NEWSLETTER

Spring 2013

Chief Editor: Branko Deljanin branko@cglworld.ca
Editor: Liz Burnett: lithogem@gmail.com
www.ICGLabs.org

ICGL
FOUNDING MEMBERS

Jayshree Panjikar
Pangem Testing Laboratory
Pune, India

Henry Ho
Asian Institute of Gemological Sciences
Bangkok, Thailand

Tay Thye Sun
Far East Gemological Laboratory
Singapore

Branko Deljanin
Canadian Gemological Laboratory
Vancouver, Canada

Elisabeth Strack
Gemmologisches Institut
Hamburg, Germany

Dominic Mok
Asian Gemmological Institute & Laboratory Ltd
Hong Kong

Masaki Furuya
Japan Germany Gemmological Laboratory
Kofu, Japan

ICGL would like to welcome new Regular Laboratory Members:

008 **Walter Martins Leite**
Realgems,
Rio de Janeiro, Brazil

009 **Travis Lejman**,
Gemological Appraisal Laboratory of America, Inc
New York, USA

We Connect…

By Tay Thye Sun, ***President***

IGCL started for the need to connect all gem laboratories around the world. The primary aim is to create a communication platform for professional gemmological laboratories, to foster a better understanding amongst them, and to provide an international and professional service to their clients.

A quarterly newsletter will be published to discuss some of the latest findings of natural, synthetic or treatments that are happening around the world. The platform will provide each laboratory an access to a pool of experts and to encourage communication and exchange of information.

Over thirty independent professional gem laboratories are expected to be invited to join the consortium based on their expertise and as per the criteria laid down in the rule-book of ICGL.

New Members are welcome at ICGL

By Jayshree Panjikar, ***Membership Coordinator***

At the last ICGL meeting on April 1st 2013 founding members established criteria for ICGL membership that are outlined below:

1. **Founding Members:** Those persons who initiated this corporation and assumed its financing to date by means of special contributions are the sole persons who have the right to be known as Founding Members. Founding Members will have the right to vote, will have executive powers and will be part of the executive committee. Please see list of founding members on the left. Founding Members paid $200 as annual fees.

2. **Regular Members:** Any person principally engaged in gem testing and / or diamond grading services and must have a minimum of 5 years running a gem laboratory in order to be eligible as a member. Regular Members will have right to vote. Regular Members will have to pay US $150 as annual fees.

3. **Associate Members:** This category consists of Gemmological Institutes, Gemmological Association, Gemmological Laboratories Public Ltd, Appraisers and Gemmological Schools. Membership in this category is on a selective basis by the board of directors, and will have no voting rights. Associate members will have to pay US$150 as annual fees.

4. **Additional membership criteria**, **Requirements** to become a member, and **Benefits** are outlined in the *Membership Application Form* on ICGL website at www.ICGLabs.org

A Rare Necklace with *Maona* Pearls *By Elisabeth Strack, Gemmologisches Institut Hamburg*

A silver necklace from the late 19th century, set with nine *Maona* pearls in a size ranging from 18x14mm to 26x23mm, was presented for identification. The necklace showed a characteristic historicizing style, composed of scrolls and floral motifs [*Fig. 1*]. It was made by a Berlin jeweller who also worked for the court, and the little objects from the sea may have come from a curiosity cabinet, or from one of the members of a Prussian expedition to East Asia.

Fig. 1: Central part of a 19th century silver necklace, length 41cm, width 1.7-3.3cm.

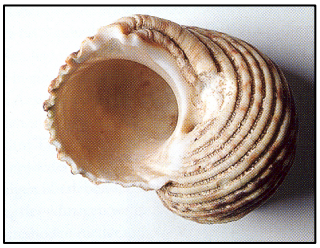


Fig. 2: Turbo petholatus, the "Turban shell"

The name *Maona* pearl does not refer to a true pearl but is used in colloquial language for the shelly lid, or cover plate of the Turban shell (*Turbo petholatus* L., 1758), a marine gastropod [*Fig. 2*]. This gastropod occurs in the Central and Western Pacific Ocean. The lid (the Latin name is 'operculum') seals off the round mouth of the shell.

