This is a larger than normal edition of the newsletter, to make up for a lack of editions earlier in the year.

The last edition was back in March and time has just slipped away over what was to be quite an eventful year.

With the breaking of the drought and regular rainfall over the last ten months, several of the programmed field trips had to be rescheduled or cancelled as roads became impassable. On those that went ahead, we were able to still have good finds and good days out. For those that had to be cancelled we have rescheduled the trips for 2011.

The Rock-On this year was a success and we broke even, however the crowds were down on previous years and this has led us to re-think how it will run next year. The major difference next year is the move from September to October. This will put our show further away from the Silver City Show and off the AFL grand final weekend. The chosen weekend of the 28th-30th of October also avoids all of the other big shows across eastern Australia and should encourage a lot more traders to come to our show.

Work on the clubroom has come to a hiatus as we wait for the decision by the government (and local council) on the building of a GP Super Clinic on the grounds of Community Inc. The agreement that Community Inc put forward is for part sale of the property and does not include the sale of our clubroom. This means that it will still be accessible, we are not sure of how. All will be revealed soon as closing dates have now passed and the decisions are being made at the moment.

As for next year…

We will hold our AGM in February as normal and we call for as many current and past member to attend. We hope that this time all executive positions are filled and we finally have a secretary.

We also say our goodbyes to Hal and Greg Murray who are moving to Coffs Harbour.

Here’s to “moving forward” and hopefully another successful year in 2011.
GETTING THE RIGHT INFORMATION RE: “MINERALS”
A GUIDE TO THE WHAT’S ON THE WORLD WIDE WEB

After several hours of “googling”, have you really found what you are looking for? Here is a selection of some of the best sites to obtain reliable information about minerals, their properties, locations where found, collecting and cataloguing.

There are so many websites to choose from about minerals, however if your search is for information then there a few really good sites that have exactly what you are looking for. For ease of access this review based on the key search parameters.

Comprehensive Mineral Databases

These are good for getting general information about minerals. Their chemical and physical properties, crystallography and locality data.

The best site by far is mindat.com. Here you can search by either mineral name or locality to find the information you seek. There are many members on this site and a lot of information as well as pictures are added daily by people from around the whole world. Also on this site are forums and chatrooms that enable discussions with other collectors about minerals. Some members have posted articles about mineral collecting and updates on locations.

Another good site is webmineral.com. Here, there are similar features to mindat, however there is a very good list of other mineral sites, especially those belonging to mineral dealers.

Programs for Mineral Cataloguing

There are several different programs that are suitable for collections to be catalogued. Mac users can use File-Maker Pro, while the most commonly used and most powerful for PC’s is MS Access, however you need to fully understand how to use it to drive it. Access is a very powerful database program and a dream to use when set up properly but it can also be very frustrating to the casual computer user who doesn’t know how to tackle the quirks.

A free and very easy to use cataloguing system is called “Minerals” and is available for download at http://carlesmillan.cat/min. When installed the whole collection can be viewed as a list or as single forms for each sample. It is set up with standard fields, plus a couple of reserve editable fields for anything else you wish to add. There is also space for up to four photographs with each sample. The program comes with several example records that can be deleted later once you have worked out how to add your own. Another great feature is a double click link to the form view from the list view.

Mineral Collecting Location Information

Again the most comprehensive site on the web is mindat.com. By searching according to the mineral name to find localities or by the locality name to get mineral you can usually find the information you seek. There is an issue however in that the information is often just a list of all of the minerals reportedly found at a given location and due to the database being world wide, the extra details are usually excluded. Sometimes there may be a link to an article that has better descriptions about the location and what can be found and in what quantities and size range. This is a very good starting point to confirm if a particular mineral species was found at a certain location and also to see what else might be associated with it. The photographs posted by users are also good to compare size and quality of the minerals found.

If you are searching for information on Australian sites then the some of the best sites to start at are:

1. The Australian Mineral Collector site is run by Tony Forsyth of the Queensland Mineralogical Society - http://www.mineral.org.au/ - and this site has a plethora of information about collecting locations and minerals found in Australia. It also has a comprehensive list of gem and mineral clubs around Australia with contact details.

