CIGem News (Special GIT 2008 edition)- ISSN 0846-3611 GEMMOLOGY CANADA - Wolf Kuehn, F.G.G., F.G.A., Editor

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GIT 2008 The 2nd International Gem & Jewelry Conference

Originally to be held in Bangkok, Thailand in December GIT 2008 was postponed to March 9 - 12, 2009. It was the only large technical conference this year as the GRC 2009 (Gemological Research Conference, San Diego) has been postponed due to the downturn in the global economy. A number of participants were not able to attend in person but the official registrations for GIT 2008 were close to 500 with 21 countries represented. See GIT 2008 Program and List of Contributors.

The conference organized by the The Gem and Jewelry Institute of Thailand covered a wide scope of topics from gemmology to jewellery design. Half of the Bangkok Convention Centre was used for poster exhibitions from academic institutions, government organizations and several instrument suppliers.

I have to applaud Ms. Wilawan Atichat, Director GIT and her team for a superb job in organizing this event; a 328 page book with the GIT 2008 Proceedings was ready by opening time of the conference. This book contains the extended abstracts and is available for purchase from GIT.

There was a post-conference tour to Kanchanaburi and sight-seeing tours offered to spouses. Unfortunately I could not go on the excursion due to time restrictions; I had been travelling from Vietnam to Cambodia and on to Thailand for over a month. My travel report about visits to gem mines and markets in Chanthaburi will be published in the March/April edition of CIGem News.

Brief reports about individual presentations

I was particularly interested in research being conducted about gem treatments and reports on new gem desposits. Many of the presentations were highly technical (coming from university research centres). Several researchers presented "work in progress" reports on diffusion treatments for gemstones. I selected the following as they certainly will be followed up for discussion.

"Comparative study of Cr3+ diffusion in proton and electron irradiated chrysoberyl" *by Yong-Kil Ahn and Jong-Wan Park, Hanyang University, Seoul, Korea*

This was an intriguing report about the theory of possible diffusion of Cr3+ into chrysoberyl to create the alexandrite effect. Both researchers also presented *"A photoluminescence study of the alexandrite effect"* poster.

I will stay in contact with the researchers who have provided me with their research poster; please download here (, 325 KB). Actual experiments with chrysoberyl slices have started and the final report will be published in G&G in the near future.

"A study on treated red labradorite-andesine feldspars" *by Claudio Milisenda, German Foundation for Gemstones Research, Idar-Oberstein, Germany*

I took notes during Dr. Milisenda's presentation and asked him to make any corrections or additions.

The following results are part of studies and experiments at the DGemG Research Centre first mentioned in an article written by Jewelcutter in May 2008; read The Great Andesine Scam

1. Andesine under immersion showing red colour encircling a green core is treated. Material with green rim encircling red is natural Oregon sunstone.

2. There are four stages in the treatment process of Mongolian labradorite in which the untreated also changes chemical composition with the last stage becoming andesine when heated with cu-nitrate.

(added by Dr. Milisenda for better understanding): We examined stones that have been treated in Thailand and stones that have been treated in China. The stones treated in Thailand have been treated with a copper-bearing additive for 1, 2 and 3 month respectively (according to the supplier). With time more and more copper penetrates into the stone (this is probably the four stages that you have mentioned). For the stones treated in China we don't have any information about the treatment. However there is also a significant increase in Copper in the treated stones and these are the samples where we have observed that the treated stones were andesine in composition and the precursor was labradorite. One possible explanation is that the stones have been heated with a copper bearing additive plus a sodium bearing flux agent. The latter may increase the albite content in feldspar and, as a result the anorthite content decrease to produce andesine from labradorite. However, we were not able to reproduce this change by our own experiments. We are just working on it. The stones that we have treated with cu-nitrate alone did not change their composition.

3. Exact temperatures, length of treatment and how polish affect CuO percentages in the groups were given. Details will be published by the German Foundation for Gemstone Research.

4. The source for the "Olympic Andesine" is not Mexican.

5. The characteristics of Tibetan labradorite purchased in 2006 do not match the stones recently provided by the Tibetan mine owners.

6. It is Dr. Milisenda's personal opinion that the Tibetan stones may also be treated though further testing will be necessary.

"Empiric determination of cleaning agents applied during the preparation procedure of corundum rough" *by Walter Balmer, Chulalongkorn University, Bangkok*

Another interesting report about experiments with cleaning agents used on rough corundum before heat treatment. The various cleaning agents not only removed unwanted staining in fissures but also increased the penetration potential of additives through the cleaned surfaces.

"Yellow Coloration in Gem Corundum: A Thai Innovation" *by Rak Hansavake, Department of Mineral Resources, Bangkok*

This contribution describes the sophisticated level of gem treatments by Thai specialists using Be-heat-treated Songea sapphires from Tanzania as an example. The resulting yellow colour permeates substantially or throughout the stones forming permanent hues. Concerns about proper comments in certification of treated stones were expressed.

"The different kinds of cultured pearls" *by Henry Haenni, SSEF, Basel Switzerland*

Prof. Dr. Haenni suggested to remove the term "nucleation" from the gemmological vocabulary and describe the different kinds of cultured pearls using three options: Beaded or beadless, mantle-grown or gonat grown, saltwater or freshwater. When combining these options there are 8 possibilities with 2 not seen as yet (freshwater gonad grown, beadless or beaded). Never thought it could be that simple!

"Heating Experiment of Copper-Bearing Tourmaline and Some Interesting Features", *ad-hoc presentation, GIT-GTL, Bangkok*

A member of the Gem Testing Laboratory (GIT-GTL) reported about experiments of heat-treating copper bearing tourmaline (Paraiba-type). See heat-treatment experiment; no details were given as to the origin or condition of the rough material (cleaned or not cleaned). However, I was surprised to see how easy one can turn this type of tourmaline into a very attractive blue colour.

The preliminary results confirm findings and descriptions published by Milisenda, Hirkawa, Emori, Miranda, Bank and Henn: A new find of cuprian tourmalines in Mozambique (Z. Dt. Gemmol. Ges. 55/1-2, 2006). Further tests using various additives will be conducted.

"UV-LEDs - setting a new standard for fluorescence observations" *by J Wolf Kuehn, Canadian Institute of Gemmology, Vancouver, Canada*

This was my contribution to GIT 2008. You can download the poster here(121 KB)

I am expecting that all extended abstracts will be made available at the GIT website very soon; I highly recommend studying them. It will take me several weeks to go through all abstracts; the above is just a small selection of topics which caught my interest.

Canadian Institute of Gemmology

Past issues of C.I.Gem News: Click on the edition you want to read: ***October 2008*** **-** ***November 2008*** **-** ***December 2008*** **-** ***January/February 2009***. The next newsletter will be published in April 2009.

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