Opercula can usually be recognized by sight identification as they show a dominant central green eye on a white background, accompanied by a brownish rim on one side. The domed, cabochon-like surfaces have a porcelain-like appearance.

When examined with a gemolite microscope, the nine examples showed a type of lizard-skin pattern on the white and green parts, while the brownish rims revealed a more scarred surface that can also be seen with the naked eye [*Fig. 3*].

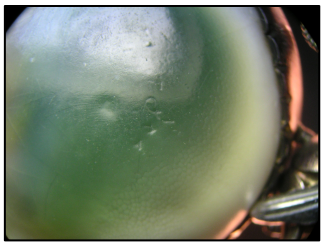


Fig. 3: The lizard-skin pattern can be seen on the right half (Gemolite, 10x)

Opercula have served for centuries as decorative objects, and they were given different names like *Chinese cat's eye* or *Venus belly*. The word *Moana* means happiness in Polynesia where the objects were used for decorating the eyes of idols or served as money. European pharmacies used them in the 19th century as *sea bellies*, a remedy for indigestion.

Literature: Strack, E., Pearls, 2006. Rühle-Diebener-Verlag, Stuttgart, 707 p. All photographs: E. Strack

---

Tucson 2013: A Reflection on Pearl Issues *By Elisabeth Strack, Gemmologisches Institut Hamburg*

The news in Tucson was that there were no exciting news. Underneath the overall picture of stableness some subtle changes were to be noted. Chinese freshwater pearl supply has become an important issue as pearl farms apparently are beginning to close down due to pollution that causes health problems for the pearl mussels. There are also labour problems as the booming economy draws village people away from pearl farms.

Although the bulk of cheap production is not yet affected, the new situation was already felt in Tucson by higher prices (of up to $ 100 and more per pearl) for better quality *fire balls*. In trade language, the name describes those pearls with a mother-of-pearl bead that grow in numbers of up to forty inside the mussel's mantle. They usually show a comet-like tail that has given rise to their trade name. [*Fig. 1*]

What was surprising was that prices for Chinese pearls of the *in-body* type had gone down. These pearls are individually produced in the gonad, by using a drilled mother-of-pearl bead, requiring a difficult grafting method. This method was also used for the pinkish-purplish *Edison* pearls that were in the limelights last year. They resemble finest qualities from the Japanese Lake Kasumigaura that are however far more expensive.

Fig. 1: So-called fire-balls from China, up to 37mm in length. Courtesy: King's Ransom

At the Tucson show a few superb examples of Kasumigaura pearls were also to be seen *(see front cover photo, Courtesy: Boris Dillenburger).*

The careful observer in Tucson would have noticed the strengthened position of Akoya cultured pearls, plus the perfectly round sizes of up to 11mm in a stunning natural grey colour. Vietnam also surprised with small, perfectly round Akoyas of 2.5mm to 3.0mm.

Tucson offered a complete spectrum of natural pearls. There were conch, melo and abalone pearls, but also tridacna, quahog and pecten (lion's paw) pearls, a few rare turbo, cassis [*Fig. 2*] and spondylus pearls, and new ones from the pismo clam (*Tivela stultorum*) in Baja California. Natural pearls from *Pinctada maxima* were also seen.

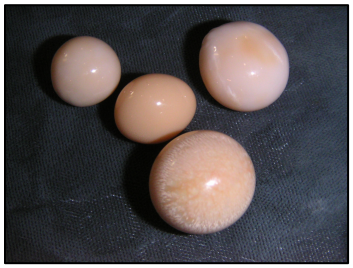


Fig. 2: Cassis pearls (natural pearls from marine gastropods oft he Cassis genus) Courtesy: Pacific Coast Pearls

Spectroscopic Characteristics of “Merelani Mint” Grossular Garnet

By Masaki Furuya
Japan Germany Gemmological Laboratory, Kofu, Japan

Recently we received unique mint colour (light bluish green) grossular garnets for testing. In the market it is known as "Merelani mint garnet" or "Fluorescent garnet", and comes from Merelani, Tanzania. It was introduced at the 2011 Tucson show. Melerani mint samples are found from 2-4ct as rough stones, and 1-2 ct polished. There were no unique inclusions in the Melerani mint samples, so we tested eleven samples of Merelani mint garnet and thirty two samples of other grossular garnets for their UV-Visible spectra and fluorescence spectra.

