not only do authorized names and synonyms appear but also names discredited with the passing of time, during which their status may have altered. As identification techniques become more sophisticated, one-time valid species are relegated as they are found to be

**How do you know what minerals exist?
Are there lists?
How do you use them?**

variants of established species. Remember that the list *comments on other lists*, so that there are many examples of a name turning out to be a mistranslation or a misromanization from the Cyrillic. Trade names which resemble mineral names are included (most of these are gemstone names). Don't look in Embrey and Fuller for long-established species of course! Where appropriate, entries include the citation to the journal in which they were originally described, as this is the practice in the *Min. mag.* lists. Chemical compositions and further descriptions are included where necessary to establish distinctions between two entries. Authors of the original description are given.

A list first published in 1971 and recently updated is *Glossary of*

mineral species, originally compiled by Michael Fleischer and now by Fleischer and J.A. Mandarino. Updates appear from time to time in *Mineralogical record*. The *Glossary* lists *valid* species alphabetically, citing first description and giving composition, crystal system and colour: most importantly it gives mineral groups with their constituent members [as almandine-garnet group, etc.]. This is a good list to get if you collect minerals.

Two further books need notice: *Chemical index to minerals* (spine title of *An Index of mineral species and varieties arranged chemically*) by Max Hey was first published in 1950 with a second edition in 1955, reprinted with corrections in 1962 and two further supplements published in 1963 and 1974. Species, synonyms and discredited names are listed in *chemical order* with each entry given a number. 'Hey' is still very valuable though to some extent superseded by *Hey's mineral index* [Hey mark II] and described as 'third edition'. This large book, by Alan Clark, reverts to an alphabetical listing of species, varieties and synonyms and was published by Chapman & Hall in 1993. At £50.00 this is a vital and attainable text, lacking only the table of pronunciations from the original [how a mineral name should sound is always conjectural and leads to fun from time to time!]. As before, reports are cited in the entries.

The only other 'list' books are *Descriptive list of the new minerals, 1892–1938*, by George L. English published in 1939, in which minerals not cited in the 6th edition of Dana's *System of mineralogy* (1892) are listed alphabetically, briefly described and cited. Like Egleston, English is rare now. A set of some of the early lists from *Min. mag.* was compiled in the 1930s by L.J. Spencer and this, though not strictly a monograph, is also rare.

M.O'D.

BOOKS

Goldsmiths' review, 1994/95, edited by David Beasley. The Worshipful Company of Goldsmiths, 1995. £5.00.

The latest issue of the *Goldsmiths' review*, the annual publication of the Goldsmiths' Company, was published at the beginning of June. This handsomely produced glossy publication with quite outstanding colour photographs is far more than an annual report, and contains an update on the Goldsmiths' Company activities and a range of lively and informative articles which will be of the greatest interest to anyone concerned with present and past craftsmanship in precious metals. This issue includes, for example, a paper on silver in the National Museum of Wales, features on contemporary designers such as the jeweller Stephen Webster and the silversmith Robert Welch and on the New School of Jewellery in Birmingham and a report on a Fakes and Forgeries seminar, amongst many others. The price of £5.00 seems a very modest one to pay for a publication which is of permanent value.

C.M.J.

Factfile on jewellery, 4, 1995. Edited by Charles and Catherine Bourne. The Crafts Council, £3.95.

This spiral-bound magazine-format publication is one of a series on a range of disciplines produced and regularly updated by the Crafts Council. The text, by David Poston and Muriel Wilson, covers the (modern) history of jewellery design in Britain, information on training,

buying and collecting, a select directory of craftsmen and women currently working in Britain, lists of museums and other collections in this country and elsewhere where jewellery is exhibited, and lists of further reading, grant-giving bodies, specialist societies and so forth. There is also a useful glossary of terms used in jewellery manufacture. Altogether a most helpful and informative resource for anyone interested in jewellery.

C.M.J.

A green diamond: a study of chameleonism. Leeds, 1995. A study of a 22.28 ct heart-shaped diamond. In its normal state, the diamond is green in daylight. When heated, however, it turns fancy yellow only to return to its green hue upon cooling down. Under long wave ultraviolet it fluoresces strong yellow, followed by strong yellow phosphorescence. This is an elegantly produced slim (42 pages) hardback volume, with dust-wrapper, profusely illustrated in colour and monochrome. It has a foreword by Ian Balfour, a general chapter on the stone by Benjamin Zucker, a chapter on its scientific examination by Emmanuel Fritsch, James E. Shigley, Thomas Moses and George R. Rossman, and finally a narrative of the research by Fritsch, Shigley and Rossman. The book is edited by Derek J. Content and is available at £18.00 plus postage from Derek J. Content Inc. and Nibris Books. ISBN 0 901286 51 6.

