The S A Gem and Mineral Club

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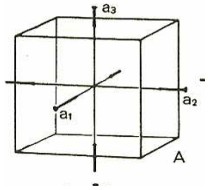
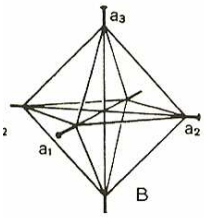
NEWSLETTER - OCTOBER 2013

LAST CLUB MEETING on the 26th September 2013 at our new venue—the conference room at St Saviour's Church hall, 2 Villiers Road in Walmer. There were 13 members present and 2 visitors, being Prof Russell Shone and his wife Jennifer. Apologies were received from Naas Rademeyer. The Chairman welcomed members to the new venue and expressed the hope that members would find it amenable. We had been fortunate to obtain the use of the room when we had been given only had one month within which to find an alternative venue.

The main event was a talk by Prof Russell Shone, an old friend of the club for many years. The topic was "Crystallography" and very fascinating it proved to be. As is his usual way, Prof Shone started off by explaining the historical and scientific background to the study of crystallography. He lamented the fact that geology students today at NMMU are not taught this complex but basic understanding of the structure of minerals, but learn to identify minerals by their appearance and other physical properties. Prof Shone explained how crystalline symmetry enabled geologists to identify minerals by their individual crystalline inner structure, and that this is a complex mathematical and geometrical process which is completely accurate. He briefly sketched the history of the theories of crystallography, and the main protagonists thereof. The first part of the lecture appeared, to a layman such as your Editor, to be somewhat abstruse, but as he proceeded Prof Shone clarified the purpose of this exacting science, namely the accurate identification of minerals. It was particularly interesting to hear how certain early scientists, "having nothing to do all day but think", were able to formulate and prove such revolutionary ideas. He demonstrated by various sketches on a white board, beginning with the most basic shape, the cube, how the axes of symmetry and their relationships to each other are identified and expressed as a formula. The formula identifies and describes the particular mineral.



Cube



Octahedron

The following day Prof Shone wrote to us as follows: " *Just to add to what was raised at the end of my talk: the early crystallographers were Federov (1853-1918) Barlow (1845-1904) Schonflies (1853-1926) and Wulff (1863-1905). The concept of an "atom" (or a very small particle) goes back to at least 1600, was speculated on by Dalton in 1805, but it was not until 1905 (Einstein) and later Bohr (1913) and then Heisenberg (1926) that the nature and structure of atoms was established with any degree of certainty. Mendeleev did publish an early version of the Periodic Table in 1869 but this did not include details of the atomic structures of the elements - as you will understand, Science tends to progress by a process of adjustments to current theory as new facts are added and assimilated.*"

NEXT MEETING : Thursday 31st October 2013 at 7.30pm at the Conference Room , St Saviour's Church Hall, cnr 1st Avenue/Villiers Road, Walmer. Stones of the month are Tourmaline and Opal. Any other items beginning with "O" will also be of interest, such as Orthoclase (Feldspar family), Obsidian, Onyx, Oligoclase (Sunstone), Olivine.


Orthoclase

A video or DVD will be shown, and Colin will have findings and possibly also some chains for sale. Members will be asked to discuss the "Christmas" meeting, scheduled for the 28th November, the last club meeting for the year. Previously we have had a self-catered social, but it was suggested that we go out for a meal this year instead and this was favourably received by members present. We have made enquiries and it appears that the Crest Room at the Beach Hotel is a nice venue and reasonable value for money, with a 3-course buffet meal with free glass of wine at R150 per person (R100 for pensioners). As it is essential to book early for this time of the year, and the venue as already fairly booked up, we went ahead and made a provisional booking for 15 places. Members must please confirm they will be attending, so that we can finalise the booking.

GRADING OF GEMSTONES cont'd
DETERMINING THE CLARITY

The GIA type Clarity Scale:
The GIA*** Colour Gem System is divided into Three Gem Types... "**Type I**", "**Type II**", and "**Type III**"
All natural gems have inclusions... In plain terms clarity is simply how much "stuff " is inside the gem crystal. The less the "stuff " the more they cost. This again because of rarity by lack of imperfection.

Exceptional	Very Good	Good	Fair	Poor
VVS	**VS**	**SI**	**I1... I2**	**I3**
Very Very Slightly Included	Very Slightly Included	Slightly Included	Included	Excessively Included


Green Beryl

Type I stones are usually eye-clean, with no inclusions visible to the naked eye. They are usually of such high clarity that even minor inclusions can detract from their value. These stones include Aquamarine, Beryl (green, pink and yellow), Citrine, Chrysoberyl, Tanzanite, Topaz, Tourmaline etc. Classification ranges from the highest : **VVS, Type I** - describes Gems that are as close to flawless as is found in the particular type I gemstone, a gemologist under favorable lighting conditions cannot see any inclusions at ten power magnification, and/or, have no internal characteristics observable under magnification, but which have minor surface blemishes that do not penetrate the stone, and/or, have very small inclusions which are difficult for a gemologist to see at 10x magnification - to the lowest : **I3, Type I** - describes Gems with very obvious inclusions that are very visible to the unaided or naked eye without any magnification. This grade of excessively Included gem normally has durability problems and should be avoided.


Mandarin Orange Garnet

Type II typically show some eye-visible inclusions that do not detract from the gem's overall beauty. Many such stones are faceted for use in jewellery. Among these include Alexandrite, Amethyst, Apatite, Citrine, Feldspar, Garnet, Opal, Peridot, Quartz of all colours, Spinel, Topaz (except blue), Tourmaline (all colours except green and watermelon) and Zircon (all colours except colourless and blue). Classification ranges from the best : **VVS, Type II** - describes Gems that are as close to flawless as is found in the particular type II gemstone, a gemologist under favorable lighting conditions can see small inclusions (small feathers, light silk, etc.) which are usually obvious when viewed with 10x magnification, but you will probably not readily see these inclusions to the unaided eye, except on larger stones. The lowest classification : **I3, Type II** - describes Gems that have very obvious inclusions that are very visible to the unaided or naked eye without any magnification. This grade of excessively Included gem normally has durability problems and should be avoided.


Emerald

Type III are almost always included and show eye-visible inclusions, but even specimens with obvious or prominent inclusions are often faceted for jewellery. Examples include Emerald, Beryl (red) and Tourmaline (watermelon). They range from :**VVS, Type III** - describes Gems that are as close to flawless as is found in the particular type III gemstone, a gemologist under favorable lighting conditions can see small inclusions (small feathers, light silk, light gardin, etc.) which are usually obvious when viewed with 10x magnification, but you will probably not readily see these inclusions to the unaided eye, except on larger stones.; to : **I3, Type III** - describes Gems that have very obvious inclusions that are very visible to the unaided or naked eye without any magnification. This grade of excessively Included gem normally has durability problems and should be avoided.

*** GIA = Gemological Institute of America.