



# The Mineralogical Society of Queensland Inc.

## NEWSLETTER

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Office Bearers: 2007-08

**President:** Russell Kanowski 4635 8627

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**Secretary:** Tony Forsyth 3396 9769 **Treasurer:** Phil Ericksson 3711 3050 **Membership Sec:** Bill Kettley 3802 1186

**Management Committee:** Sue Ericksson 0431 906 769, Theo Kloprogge, George Brabon

### UPCOMING MINSOCQ MEETINGS

Minsoc meetings are held on the last Wednesday of each month, excepting December, at the Mt Gravatt Lapidary Society clubroom, formally starting at 7.30pm. (The clubhouse is located at the very end of Carson Lane, which is off Logan Road, Upper Mt Gravatt, on the left as you are heading north towards the city, directly opposite McDonald's. There is plenty of handy parking available, at no charge).

**August 27:** Annual General Meeting. Reports for the past year will be presented, and new office bearers will be elected for the year 2008-2009, plus questions and general discussions. The AGM will be followed by Theo Kloprogge's presentation, entitled *Pseudomorphs – what are they and how do they form?* Of course, the 'minerals' of the month will be pseudomorphs, so if you got 'em, you bring 'em, please.

**September 24:** *Fluorescent Minerals*, with various speakers from MinsocQ. If any potential attendees have a good short-wave UV light, please bring to meeting; we have a number of long-wave sources. Minerals of the month will comprise all fluorescent minerals – so please bring yours to view (or to test if you are not sure).

**October 29:** *Minerals of Broken Hill and environs:* various speakers. Bring your minerals from Broken Hill, Silverton, the Triple Chance quarry, other collecting sites around Broken Hill, and from the Olary Province (across the border in SA).

**November 26:** *Reports and Recollections of the Annual Meeting of the Joint Mineralogical Societies of Australia Zeehan, plus field trips and the Zeehan Gem and Mineral Fair.* Minerals of the month will be Tasmanian Goodies – bring any from the field trips, acquisitions from the Zeehan Fair, and from Tassie in general.

**December:** End of year barbecue – time and place to be announced; 'Auction Mineralia' - BYO everything, including 'stuff' to auction!

### MINSOC MGMT. COMMITTEE MEETINGS

Commencing at 6.00pm, prior to the MinsocQ meetings, on 24 September and 26 November 2008.

### 2008 MICROMOB MEETINGS starting 10am

The chosen topic will usually be the morning's focus, followed by 'problems' and swaps in the afternoon .....

**September 13:** at the Mt Gravatt Lapidary Society Clubroom. The topic will be *Pseudomorphs – what they are and how they occur*

**October 11:** at the Mt Gravatt Lapidary Society Clubroom. The topic will be *Fluorescent Minerals*

**November:** no meeting due to the Annual Meeting of the Joint Mineralogical Societies of Australia at Zeehan.

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### Annual Meeting of the Joint Mineralogical Societies of Australia and New Zealand, hosted by the Mineralogical Society of Tasmania - November 6 & 7

The venue will be the Gaiety Theatre, Zeehan, Tasmania, and the theme will be *Copper Mines and Minerals*.

The Annual Seminar will be preceded by field trips on 3 to 5 November.

**The Zeehan Gem and Mineral** fair will be held post-seminar on 8 & 9 November.

For more detail, go to Tony's website – *The Australian Mineral Collector* at [www.mineral.org.au](http://www.mineral.org.au), and click on the *Joint Seminar* link (in yellow on the left of the home page). There should be quite a good MinsocQ presence, and Tony Forsyth will be a speaker. Book your accommodation now, as it's filling up rapidly.

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### 2008 SHOW CALENDAR

*For updates and more details, see [www.mineral.org.au](http://www.mineral.org.au)*

**August 29 to 31:** Yarraman Treasure Quest, Yarraman

**September 6 to 8:** Emmaville Gemfest & Swapmeet, at the caravan park at Emmaville, NSW. There will be a number of field trips – Saturday morning to Webb's Silver Mine (and another to Webb's Consols if

permission is obtained); in the afternoon, to Gaden's Mine, for copper minerals, tourmaline etc. (and another along the Gulf Road if permission is obtained for water-worn topaz); If permission is obtained, there will be a filed trip to the Dutchman Mine at Torrington on Sunday, and/or there may well be others.

The Emmaville Mining Museum will be open through the Gemfest and Swapmeet; the Museum is otherwise open from 10 to 4, Fridays through Tuesdays; it's well worth a visit. The Museum phone number is 02 6734 7025.

