

Association Francaise de Gemmologie Celebrates Golden Jubilee

Elisabeth Strack

The French Gemmological Association celebrated its 50th Anniversary in Paris with special events on 5th & 6th September 2013. Major dignitaries included president of Angola's Endiama and the ambassador of Botswana to the European Union and high-ranking representatives from Shanghai, Mumbai and Moscow spoke on the great challenges in the jewellery industry.

The evening was dedicated to 50 personalities, and the events responsible for making the history of gemstones since antiquity, specially selected by a committee and the results were presented by various speakers, led by Didier Giard, the Association's President. It was an utterly enjoyable evening, it not only gave witness of France's leading role as a nation of culture but was also very inspiring.

Association's yearly Conference, the 13th "Rendez-Vous Gemmologiques", took place on the 6th September 2013 with three sections: Diamonds, Coloured Stones and Pearls. DTC's David Fisher spoke on the identification of treatments



and synthetic diamonds, Eloise Gaillou of the Natural History Museum, LA, presented an overview of coloured diamonds and French gemmological laboratory's Olivier Segura discussed Type IIa diamonds.

Coloured Stones Section saw Pala's Bill Larson elaborating on Mogok and ICA's vice-president Jean-Claude Michelou comparing the Colombian Emerald industry to that from Brazil and Zambia. Hanco Zwaan of Naturalis Biodiversity Center, the Netherlands, deliberated on emerald from Rio Grande do Norte in Brazil and Bangkok GIA's Vincent Pardieu on Mozambique ruby.

In the Pearl Section, Keshi pearls were discussed by GIA's Nick Sturman. ICGL-member Elisabeth Strack highlighted the new developments in cultured pearls: New large sizes and colours of Akoya cultured pearls (from Japan and Vietnam) and new methods to distinguish between the different types of beaded freshwater cultured pearls from China and Japan.

Introducing Founding Member 003

Year of Establishment 1988	Full Name of the owner of the laboratory Tay Thye Sun
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Gemmological Qualification of the owner / founder FGA; GG; B.Sc. (Hon); M.Sc. (Imperial College)

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Owner's experience 33 years	What standard gem testing equipments do you have? Microscope, refractometer, spectroscope, polariscope, UV light box, SG scale
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What advanced instruments? FTIR, UV-Vis-spectrometer	Have you published ... Yes, about 50	Are you a member of ... Singapore Jewellers Association, Diamond Exchange of Singapore, ICA.
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Are you giving lectures Yes, provide FGA and HRD training to the trade; special jade course to the trade and public
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Why did you decide to found ICGL? To communicate with like minded people....



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Albite feldspar carving imitating jadeite-jade

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Tay Thye Sun, the key author was invited to examine a piece of jade-like carving in Guangzhou, China. The jade manufacturer claimed that it was an old-mine jadeite-jade and for that matter our client wanted to confirm before purchase. The original rough jade-like material measured 167 x 160 x 67cm and weighed 2,600 kg, was brought from northern Myanmar and carved in Kunming, Yunnan, China. It was carved into 9 dragons (Fig.1) surrounding a globe and now measuring 133 x 110 x 60cm and weighs approximately 1,600 kg. Colour of the jade-like material ranges from light green to dark green patches with iron oxide staining in fissures and dark weathered surface (Fig.2).

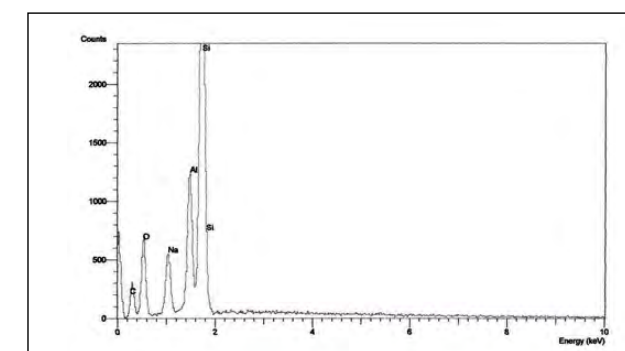


Fig. 1. Large green jade-like carving on display at exhibition in Guangzhou. Notice the dark green patch on the bottom front of the carving, see Fig.2. of the similar dark colour patch.