2. Lapidary World is a site that has links to all things lapidary, including a huge range and variety of articles, contact details for gem and mineral clubs across Australia with web
GETTING THE RIGHT INFORMATION - CONTINUED

page links, fossicking location details and maps and photographs from fieldtrips. This site is updated regularly by the editor - John Boom in Coffs Harbour and is found at http://www.lapidaryworld.com they also offer a web page hosting service to Australian gem and mineral clubs.

3. The final site for Australian information is Crocoite.com - http://www.crocoite.com - and contains articles, links and an Australian mineral census based on location. This site is run by Steve Sorrell in Tasmania and has many of his personal reports. Steve is also the editor of the Australian and New Zealand Mineral Collector magazine.

Looking for Answers to Questions?

Many of the sites mentioned also feature forums where people can post comments, start conversations or ask questions. This is a great tool if you have hit a speed-hump and need to ask a specific question about mineral species at certain locations or gain the correct and updated directions to find a fossicking spot. The variety of expertise you can access is limitless if you are able to ask the right people and often on these forums are people who do have a wealth of knowledge. You will also get, unfortunately some people who suffer from pseudo-omniscience, but these are usually easy to detect. One other great feature of forums, is that you can also post photographs of minerals that you can’t identify to get other’s opinions as to what they might be.

As with any online forum, you can usually view the conversations, but you need to join and become a member if you wish to post a reply or start a new conversation.

Mindat has a good forum, and there are lots of people visiting and posting all the time. Another excellent forum site is eMinerals. Again, run by Steve Sorrell of crocoite.com, it has an Australian perspective, but has members from all around the world. http://groups.google.com/group/eMinerals, is the address.

FIELD TRIP REPORTS

The field trip for May was out to Silverton and the old Umberumberka Mines. A few nice malachites were found at the Umberumberka East mine, along with the usual siderite at the main Umberumberka Mine. A quick detour out to check the level of the Umberumberka reservoir after the recent rains gave an opportunity to check out an iron ore deposit next to the road and collect some small but nice magnetite crystals.

The next month - June - saw a trip into the Black Prince Mine and the surrounding area. For this trip we were joined by members of the Queensland Mineralogical Society, who were in town following the national conference in Adelaide. This day we were able to find some nice tourmalines from the outcrop, 1 km north of the Black Prince, while at the Black Prince Mine itself some nice samples of copper and lead minerals were collected. Apparently the micro-mounters were very happy with their finds.

Following months of rain and closed roads, the next field trip was not until November, when we explored the copper mining area around the Barrier Colorado Mine on Nine Mile Station. This was new ground and well worth exploring. The Barrier Colorado Mine has some good colour but very little in the way of crystals. A small digging on the northern flank of the ridge, 700 metres from the Barrier Colorado, produced some exceptional gahnite crystals. Though they were not big, with an average size of 6-8mm, the crystals were very sharp and a deep green. Certainly worth coming back for another look. The rest of the day saw the group investigate four more mines including two more copper mines and both the Parnell and Southern Cross mines. Very little else was found, however it was worth checking to obtain a better knowledge of these locations. The walk over the ridge produced some magnificent views.

6mm Gahnite crystals from Nine Mile Station.
MINERAL PROFILE - ILMENITE

With the discovery and the development of the extensive mineral sand deposits between Broken Hill and Mildura by Bemax Resources Limited, this is the second article in a series that looks at the individual minerals found at these deposits in a little more detail.

Of all the minerals containing titanium, ilmenite is by far the most common.

Ilmenite is an iron and titanium oxide mineral with the general formula $\text{Fe}^{2+}\text{TiO}_3$. While it is trigonal in crystal shape it is often found as tabular plates and as such is commonly confused with hematite. In this case some previously identified ilmenite may now be considered as titanium hematite. These tend to appear reddish brown or dark grey to black in colour and show a distinctive metallic sheen.

Ilmenite has a hardness around 5-6 on Moh’s Scale, making it quite resistant to weathering. It has a relatively high density of 4.7 and due to its abundance make it the most common ore mineral found in the large beach sand heavy mineral deposits. This is the case with the BeMaX mine at Ginkgo where the ilmenite content is around 48% of the heavy mineral ore fraction, compared to 13% rutile and 10% zircon.