**September 6:** Waterloo Bay Gem Show, Hemmant Community Hall, 31 Tingalpa Rd, Hemmant

**September 13 & 14:** Bribie Island Gem Show, Community Arts Centre, Sunderland Drive, Bribie Island

**September 27 & 28:** Caloundra Gem Show, 9 Caloundra Rd, Caloundra

**October 4:** Beenleigh Gem Festival, Beenleigh Showgrounds

**October 11:** Nambour Gemfest, at the Nambour Showground, Coronation Avenue, Nambour

**October 25 & 26:** Toowoomba Gem Show, Centenary Heights School, Ramsay St., Toowoomba

**November 8 & 9:** Bundaberg Gemfair, Bundaberg Civic Centre, Bourbong Street, Bundaberg

**November 15:** Suncoast Gem Show, Buderim Mountain State School, 8-42 Main St., Buderim. This is a good show with which to end the year, not too hot and not too cold. More importantly, BK Minerals (that's Bill and Yvonne Kettley) will be there. In past years, they have had a great range of minerals (and 'fozzils'), and excellent end-of-year deals.

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## WHAT'S BEEN HAPPENING .....

### **MinsocQ Management Committee Meetings, and General Meeting highlights**

At the Management Committee meeting on 28<sup>th</sup> May, it was confirmed that the field trip to the Toowoomba Bypass Pilot Tunnel would proceed on 12<sup>th</sup> July. It was agreed that Bill Kettley should firm up with Keith Berlin in Kingaroy the possibility of a field trip to Keith's Museum at some near future date. The Committee agreed that collaboration with the Queensland Division of the Gemmological Association of Australia would be beneficial, via such means as exchanges of newsletter articles and personal interactions, via Steve and his wife Donna, both of whom are involved with GAA.

At the May Members' Meeting, Dr Paulo Vasconcelos gave us a talk about ametrine, titled *Ametrine Revisited*. (Paulo had given an earlier talk on ametrine some 10 years ago). Paulo's talk was

was animated and fascinating, discussing many aspects of this rare and beautiful variety of quartz. (Quartz is the most common, and, at its best, the most beautiful of minerals – if you beg to differ, then you write an article!)

At the members' meeting in June, I gave members an account of the origins and subsequent development of our Minerals Heritage Museum (MHM). It is worthy of note that in the last few years, the MHM has received mineral donations to the value of approximately \$100,000 via the Cultural Gifts Program. There was a bit of discussion about the forthcoming field trip to Toowoomba, and that after the field trip, the MicroMob would move on to Tom Taylor's for their monthly meeting.

At the Management Committee meeting on 30<sup>th</sup> July, we were advised of the purchase of a cupboard for \$307, which is now installed at the Mt Gravatt Lapidary Society (MGLS) clubrooms, to house our library, microscope, ultrasonic cleaner, camera etc. Thanks were extended to the MGLS for allowing us the space to place the cupboard. The revised Constitution of MinsocQ was lodged with the Department of Fair Trading on 16<sup>th</sup> July 08; we look forward to receiving notification of its acceptance in the near future. It was noted that the Toowoomba field trip had been a great success.

Secretary Tony is to write to Ron Jillett (at Emmaville) to thank him for the Emmaville and New England cassiterite specimens that he sent us; these will be auctioned off at the Christmas Party in December. It was agreed that we should try to make the UV cabinet in the MGLS clubrooms operational, and the consensus was that we should ask Lex Johnston to take a look at it, and see what needs to be done to it.

A *Field Trip Book* has been re-established for the purpose of members signing in and out on field trips. This is important for several reasons including insurance considerations. A *Property Book* has also been re-established for the purpose of tracking the whereabouts of library books and MinsocQ equipment. We will keep you posted of the Management Committee deliberations, by way of notes such as this, in future newsletters. .... Ron Young

### **12 July: MinsocQ Field trip to Toowoomba Pilot Tunnel Stockpile**

Fourteen participants (including Ron's Bella) had congregated at the Toowoomba Information Centre by 8.55am. We enjoyed a bit of a chat for about 15 minutes while waiting to see whether there might be any late starters. No one else turned up by 9.15, so Russell provided detailed maps for those who needed them, and we set off in a convoy of 9 vehicles arriving at the tunnel at 9.30. Russell gave a brief but comprehensive safety induction, and we all 'signed in'.

There were scores of mullock piles from the tunnel excavation, covering an area of about an acre or so, and it was immediately obvious that one could not go

home empty handed. White chabazite was glittering in the sun all over the dumps. Everyone found lots of quite decent specimens including several very large pieces (up to about 20kg); all the crystals were about 5mm in size.

