

BENDIGEM

The official newsletter of
Bendigo Gem Club Inc.

July 2018

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Charlie Bock

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John Carey 0448 220 335

Club Fees 2018

Joining Fee

\$30 one off

Name Tags

\$10

Yearly Membership

\$30/Single
\$40/Family
\$15/Associate

Adult Workshop Fees

Full day \$6.00
Half/Part day \$3.00
Evenings \$3.00

Workshop Times:

Tues. evenings
5-7 p.m.
Peter Covington

6-8:30 p.m.
John Carey

Thurs.
10 a.m. - 4 p.m.
Instructors in all fields

Thurs. nights
7-9 p.m.
Ian

Committee Meetings

3rd Thursday at 7:00 p.m.
All members WELCOME

Annual General Meeting

3rd Friday in November Unless stated otherwise.

Presidents Report

I'd like to welcome new members that came in on the open days. Lots of enthusiasm shown by all. I'm noticing a new trend with people who have been and done a Short course class or Jewellery course with others coming and joining so they can learn much more.

Everything is getting together for the next Show. Much homework is happening putting together all the items for the event and it looks like a sellout to stallholders with a few new ones to add a bit of variety. Well done Andie.

And from an Idea to shoot an instruction video we have evolved into 3 videos so far and soon we'll release these to YouTube. All of which are quite amazing. Hopefully these will earn some income for the club.

I am still working on combining field trips with other clubs and should have some fields trips coming up soon.

Happy Lapidary
Al

Quartz

Quartz is one of the most abundant minerals on earth, made from silicon and oxygen, its the stuff in common dust that scratches our glasses lenses and puts dents in tables but is also the minerals we collect in beautiful crystal formation, facet into stunning gemstones and polish to create beautiful cabochons. Lets dive in and have a look at quartz.



Quartz has a magic hardness number of 7. What does this mean? As i mentioned before quartz is found in dust, so anything that has a hardness greater than 7 cant be scratched by dust where as anything below 7 can be. Minerals used in jewellery particularly rings, should be of a higher hardness than 7. Luckily most of the common gemstones we use, such as ruby, sapphire and emerald are greater than 7.

Quartz comes in a a lot of varities. Most of you would know of amethyst, citrine and smokey. but there are a number of others such as prasiolite (green quartz, see below), morion (black), rose quartz, ametrine, milky quartz, rutilated quartz.



Did you know that quartz also comes in different varieties called cryptocrystalline quartz. These include Jasper, Agate, blood stone, chrysoprase, chalcedony, carnelian etc.

There is also Aventurine quartz that has flecks of mica inside that gives it green sparkles. Tigers eye, hawks eye and falcons eye are all part of the quartz family as well.



Onyx, sard, heliotrope, chert and there's even a blue quartz.

What does cryptocrystalline quartz mean? Normal quartz is classified as macrocrystalline or just quartz. Crypto or microcrystalline quartz is a dense form of tiny crystals that make up the crystal structure. The structure is so dense that the variety becomes opaque and fibrous.

Quartz is made from a silicon solution that forms crystal by adding layers to the crystal by rotation either left or right or both. While crypto quartz forms from a solution of watery silica.

A quick identification tip, there are only two types of gemstones that have horizontal striations across the faces of the crystal, quartz and corundum (sapphire), if you have a crystal like

Quartz (cont.)

the one in the image right, and it has horizontal striations that is a clear indicator that its probably quartz.

What causes the different colours of quartz?

The colours of quartz is a complex thing. Quartz can change its colour just by heating, for example, if you heat amethyst you get Citrine. If you continue to heat it, you can get praisolite or smokey or clear etc. The cause of the change of colours is due to colour centres in the matrix and can be attributed to different types of iron eg Fe²⁺ or Fe³⁺. Well out of this discussion to go into to much detail, but you can heat a peice of amethyst in your oven and turn it to citrine. I havent tried this yet, but I have some low quality amethyst at home to one day give it a go.



Synthetic Quartz - yes there is such a thing. Why when there is so much natural quartz do they make synthetic quartz? The reason has to do with industry. Everyone would know of quartz movement in watches, this is a small peice of synthetic quartz.

Quartz has two properties that are very useful in industry; piezo electricity and pyro electricity. Piezo electricity is an electric current caused by mechanical pressure across the face of a crystal. So if you squeeze a crystal (mechanical pressure) it generates an electric charge. If you apply an electric charge to the crystal it causes its own mechanical pressure and the crystal vibrates back and forth - this is the quartz movement in your watch.

Pyro electricity is the ability of a crystal to generate an electric current by heating or cooling. This can be used in thermal sensing devices such as alarms and infrared imagers etc.

The reason for the development of synthetic quartz to be used in watches etc is the quartz used to generate the electricity needs to be perfect. Natural quartz can grow with a property

called Twinning. There are three different types of twinning in quartz; Brazil law twin, Dauphine law twin and Japanese twin, see image right.

Twinning is where two separate crystals grow but share the same crystal lattice. The crystals grow intertwined with each other. This effects the electric properties of quartz, so synthetic quartz is used as it doesnt have twinning. The image to the right shows a peice of synthetic quartz. Very different to natural quartz.



Hope you have enjoyed this little introduction to quartz. There is a lot to quartz, and so many varieties. In coming editions I will try to give you more information.