Ilmenite is a common accessory mineral found in both metamorphic and igneous rocks. It has a higher concentration in basic and intermediate igneous rocks such as basalts and gabbros, however the best crystals occur in high fluid content pegmatites and quartz veins. In metamorphic rocks it is common in gneisses and amphibolites and can occur as enriched pods within quartz rich bands and boudins.

Many of the noted Australian occurrences of ilmenite are associated with ancient Precambrian cratons such as the Pilbara area of Western Australia, the Harts Ranges in the Northern Territory, the Curnamona province - Broken Hill, Olary and Mount Painter districts, spanning the NSW and South Australian border and the Precambrian basement rock of the Mount Lofty Ranges near Adelaide in South Australia. In these areas the metamorphic processes have reconcentrated the ilmenite allowing larger crystalline growth. As the pressure increased the cracking of the rock allowed high temperature fluids to infiltrate and deposit veins rich in the ilmenite.

Some of the biggest and best ilmenite crystals found in Australia have come from the Mount Painter area, Arkaroola, in the northern Flinders Ranges. The most renown occurrence is inside the meta-basalts around Arkaroola Bore. Here the ilmenite forms large silvery crystals inside calcite veins, association with stilbite, actinolite and calcite. Fine well formed crystalline specimens have been obtained by etching away the calcite. Other locations for good ilmenite occur all around the rim of Arkaroola station in a belt of skarn type deposits, all similar in formation to the meta-basalts found at Arkaroola bore. Very large crystalline plates occur inside quartz veins that cut through the area between Arkaroola Bore and the Pinnacles (on the southern boundary of Arkaroola) with some single plates over 30 cm across.

Another notable location where fine crystals of ilmenite are found is in the basalts of western Victoria. The ilmenite is associated with andesine and calcite and forms thin hexagonal plates inside vughs in scoria. The quarries at Bundoora and Portland have both produced good ilmenites.

Around the rest of the world the most renown locations for spectacular ilmenite crystals include:

- The southern Ural Mountains - including the type location of Miass in the Ilmen Mountains, in Russia.
- Norway - especially the Telemark and Aust-Agder regions, where large well formed crystals are found. These are associated with gabbros and anorthosites. The largest hard rock ilmenite mine in the world is in Norway at Tellnes in the Sokndal region.
The ancient Precambrian shield complexes of both Canada and Southern Africa have produced good ilmenite. Of particular note are the gabbroic pegmatite areas of Quebec in Canada and the layered gabbro intrusion forming the Bushveld Complex of South Africa. In both of these areas the gabbro has released hot fluids that have contained the dissolved ilmenite.

Ilmenite is a common mineral, however good crystals are rare. It is found in most areas, being associated with metamorphic terrains, concentrated with heavy minerals in sedimentary environments and is a common constituent mineral of basic intrusive rocks. Ilmenite is also one of the minerals that were isolated from rocks bought back from the Moon by the Apollo astronauts.

Above: 8 mm triangular shaped ilmenite crystal in a cavity in scoria. Associated with sharp calcite crystals, from the Portland quarry in Victoria.
Zircon is a member of the nesosilicate group and is a common mineral found in granitic terrains, where it exists as microscopic grains in the mineralogical mixture of felsic igneous rocks. Chemically, Zircon is a compound of zirconium, silicon and oxygen with the formula ZrSiO$_4$. Zircon has been known since ancient times and the yellow variety is known as hyacinth. The element Zirconium was first identified from zircon and hence is the origin of the name.

Zircon occurs in many different colours, including red, pink, brown, yellow, hazel, black, or colourless. These colours can change via heat treatment and depending on the amount of heat applied, blue and golden-yellow can be made. In certain geological settings, if the temperature is over 350 °C and maintained for a long period, the reds, pinks and rare purple can form given enough time and the correct trace element.

Zircon is classed as a gemstone as it has a relative hardness of 7.5 on Moh’s scale and this property gives it a higher resistance to weathering. This along with a density of 4.7 is the reason that zircon is commonly found within heavy mineral sand deposits like those being exploited across the Murray Basin.

At the BeMaX Ginkgo mine, Zircon makes up 10% ore the ore mineral fraction. This is very profitable for the mining company as Zircon is the highest priced commodity with an average sale price of $800 per ton and the Ginkgo deposit contains around 400,000 tons. The Snapper deposit is a smaller deposit than Ginkgo, however the zircon content is at a higher percentage.