Judy Forsyth discovered that one of the mounds had quite a lot of micro chalcopyrite which will, I'm sure, be quite worthwhile under the microscope. Olivine was not plentiful but we found quite a few decent specimens. Sue Ericksson found a delightful little calcite crystal about 2cm tall in a vugh which she trimmed down to about 4x4x4cm.

I finished up with a large rock (block-shaped, about 30cm on a side) almost completely covered by 3 to 4mm snow-white chabazite crystals (photo below; all photos by Sue Ericksson). This was probably found by Dirk, but he decided that it was too heavy to take home (and I think he was right).



There was a brisk westerly blowing and it was pretty cold, about 14°C, but as everyone was well rugged up, I don't think anyone caught frostbite. We had a very pleasant few hours fossicking, and left the site a little after midday. Many thanks to Russell for organizing a thoroughly enjoyable and productive field trip.



*Collecting frenzy on the Toowoomba field trip – note dark*

*personage in shadow rugged up against the cold..*

The MicroMob went on to Tom Taylor's house for a micro meeting – see Sue's report below ... *Ron Young*

### **MicroMob Report: April to July**

The April meeting was held at the Mount Gravatt Lapidary Society clubrooms (MGLS) on the 12th, commencing at 10am with the usual cuppa. There was much discussion of the recent Gemboree and the subsequent field trips before we moved into the theme of sulfide minerals. The afternoon was spent as a show and tell of sulfides and new acquisitions.

In May we met at MGLS at 10am and after a catch up over a cuppa and an exchange of photo albums we moved into the wide world of lead minerals of Australia. It seemed to lead to many different tangents in a very short space of time. It was quite amazing how lead cropped up in the conversations almost unwillingly. After lunch it was off to the 'scopes for a show and tell of our lead minerals - mainly from Broken Hill and Tasmania. Later in the afternoon swaps from the recent Gemboree field trips were brought out - mainly from Tom's Quarry thanks to Sue and Ted Wearden.

As there was no meeting in June we next met on the morning of 13th of July for the Toowoomba field trip (see Ron Young's field trip report above). Afterwards, it was on to the home of Tom Taylor for lunch. Due to a last minute opportunity the afternoon theme was changed. Ron Bathurst (the regional geologist for Main Roads) offered to give a presentation on the Toowoomba bypass tunnel. He talked through the process of the planning and digging of the pilot tunnel and showed large geological maps of the work area. There is still a lot of debate as to whether it was an area of a single volcanic flow or in fact multiple flows. *Sue Ericksson.*



*Ron Bathurst, Russell Kanowski and Dirk van Hest, deciding the fate of the bypass tunnel, with the aid of a bit 'o microscopy.*

[Planning began in 2001 with traffic studies and lead to the pilot tunnel being built - it's 625 metres long. When the bypass is complete it will extend from Helidon Spa,

past Toowoomba and Westbrook, to enter the Millmerran road - a total of 42.2 kilometres. It will have two tunnels, each with three lanes of traffic, separated by about 15m, with lengths of 735m.]



*Field of View: 4 x 2.7mm - Calcite or aragonite (?) from Mount Kynoch ....and why did the crystal move around when it was being photographed? Well, it was cold, and the atoms were shivering!*

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Eric Stevens has begun to compile a series of articles on pioneering Australian Geologists (& Mineralogists), to appear in MinsocQ newsletters, and also in the newsletters of our sister organisations. His first article appears below.

## **NOTES on SOME EARLY AUSTRALIAN GEOLOGISTS**

### **Rev. William Branwhite Clarke 'The Father of Australian Geology'**



William Branwhite Clarke (1798-1878), was both a geologist and Anglican clergyman, born in 1798 in Suffolk, England - the eldest child of a schoolmaster, and his wife Sarah, nee Branwhite. He attended his father's school and then a grammar school, and in 1817 he entered Jesus College, Cambridge (B.A., 1821; M.A., 1824).

He was made a deacon in June 1821 and ordained in 1823. In 1832 he became vicar of St Mary's Church in Dorsetshire and also married Maria Moreton; a son and two daughters were born in England and a daughter in New South Wales.