The spectra of Merelani mint garnet shows weak absorptions of V^{3+}(610nm) and Mn^{2+}(409, 422, 431nm) [*Fig. 1*]. In the comparison with deep green tsavorite, the overall absorption is weak, and the transmission around green shifted to blue a little bit. This is because of the lower content of V, Cr and Fe than tsavorite. In the comparison with Cr-Mali garnet (grossular 71% + andradite 29%), in Merelani mint garnet there are no Fe^{3+} absorption at 433nm and the general absorption is weak except red. These are the features that give the clear mint colour to it.

As it is also known as fluorescent garnet, Merelani mint garnet shows two peaks of fluorescence, which are not seen in other grossular garnets [*Fig. 2*]. With 405nm laser excitation, it shows sharp peaks of fluorescence at 693, 703, 717nm due to V^{2+} and a broad peak of 590nm due to Mn^{2+}causing orange fluorescence. On the other hand, tsavorite type green grossular show mainly moderate V^{2+} fluorescence and weak or no Mn^{2+} one and a trace of Cr (698nm) causing reddish fluorescence under LWUV. Also, pale hessonite garnet or colourless grossular (Leuco garnet) show mainly or only Mn^{2+} fluorescence. This fluorescent feature is because Merelani mint garnets contain fewer impurities. The fluorescence can be seen with a regular longwave UV lamp as two different fluorescent colours in Merelani mint garnet (orange) and tsavorite garnet (orange red) *[Fig 3]*.

Besides its name, the locality is not the only determining factor of the Merelani mint garnet. In this test, most green grossular from the Merelani hills show these typical features, but some of them are the same as tsavorite in its color and fluorescence pattern with higher Fe content. It is therefore important to know that not all grossular from the Merelani hills are so-called Merelani mint garnet.

Fig 3: Merelami mint garnet and tsavorite garnet under daylight (left top) and LWUV lamp (left).

The unique mint color of Merelani mint is characterized by its low content of Fe and other impurities, and two emissions peaks of Mn3+ and V4+ in photoluminescence. This causes the unique fluorescence compared with that of other green garnets.

Because Merelani garnets are still relatively rare and are found as a by-product of tanzanite mining, pricing is still relatively high and is trading at $300-500/ct.

Figure 1, UV-Vis absorption spectra of green grossular

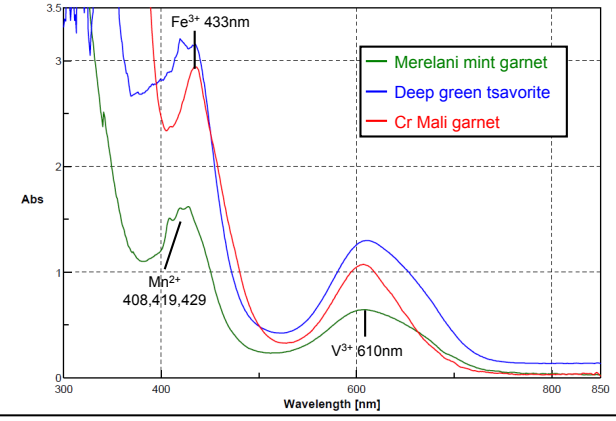
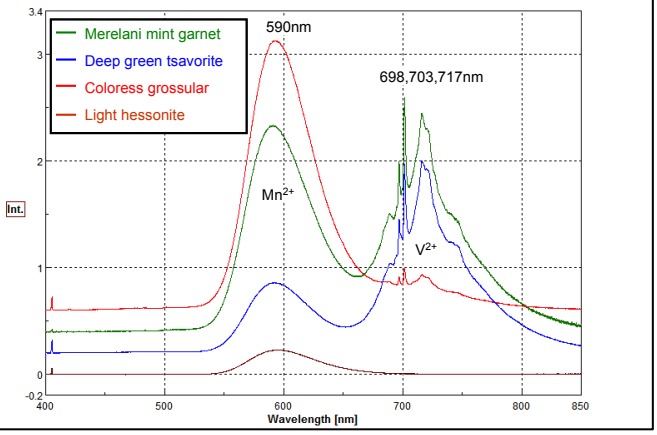