N.B.I.

TIMES PAST

In this column we have reproduced interesting news items that appeared in journals of the past.

60 years ago . . .

Diamond too large to sell

The world famous Orloff diamond that used to be in the sceptre of the Czar of Russia and was kept in the treasure chamber of the Kremlin, has now arrived at an Amsterdam diamond-cutting works. It has been sent here by the Soviet authorities for cutting up. The stone, it seems, has been on offer in London, Amsterdam and Antwerp, but without finding any buyers, and since its size alone seems to be the cause of its being unsaleable, the stone was submitted to experts in Amsterdam who decided how it should be cut into several pieces. When this has been done, the Orloff will produce one stone of 30–35 carats, 10 or 15 stones of between 6 and 10 carats, and a number of 2–5 carat stones.

Gemmological News, February 1935
(official journal of the Gemmological Association)

50 years ago . . .

The Pearl of Asia

The romantic story of one of the biggest pearls in the world 'the Pearl of Asia', valued at more than £50,000, is linked with the case of Yvon Colette, alleged to be the leader of a band of bogus police officers, who was charged in the Paris courts with having intelligence with the enemy.

Coveted by kings since the seventeenth century, the pearl has passed through many hands in the past 300 years. In 1739 it came into the possession of Nadir Shah, the Persian invader, during the pillage of Delhi. Shortly afterward it was given as a present to the Emperor of China, who ordered that on his death it should be placed in his coffin.

Members of the GAGTL wishing to raise issues concerning GAGTL activities are reminded that they may contact the Chairman of the Members' Council, Mr Colin Winter, c/o the GAGTL, 27 Greville Street, London EC1N 8SU.

Nothing more was heard of it until early in this century, when it reappeared in the possession of a Chinese mandarin. Thirty years ago he gave it to a French priest belonging to a missionary society.

In 1943 the society decided to get rid of the gem, but the Germans heard of its existence and ordered it to be deposited in a Paris bank. Goering, among other Nazis, inspected it there. A few months later a buyer went to purchase it, but was set on by bogus policemen, and the pearl disappeared.

It was missing until, with the arrest of Colette, it was discovered in a water tank in his wife's flat. Colette declares he took the pearl to save it from the Germans and intended to present it to General de Gaulle.

The pearl is now safely back in the custody of the French Missionary Society at their Paris headquarters, and reputed to be for sale at a figure of £125,000.

The Gemmologist, 1945,
XV, 172, p.22 (reproduced by kind permission of Eric Bruton)

40 years ago . . .

Strontium titanate – first commercial offer

On advertising page x of this issue will be found the first advertisement that has appeared anywhere in the world for the new synthetic gemstone, strontium titanate (SrTiO_3). Less than six months ago marketing and distribution plans were far from complete although at that time some samples were trickling onto the market. The new gem material is claimed to be a better imitation of diamond than synthetic rutile inasmuch that it is entirely white, without any trace of the slightly yellowish rutile colour. It has been stated that the greater degree of fire shown by the new material to that of diamond is obvious to the eye.

The Gemmologist, 1955,
XXIV, 289, p.147 (reproduced by kind permission of Eric Bruton)

COMPETITION

In the bag

Over the school holidays Penny Waite let her young son, Troy, help her out in her workshop. She had some stone packets containing diamonds, in fact four packets each containing six or more 1.00 ct stones and one packet containing the same sort of number of 1.10 ct stones. She asked Troy to transfer them to five small plastic bags. This he did, but failed to mark the weights on the bags and so didn't know which bag contained the 1.10 ct stones.

'Sorry Mum, I'll weigh them all,' said Troy, 'and mark the bags.'

'OK,' and Penny, 'but to make it educational, what is the minimum number of weighings you need to carry out to ensure you can mark each bag correctly?'

The only necessity is to keep the stones from the different bags separate on the balance pan, otherwise putting these back into the correct bags is a whole new puzzle!

Jack Ogden

Answer to competition in the last issue

The photograph showed a late-Roman gold brooch of the type known as a crossbow brooch, dating to the fourth century AD. Many of these gold ornaments have complex and ingenious safety

and fastening devices, including the screw-in arm seen on this specimen.