Two influences at Cambridge shaped the direction of Clarke's intellectual life. He developed a lively taste for literature and classics, and at the lectures of Rev. Adam Sedgwick, Professor of Geology, was introduced to a

subject then casting off the framework of theology and emerging as a factual and inductive science. Poetry engrossed him and as a curate he published several volumes of verse from 1819 - 1829. However science soon gained priority and he became a fellow of the Geological Society of London in 1826 and by 1832 had made several excursions to the Continent. His papers on meteoric phenomena and geology and notes on zoology in the *Magazine of Natural History* in the 1830s attest to the scope of his work; he contributed several papers to the *Proceedings* of the Geological Society.

He cultivated the leaders of geological science and began correspondence with Sedgwick and Sir Roderick Murchison that later stimulated and encouraged his lonely researches in New South Wales. However, without ecclesiastical or aristocratic connections to aid him, his chances of advancement were small, and in December 1838, poor and suffering from rheumatic fever, he accepted the nomination of the Society for the Propagation of the Gospel to a chaplaincy in New South Wales.

He arrived at Sydney with his family in May 1839 and was assigned to St Peter's, Campbelltown. He soon changed to the headmastership of The King's School, Parramatta, with charge of the near-by parishes of Castle Hill and Dural. In 1846 he moved to St Thomas's Church, North Sydney, and remained as its first pastor until his retirement in 1871.

He is remembered as a geologist rather than churchman. In his spare time he moved out from Sydney in a widening arc, collecting rocks and fossils and sending many to Sedgwick and publishing his observations in British scientific journals and the *Tasmanian Journal of Natural Science*.

Early on, Clarke predicted the colony's mineral wealth and in 1841, chipping the siliceous slates near Hartley in the Blue Mountains, discovered particles of gold and later added evidence from Bathurst to the Liverpool Range that the country would be found '...abundantly rich in gold'. In April 1844 he told Governor Sir George Gipps of his finds and later claimed that he was directed to: 'Put it away, Mr. Clarke, or we shall all have our throats cut...'. It has been argued that this delayed development of the colony's mineral wealth, but apathy more than fear hindered mineralogical exploration.

Clarke did not put his gold away, but he observed a public silence on the subject until Gipps died. He pressed for an official survey of New South Wales and in 1847 became active in drawing public attention to the geological phenomenon of gold.

Edward Hargraves discovered a goldfield at Ophir in 1851 whilst Clarke acted as the Government's scientific adviser. Clarke served as a geological surveyor from September 1851 - July 1853, carrying church duties to the diggings and other outlying areas. Travelling on foot and horseback with two servants, he made a reconnaissance from Marulan southwards across the Alps to Omeo; east to Twofold Bay and north from the Hunter River to Brisbane and the Darling Downs.

In his twenty-eight reports, published as parliamentary papers in New South Wales and Britain, he outlined the physical and stratigraphical structure of the country he had seen and its metalliferous resources. In 1851 he published *Plain Statements and Practical Hints Respecting the Discovery and Working of Gold in Australia* and in 1860 *Researches in the Southern Gold Fields of New South Wales*.

Scientific recognition followed his work on gold. In 1856, at the Tasmanian Government's invitation, he reported on the Fingal goldfield and on the auriferous character of the basin at South Esk, but in 1858 he refused appointment as geological surveyor of Tasmania. Clarke claimed to be the scientific discoverer of Australian gold, a title contested by John Lhotsky, Strzelecki, Hargraves and by Sir Roderick Murchison. In 1861, however, the Government of New South Wales honoured his claim and awarded him a grant of £3,000. His part in the discovery and investigation of Australia's gold resources was also recognized by the Royal Society of London which elected him a Fellow in June 1876.

Clarke's most important contribution to Australian geology was his work on the age of the coal deposits of New South Wales, a subject which caused a bitter and protracted controversy with Professor Frederick McCoy. Clarke believed that the Hunter River and Illawarra coalfields were Palaeozoic - much older than those of Europe. He also maintained that the fossiliferous sandstone beneath the coal, the coal itself and plant fossils in the beds above represented one great unbroken series and belonged to the same geological age, either Carboniferous or Devonian. In contrast, McCoy, who examined the specimens from Newcastle and the Illawarra that Clarke had sent to Sedgwick at Cambridge, always insisted that a vast geological time separated the true Carboniferous marine deposits below the coal, the coal seams and the beds of plant fossils, the last of which he referred to the true 'Oolitic' (Jurassic) System of Europe.