Figure 2, Fluorescence spectra of various grossular



References:

[1] O'Donoghue, M. (2008) *Gems* Robert Hale Ltd., United Kingdom
[2] Gaft, M., Reisfeld, R., Panczer, G. (2005) *Luminescence spectroscopy of Mineral and Materials*, Springer, Germany

LAB NOTES:

Identification of Mysterious Large "Black Stone"

By Branko Deljanin, Canadian Gemological Laboratory
Bear Williams, Stone Group Labs

At a recent NAJA Conference in Tucson one of the authors (BD) received a 45.14ct black gem for identification. The client was unhappy with a report from a "major" lab identifying the stone merely as a "member of pyroxene group" - a very broad mineral group - and wanted to see if a smaller lab, one with a highly experienced staff, could better identify the stone.

The stone was opaque, allowing only limited tests with standard gemological instruments.

At 1.71-1.73, refractive index was high for diopside with a reported RI range from 1.675-1.701 according to most texts, and also slightly higher according to Darko Sturman's refractometer chart (1.694-1.710). Based on a study of black, opaque gemstones by Cara Williams (published in the Australian Valuer and republished by The Guide in a recent issue) black opaque gems usually test beyond the normal range for their varieties, because of impurities present in their composition, primarily iron. As in other isomorphous series, iron will increase the measured RI and SG.

This stone was sent to Stone Group Laboratories in USA for further testing because diopside, hedenbergite, and augite (part of isomorphous series) are all very similar in chemistry and all share the same crystal structure. Our stone was close to the others in the series but the match using RRUFF database for Raman analysis showed a >93% match for diopside, a much higher match than the other members of pyroxene group.

ED XRF showed the chemistry to be high in iron and calcium, but with titanium, manganese and zinc also present (see XRF spectrum, photo and standard tests on CGL report http://cglworld.ca/sample-reports/).

A combination of standard and advanced testing, along with an understanding of the mineral groups these gems belong to, gave a picture of the identity of the mysterious pyroxene: BLACK DIOPSIDE, and a joint report was sent to the client who was pleased with both service and results.

Although we acknowledge that the tested stone is not "pure diopside", we follow the science of mineralogy when gemological data is limited.

Introducing Founding Member 001: Pangem Testing Laboratory

Year of Estd 1982
Full name of the Owner of the laboratory Dr. Mrs. Jayshree Panjikar
Gemmological Qualifications of the Owner: FGA (UK), DGemG (Germany), Certified Diamond Grader HRD (Belgium), Graduate Pearl GIA (USA) and Advanced Techniques GIT (Thailand). Ph D Thesis on Corundum & Beryl
Address : 10 Sangeeta Society, Tadiwala Road, Behind Pancharatna Hotel, **City** PUNE 411001 **COUNTRY** INDIA **Telephone** +912026059359 **/mobile** +9198222 86288 **/fax** 91202605935 **Email:** jayshreepanjiakr@gmail.com **Skype:** pangem.icgl
Website www.pangemtech.com
Owner Experience in the trade: over 36years
What Standard Gem Testing equipment do you have: 2010 model Microscopes, Mettler Balance Spectroscopes, Polariscope, Dichroscopes, UV light, Refractometer.
What Advanced Instruments do you have UV-VIS-NIR Spectroscope, FTIR, EDXRF
Have you published or presented papers at conferences/magazines/seminars? Yes over 60
Give list if any at all IGC from 1987, GIT, De Beers Conf, Pearl Conf Dubai, GIA Symposium,
Are you a Member of a Gem Trade Organization? Yes
Which one? Life Member of All India Gems & Jewellery Trade Federation
Are you giving lectures and educational programs to trade? Yes
Give list if any Regular 6 months Diploma in Gemmology, Advanced Gemmology and Diamond grading courses, plus Special workshops for Jewellers and Laboratory Gemmologists see website www.pangemtech.com
Why did you decide to found ICGL?
To bring together privately owned gem testing laboratories the world over for exchange of latest information and technologies.