The object was correctly identified by Ioannis John Alexandris of Munich.

LETTER TO THE EDITORS

Marcasite/pyrite

Sirs

While researching for a dissertation on the use of marcasite for ornament, I have found references to pyrite being called 'pierre de carabine' due to its usage in firearms. It is also thought that balls of pyrites found in Anglo-Saxon graves in the UK could have been used for fire-making.

However, my own feeble attempts to get sparks from pyrites have been unsuccessful. Can anyone confirm that this is possible and advise me on the correct technique?

Also any information on the very early cutting and faceting of pyrites for use in jewellery would be most welcome.

Please contact me at the address given below.

Yours etc.

Lynne Bartlett FGA DGA
3 Eckstein Road
London SW11 1QE
9 August 1995

WHAT'S ON

Gemmological Association and Gem Testing Laboratory of Great Britain

London

1 October GAGTL Annual Conference to be held at the Scientific Societies Lecture Theatre, New Burlington Place, London W1. The theme for the day will be *Gemmology in Britain* and topics will range from stones found in the British Isles to Victorian jewellery, some highlights of historical gemmology and there will be an account of new equipment in use in the Gem Testing Laboratory in London. Further details available from the GAGTL.

16 October **Recent developments in the diamond industry** Howard Vaughan
To be held in the GAGTL Gem Tutorial Centre, 2nd Floor, 27 Greville Street (entrance in Saffron Hill), London EC1N 8SU. The charge for a member is £3.50. Entry will be by ticket only, obtainable from the GAGTL.

Midlands Branch

Meetings will be held at the Discovery Centre, 77 Vyse Street, Birmingham 18, unless otherwise indicated. Further details from Mandy MacKinnon on 0121-624 3225 or Neil Rose on 0161-483 8919.

29 September **Jewellery valuations and their attendant problems** Philip Stocker

27 October **Pearls - production and identification** Stephen Kennedy

29 October **Practical gemmology training day**
To be held at the New Cobden Hotel, 166/174 Hagley Road, Birmingham 16.

24 November **Jewels in the hand** James Gosling

2 December **Forty-third Anniversary Dinner**
To be held at 3 Denehurst Close, Barnt Green

North West Branch

Meetings will be held at Church House, Hanover Street, Liverpool 1. Further details from Joe Azzopardi on 01270 628251.

20 September **Natural history of jewellery** Dr John Franks

18 October A gemmology evening - no charge, open to members and friends.

15 November Annual General Meeting

Scottish Branch

For details of Scottish Branch meetings contact Ruth Cunningham on 0131-225 4105.

19 September A visit to the British Geological Survey, Edinburgh.

20 October **A bit of nonsense** Doug Garrod
To be held at Newliston House, Edinburgh.

GAGTL tour of Idar-Oberstein, Germany

25-29 March 1996

Visits to incomparable mineral and gem museums, historic and modern gem cutting workshops, and a mine with agate and amethyst in the rock walls.

Travel by luxury coach on Tuesday and Saturday with three full days in Idar-Oberstein.

Price £370.00 per person

to include travel from London and half-board accommodation at the well-appointed Gethmann's Hotel.

For further details contact Miss Sarah Kimber at GAGTL on 0171-404 3334 (Fax 0171-404 8843).

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 only open to SJH members and their guests. A nominal charge is made for wine to comply with our charity status.

Monday 25 September Dr Jack Ogden FSA FGA will give a lecture entitled **The Golden Crescent: the origins and chronology of early Islamic jewellery.**

Tuesday 3 October **Fabergé at the Queen's Gallery.** Private view with talk by Sir Geoffrey de Bellaigue, Director of the Royal Collection. 6.00 to 8.00 p.m. Admission by ticket only.

SJH Colloquium

On 4 and 5 November 1995 at the Scientific Societies Lecture Theatre, New Burlington Place, London W1, an International Colloquium is to be held on the theme **Diamond cuts in historic jewellery.**

Monday 6 November Hugh Tait FSA, past President of the Society, will give a lecture entitled **Problematic Renaissance Jewellery before and after Vasters.**

Monday 11 December Jane Short, Instructor at Central School St. Martins, will speak on **Enamelling techniques and modern design.**

The copy date for contributions for the December issue of *Gem and Jewellery News* is 20 October