Quartz images:



Rose or pink quartz



Rutilated quartz



Smokey Rutilated quartz



Mystic quartz (coated)



Blood stone



Praisolite geode

Gemstone Identification

Following on from last editions article on gemstone identification. I thought I would list some more gems that can be hard to distinguish and may not be what you first thought. This reinforces the fact that learning how to identify gemstones correctly is a skill worth learning not only for identification but so you can be sure that what you buy is actually what it should be.

I remember a case when I was a student at the Gemmological Association where quite a large aquamarine was bought into the club to be identified. The purchaser was told it was an aquamarine and paid \$1700 for the stone. After testing, it was concluded that the stone was actually a worthless peice of glass. So learning more about gemstone identification is very worth while and please dont identify anything for anyone without being sure.

Here we have three gemstones that are often mistaken for each other. If I didnt tell you which was which, would you have been able to tell? That's actually an unfair question. Trying to tell them apart from images is almost impossible, so lets have a look:



Spinel

Sapphire

Tanzanite

They look very similar, so how do you tell? Instantly I can see that the sapphire has straight colour bands going through the middle, a very strong indicator that this is a sapphire and a natural one. You can see with the tanzanite patches of purple, so you could be reasonably certain at first glance that this is a tanzanite. Tanzanites have very strong pleochroism and show both blue and purple to the naked eye. The spinel would be seperated with a dichroscope as spinels are singly refractive and would only show one colour, where as both the sapphire and tanzanite are double refractive and would show two colours, tanzanite could show three.

How are you going, confused yet? When you think about it, there are a number of gemstones that can, and are, readily misidentified. How about the two stones below:



Tanzanite



Iolite

Tanzanite and iolite are very hard to tell apart as they are both dichroic and show three colours through a dichroscope. You would need to use a refractometer and specific gravity to seperate them.

Emerald is another stone that can be confused for other green gems. See below:



Zambian Emerald



Tsavorite Garnet



Tourmaline

Equipment

Gemstone identification begins with a hand lens. These are readily availble and range in price from a few dollars to over \$50. You will need a triplet hand lens with 10X magnification.

Other equipment you will need is listed below. I will go into more detail about each one in the next edition.



Dichroscope, Polariscopes, Chelsea Filter, Spectroscope, Ultra Violet Light, Refractometer, Specific Gravity and a Microscope

The correct use of each peice of equipment combining the results will allow you to positively identify gemstones accurately. More to come...

Expo 2018

Expo 2018 is almost upon us.

Once again in September we showcase our club, what we do and the projects we make.

The expo is our main fundraising event each year, but as usual it takes a lot of time and effort to plan and run such a great event.

We are asking for our members to help out where they can at the expo. Volunteers are always needed at the expo, there are a number of jobs that need doing and we don't want to leave it to the same few members that always help.

Let us know where and how you can help so we can add you to the list of volunteers and create a schedule. The more people that help, the less time each member has to volunteer for and the expo is more fun for everyone.

Bendigo GEM Club EXPO

8th & 9th September 2018

Saturday 10am - 5pm
Sunday 10am - 4pm

757 McIvor Highway, Junortoun, VIC

- Top quality stallholders with gemstones, rocks, minerals, fossils, lapidary supplies, gold and silver jewellery.
- Come and try gem sifting, metal detecting and gold panning.
- Fun for all the family.
- BBQ, canteen and refreshments available.

Admission \$8 - Kids under 12 free

Rocks - Minerals - Gemstones - Jewellery - Metal Detecting - Gold Panning

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New Website

We are pleased to announce our new updated website is finally up and running. We are still working on a few things and hope to eventually allow members to upload their own images of projects they are working on.

There is also a members area that hasn't been completed yet, but we encourage all members to register your details anyway.

I welcome any feedback on the site and please let us know if there are any issues.

If you have anything you would like to showcase on the website, email me an image and a description. I am always looking for content for both the website and the newsletter, so send as much as you can.

As soon as I have finished the members only area, you will be able to upload images yourself, but in the meantime, if you can email them to me at: lea@twofatsheep.com

The address is: <http://www.gembendigo.org.au>

Hope you enjoy the content!!



General Information

What Am I?



What do you think I am?

This is an easy one. Answer next edition
Last editions gemstone was a Benitoite.

Silver Casting Dates

Silver Casting Dates for July and August

will be announced soon

Please register on the form at the club

Field Trips

We are in the process of organising field trips in conjunction with other clubs.

Watch this space for any upcoming field trips. A notice will also be placed on the notice board at the club.

Upcoming Events

July

20-22 Yowah Opal festival & Designer jewellery competition, contact Gwen 0427 068 254

19 Committe Meeting. Club Rooms. 7.00pm

August

18-19 Ballarat & District Gem Club Show, The Farm, 800 Norman St, Nth Ballarat

25-26 Frankston lapidary club gem show, Cranbourne Public Hall Gippsland Ph: 0420 634 980

16 Committe Meeting. Club Rooms. 7.00pm

September

8-9 **Bendigo Gem Club Expo, Bendigo Baptist Church, 757 Mclvor Hwy, Junorton**

22-23 Waverly Gem Club Exhibition, Brandon Park Community Centre,
645 Ferntree Gully Road, Glen Waverley, Contact Peter: 0415 536 770

October

12-14 New Zealand national show, Tauranga NZ

Gemborees

2019 Queensland

2020 Albury, Victoria



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