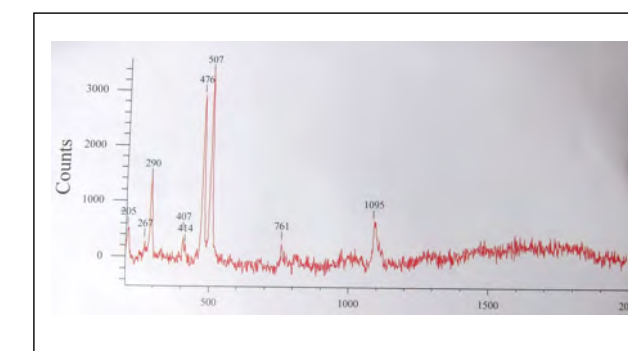


After examining the carving at the exhibition centre, the author requested for some samples from the remains of the carving for further testing at the Far East Gemological Laboratory. Basic gemmological testing was conducted and R.I. spot reading was found to be 1.54 and S.G. to be 2.70 to 2.76, and under ultraviolet lighting it was inert in long and short wave. From the EDXRF result, the chemical composition of the sample consists of Na, Al, Si and O (Fig.3). Raman spectroscopy data obtained using 415nm laser confirmed the carving to be albite feldspar. The main peaks are 290, 476, 507 and 1095 cm⁻¹ and minor peaks at 205, 267, 407, 414 and 761 cm⁻¹ (Fig.4). Our XRD spectrum also re-confirmed the samples were albite feldspar.

< Fig. 2. This is a square block taken from the remains of the large jade carving. Two smaller pieces of oval cabochon cut materials were used in analysis. Notice the dark green patch on the front block is similar to the carving at the bottom front part (Tay 2003).



(Fig.3) The EDX analysis shows the presence of Na, Al, Si and O (Singapore Polytechnic)



(Fig.4) Raman spectrum of albite feldspar showing the main peaks at 290, 476, 507 and 1095 cm⁻¹.

Conclusions: Based on our basic and advanced analyses, these samples show characteristic properties of albite feldspar which the manufacturer claimed that it was jadeite-jade. This is another sample of jade imitation in the market place that gemologists need to look out for.

Acknowledgement: Many thanks to the research scientists at the Gems & Jewelry Institute of Thailand (public company), Bangkok, Thailand and also National Gem Testing Centre, Beijing, China

AGIL Hong Kong celebrates 30th Anniversary with an International Conference



Mr. Dominic Mok, Principal AGIL

The Asian Gemmological Institute and Laboratory Ltd organised a spectacular conference and gala dinner to commemorate its thirty years in the gem field. The celebrations began on the evening of Friday the 13th September 2013 with Gala Dinner at the Hong Kong Jockey Club, Happy Valley followed by an

International Conference on Saturday the 14th September 2013 at the Hong Kong Convention and Exhibition Center, Wan Chai, Hong Kong.

Mr. Dominic Mok, Principal of AGIL and ICGL Founder member along with Dr. Linda Galloway and Dr. Yuan Xianqiang had taken great pains to organize the grand event.

Prof. Dr. Henry Haenni of Switzerland spoke on Ruby: Expectation to Reality, whereas Mr. Manfred Eickhorst of Germany showed

how LED could be put to work for Gemmology, Mr. Alan Hodgkinson from Scotland deliberated on the Gemmological Mixture and Mr. Ted Themelis gave the state-of-the-art information on the cobalt infused lead filled sapphires. From Canada came Mr. Branko Deljanin, ICGL Founder member, and spoke on how to screen the various diamond types and identify synthetic diamonds using polariscope and ultraviolet lamp, Prof Dr.Qi Lijan of China, explained the colour mechanism and the spectral character of Irradiated and HPHT Fancy coloured diamonds.