While Zircon is a common mineral and found across many areas where granites dominate, good sized crystals are rare and occur where hydrothermal fluids have allowed larger crystal growth within pegmatites or the host rock type has a higher than average zirconium content. This is the case for many of the more well known occurrences.

Within Australia the most notable zircon deposit is at Mud Tank in the Harts Ranges, Northern Territory. Crystals up to several centimetres in size have been found along with massive lumps of zircon weighing in the kilograms. These are found in the soil cover and have shed over the years from a carbonatite host rock on the small ridge nearby. (Carbonatites are igneous rocks with a high carbonate content and are often misidentified for marble) Here the zircon is found in a wash layer associated with apatite and magnetite.

Zircon is usually found in association with other gemstones, such as sapphires at the major Australian gem fields. These include the Anakie sapphire fields of central Queensland and the New England gem fields in northern New South Wales.

Around the world, famous zircon locations include:

- Sri Lanka - Ratnapura, where the gem has been mined since ancient times.
- Russia - sharp crystals have come from the mineralogically rich Kola Peninsula.
- Pakistan - in the northern areas of Gilgit and Astore in association with pegmatite gemstones.
- Malawi - in association with smoky quartz and aegerine at Mount Malosa.
MINERAL PROFILE - ZIRCON (CONTINUED)

Across the Top: Two views of a 4cm single crystal and three 2cm crystals from the Mud Tank zircon field in the Harts Ranges of Northern Territory.

Bottom Left: Two 2cm zircon crystals in marble, from Gilgit, Pakistan.

Bottom Middle: Several zircon crystals to 1.5cm, sitting on ardvedsonite. From Mount Malosa, Malawi.

Bottom Right: Nice cluster of bipyramidal zircons from the Kola Peninsula, Russia. Overall size of specimen is 6cm.

ROCK-ON 2011 - SHOW REPORT

This year’s Rock-On was not a huge success, nor was it a disaster. The weather for the weekend was perfect, there were enough traders on site and enough people through the doors to cover all of our expenses and the general feel was that the people that attended had a good time.

From the outset this was going to be part of a three year trial program to see whether or not the show would benefit from the move into town from Silverton and become a yearly event.

The 2010 show still had a good attendance however; the usual support from outside visitors and onsite campers was down from previous years. Our local support was varied and sporadic with most people attending on the Friday afternoon and the Sunday morning. A clash with one of the most watched AFL grand finals in recent years meant that very few people came into the hall on the Saturday afternoon – usually a busy time at previous shows. Both of these issues will hopefully be rectified with better promotion for the 2011 show and a move away from the grand final weekend to late in October.

There were many familiar faces and a few new ones trading their stock in the hall. The new traders included Dehne McLaughlin from Tasmania who had some remarkable azurites from the Northern Territory and Noel from Mildura with a selection of polished wooden bowls.

The field trips that followed the show were well attended and everyone that went were able to find good samples to add to their collections.
ROCK-ON 2011 - SHOW REPORT (CONTINUED)

Many thanks go to all those who helped set-up, pack-up, man the doors, cart gear to and from the events centre and generally offered assistance over the weekend. Thanks also go to those members who distributed advertising materials and registration forms at other shows leading up to the Rock-On.

A final thankyou must go to Andy Treloar of Tikalina Station and Nick Andrews of Farmcote Station, for allowing access to the mineral fossicking areas for the field trips.

It all starts again now for the 2011 show...

Top Left: The Murrays - Hal, Margaret and Greg, admiring the Azurite suns on Dehne McLaughlin’s stall and Top Right: A selection of the minerals for sale at Dehne’s stall.

Left: Annett Gilles from Melbourne, readjusting her display at her stall.

Bottom Left: Dehne McLaughlin answering a question from an interested buyer, at his stall.

Bottom Right: Peter Beckwith (Crystal Habit) from Sydney, “explaining” to a very interested Ross Clark at his stall.
## BROKEN HILL MINERAL CLUB - 2011 CALENDAR

<table>
<thead>
<tr>
<th>MONTH</th>
<th>FIELD TRIP</th>
<th>MEETING</th>
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<tbody>
<tr>
<td>February</td>
<td>No Field Trip - Summer Holidays</td>
<td>AGM - Monday 7th - 7:30 pm</td>
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</tbody>
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| March   | **Corona Amethyst Fields**  
Sunday 20th - 7:30 am. (90km)  
Bring Hammers, Chisels, Carry Bags, etc.  
Meet – Tibooburra Road near Rifle Range. | Monday 6th - 7:30 pm  
Mineral - Amethyst                          |
| April   | No Field Trip - Easter Holidays coincide with the National Gemboree at Bathurst NSW                                                          | Monday 4th - 7:30 pm  
Mineral - Gold                               |
| May     | **Old Mundi Mundi Station Area (Eldee Station)**  
Sunday 15th – 8:30 am. (50km)  
Bring Hammers, Chisels, Carry Bags, Sieves, etc.  
Meet – Corner Brown St and Silverton Road    | Monday 2nd - 7:30 pm  
Mineral - Limonite                            |
| June    | **Lady Dorothy Mine Area (Nine Mile Station)**  
Sunday 19th – 8:30 am (30km)  
Bring Hammers, Chisels, Carry Bags, etc.  
Meet – Tibooburra Road near Rifle Range.     | Monday 6th - 7:30 pm  
Mineral - Plumbian Orthoclase                 |
| July    | No Field Trip - (Field Officer not available)                                                                                              | Monday 4th - 7:30 pm  
Mineral - Topaz                              |
| August  | **Fairy Hill Copper Mine**  
Sunday 21st – 8:00 am. (50km)  
Bring Hammers, Chisels, Carry Bags, etc.  
Meet – Sydney Road Info Bay                   | Monday 1st - 7:30 pm  
Mineral - Native Copper                       |
| September| **Olary District – Overnight Camp**  
Weekend 16th / 17th / 18th – 4:00 pm. (up to 220km)  
Bring Hammers, Chisels, Carry Bags, Packing Boxes, Sleeping gear, Food, Water, etc.  
Meet – Adelaide Road Info Bay                 | Monday 5th - 7:30 pm  
Mineral - Vesuvianite                         |
| October | **Gem & Mineral Show: ROCK – ON 2010**  
Show Dates - Friday 28th - Sunday 30th  
Field Trips - Monday 31st & Tuesday 1st  
Broken Hill Racecourse & Event Centre         | Monday 3rd - 7:30 pm  
Mineral - Native Silver                       |
| November| **Mount Gipps Tungsten Mines**  
Sunday 20th – 8:30 am. (40km)  
Bring Hammers, Chisels, Carry Bags, etc.  
Meet – Tibooburra Road near Rifle Range.     | Monday 7th - 7:30 pm  
Minerals - Scheelite and Wolframite           |
| December| No Field Trip - Christmas Holidays                                                                                                         | End Of Year Christmas Party  
Monday 5th - 6:00 pm  
Mineral - Find of the Year                   |

**PLEASE NOTE:** These field trips are tentative – pending final negotiations with land / lease holders. Demonstrators and Guest Speakers are also tentative, pending final confirmation of availability.
MEMBERSHIP RENEWAL 2011

TO THE TREASURER:

Please find enclosed my 2011 subscriptions for membership to the BROKEN HILL MINERAL CLUB INC.

NAME: ________________________________________________________________

ADDITIONAL NAMES (FOR FAMILY MEMBERSHIP): ________________________________

ADDRESS: ________________________________________________________________

POSTAL ADDRESS (IF DIFFERENT FROM ABOVE): ________________________________________________________________

PHONE: Home: __________________________ Work: __________________________

Mobile: __________________________

EMAIL: ________________________________________________________________

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<tr>
<td>Full Membership</td>
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<tr>
<td>Associate Membership *</td>
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<tr>
<td>Junior Membership (12-16 years)</td>
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<tr>
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<tr>
<td>Newsletter Subscription only</td>
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* Only residents outside of the Broken Hill district may apply for Associate membership.

Enamelled Club Membership Badge – with blue background yellow writing and cerussite motif – @ $3.00 each

Quantity (please circle) 1 2 3 4 5

Committee Use Only

Receipt Number: ________________________________

Date Received: ________________________________

Records Updated: ________________________________

Signed

Treasurer

Secretary