Dr Hyun-min Choi of Korea gave presentation on the identification of gamma-ray irradiated cultured pearls whereas Prof. Dr. Qiu Zhili of China gave presentation on the Analytical Characteristics of Jadeite from Myanmar. Mr. Lin Sung Shan of Taiwan compared the jewelry markets of Taiwan and Mainland China. Simultaneous interpretations in Mandarin and English made it possible for large number of delegates to understand the great wealth of information exchanged at the conference.

Gemstone Industry and Laboratory Conference (GILC) Hong Kong 2013



Participants at the GILC meeting at Hong Kong 2013 (Photo by Tay Thye Sun).

GILC was organized on 12 September 2013 by ICA during the Hong Kong Jewellery & Gem Fair 2013 and was chaired by GILC Vice-chairman, Edward Boehm.

Chris Smith, (AGL) spoke on the identification of glass-filled blue sapphire, tracing history of lead-glass treatment to the present day cobalt-coloured lead-glass treated corundum and their frequency in the market. Inclusions observed were gas bubbles, flash-effect, colour concentration in fissures and fractures, plus absorption peaks noted at 374, 386, 450, 528, 588, 635nm, EDXRF detected lead, cobalt

and iron. AGL would report such glass filled sapphire as "Composite Sapphire" and GILC report would be "Lead-glass treated, composite sapphire".

Prof. Henry Haenni, deliberated on Branding Pearls, different methods of tracking of pearls to know where the pearl originated from. Methods like chemical marking, use of C and O isotopes as they reflect the source of water from where the pearls are cultivated, using a metallic marker with company logo so that pearls can be identified by using X-ray radiography. Another method is by Radio Frequency Identification (RFID) chips (1mm²)

implanted inside the nucleus. Bar code scanner could be used to identify the origin.

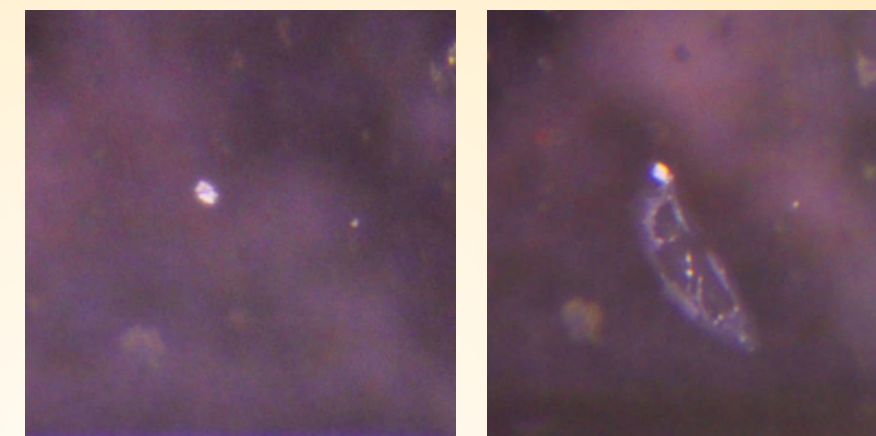
GAHK's President, Prof. Mimi C.M. OuYang, defined Fei Cui to classify other varieties of jade like jadeite, omphacite and kosmochlor from the market development perspective. Chinese Jewellery Market had 3 stages the "yellow" era had demand for gold, later "white" era, demand for diamond; and more recent "green" era or Fei Cui. Chinese stock market recession, government restrictions on real estate made people invest in Fei Cui for greater market profitability. Ou Yang spoke on the problems in Fei Cui investment – (1) authenticity (2) nomenclature of Fei Cui varieties; (3) and valuation.

Dr John Ho Chun-Wah, Hong Kong Accreditation Service – explained how accreditation supports the gem industry(1) Testing & Certification (2) Current situation in Hong Kong; (3) Testing of jewellery, diamonds, Fei Cui and gold purity, (4) Benefits of using accredited testing service to promote business, e.g. through adding value to products, increasing consumers/buyers' confidence and enhancing company image.

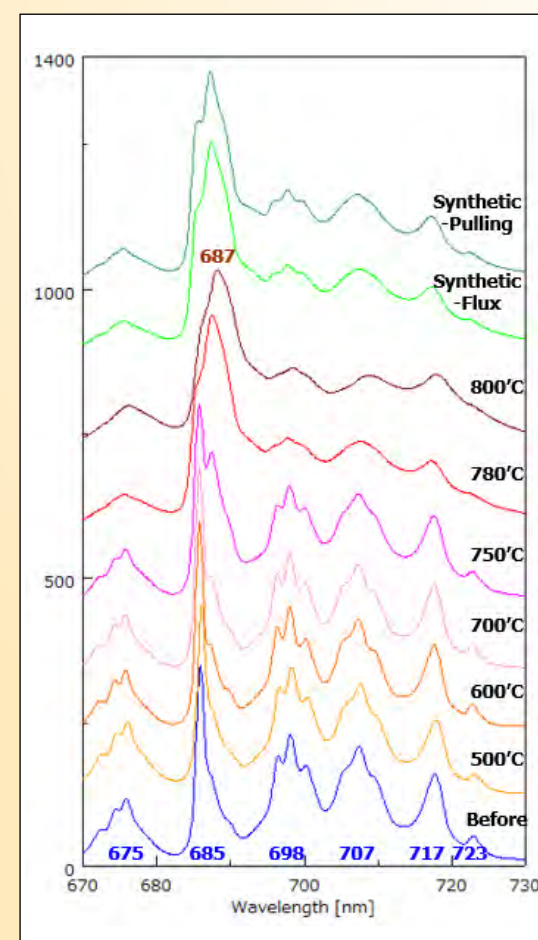
Detection of heat treatment in red spinel using photoluminescence

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Recently, the red spinel has become popular and is being evaluated like Black Prince's ruby. One of the reasons may be because spinel is not often heated like corundum. And with its higher popularity, many reports and publications have been made about its heat treatment. For the detection of its heat treatment, the changes observed in the inclusions, is very helpful. (Photo.1) However often spinel has good clarity and just too many small inclusions which may not help enough. Thus we investigated the changes in the photoluminescence (PL) peaks after heating the spinel at various temperatures.



Crystalline inclusion before heating Crystalline inclusion after heating



Red spinel shows characteristic PL caused by Cr³⁺. With natural stone, it consists of many peaks, of which the peak at 685nm is a major one and some other satellite peaks. After the heating over 800°C (Figure.1), it seems that the peaks become wider and simple as the number of peaks decrease and the major peak shifts from 685nm to 687nm. But with heating at gradual increase of temperature, from 500°C to 800°C, the peak at 687nm becomes stronger and stronger to cover the existing peak at 685nm which seems like a shift. In this sense, the change can be detected from 600°C and clearly seen from 700°C in this experiment.

This PL peak of natural heated red spinel is similar to those PL peaks of the synthetic spinel of flux and pulling method. Heating causes disorders in spinel to interchange Mg and Al in spinel crystal lattice. The synthesis environment is of lower pressure and but higher in temperature is similar to the heating treatment and may cause the same kind of disorder. We are of the opinion that changes in the PL peaks of red spinel can help to detect its heat treatment.

< Figure.1 PL spectra of natural heated and synthetic red spinel

Reference:
A.D. Giusta, et al., 1996, "Temperature-dependent disorder a natural Mg-Al-Fe²⁺-Fe³⁺- spinel from the Balmuccia", Mineralogical Magazine
A.-K. Malsy, et al., 2012, "Orange-red to orange-pink gem spinels from a new deposit at Lang Chap (Tan Huong-Truc Lau), Vietnam", The Journal of Gemmology
A. Yoshiasa, et al., 2011, "Crystal Chemistry of MgAl₂O₄ Spinel Solid Solution" Journal of the Crystallographic Society of Japan