The debate was pursued with asperity in *Transactions* of the Royal Society of Victoria for thirty years. Clarke's careful and persistent field-work prevailed, but the acceptance of his findings was delayed by McCoy's reliance on the palaeontological evidence of the fossils against the stratigraphy of the field. Clarke published a detailed classification of the coal measures in the first edition of his *Remarks on the Sedimentary Formations of New South Wales* in 1867. He had earlier named and described the Hawkesbury and Wianamatta series which he included originally among the Palaeozoic rocks, but in his fourth edition of *Remarks* in 1878 he assigned them correctly to the Mesozoic. Clarke was awarded the Murchison medal of the Geological Society of London in 1877 for his work on the coal measures of New South Wales.

For almost forty years Clarke was prominent in the colony's scientific life, including his early interest in meteorology and in 1839-57 kept records of wind and weather wherever he lived. In 1842 he contributed twenty articles on meteorology to the Sydney Morning

Herald and encouraged others to assist in a co-ordinated system of weather observation. In a colony where science was considered a private matter and received scant government aid, Clarke was an ardent publicist for science, contributing countless editorials, articles, reviews and letters to the Sydney press and working to pierce 'the intellectual barrenness of New South Wales'.

In 1841-43 he was secretary and curator of the Australian Museum and trustee in 1853-73. Pressure of duties led him to decline a seat on the first Senate of the University of Sydney in 1850 and a professorship in geology and mineralogy in 1856, although he was elected a fellow of St Paul's College in 1853. Clarke was a founder of the Royal Society of New South Wales in 1867 and its vice-president until 1876; its Clarke Medal, struck as Australia's first scientific honour in 1878, commemorates his work. The Medal was to be '*awarded for meritorious contributions to Geology, Mineralogy and Natural History of Australasia, to be open to men of science, whether resident in Australasia or elsewhere*'.

Among the recipients of the Clarke Medal are such noted scientists as Professor Thomas Huxley (an early adherent to Darwin's theory of evolution), Professor James Dwight Dana (of Dana's System of Mineralogy), Professor Sir T.W. Edgeworth David (a towering figure of Australian geology) and Sir Douglas Mawson (geologist and Antarctic Explorer).

Still busy with his geological work, he died in Sydney on 16 June 1878 and was buried in the North Sydney cemetery. Clarke was a scholar, churchman, practical geologist and publicist. To his parishioners he was a warm-hearted and devoted friend, but in scientific affairs he was a tenacious and sharp controversialist - a born fighter but above all a pioneer. '*When geology was yet unknown and had its way to make*', an obituarist claimed, '*who could estimate the immense gain to our young Colony to have a man like Clarke at our disposal ... He excited an interest in the subject; he never ceased to bring the main labour of his life prominently before the public ... He was a centre around which all facts and discoveries were sure to group themselves*'.

Working for the most part unaided and at his own expense, Clarke made a geological survey of New South Wales, amassing and exhibiting his rocks and fossils, conducting a huge correspondence with scientists and prospectors and acting as scientific mentor to newly-recruited geological surveyors in other colonies until the Department of Mines was established in 1873. In addition to his reports and books, Clarke published some eighty scientific papers, while his geological maps formed the basis of the first geological sketch map of New South Wales, issued by the Department of Mines in 1880.

His pioneering on the stratigraphy of New South Wales laid the foundations on which much later work has been based. Clarke's valuable collection of Australian fossils and minerals, acquired by the government on his death, were destroyed with his scientific

library in the Garden Palace fire in 1882.

Reference: Grainger, E. *The Remarkable Reverend Clarke: the life and times of the father of Australian geology.* Oxford University Press, Melbourne, 1982.

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**Mineral and Mineral Name Trivia – to keep the brain juices from freezing; in each case, the answer to the question ‘what am I’ or ‘what are we?’ is one or more minerals, or a mineral group; some are easier than others:**

1: I am the mineral that the ancients believed was water frozen to such a low temperature that I could no longer be melted

2: I am a relatively rare mineral, crystallizing in elongated monoclinic forms (at times tending to tabular); I am orange to red in colour, but if left in the sun for a protracted time, I darken to a boring brownish-black; small old mines in Tasmania still yield world-class specimens, the prices of which are enough to make most people croak; I am reasonably dense

3: I am a ‘new’ blue monoclinic mineral, a hydrated hydroxy-fluoro copper vanadium aluminophosphate, typically occurring in small radiating acicular crystal aggregates; type locality is The Great Australia Mine, Qld; prime candidate to curry favour with the local MicroMob; Accepted by the IMA as a valid mineral in 2006

4: The dangly bits of some adolescent narcissistic males are put at considerable risk ..... pair of jeans; I am the mineral ..... (7 letters)

5: By non-mineralogists, I was once sometimes called ‘isinglass’ (which now adds to the confusion); along with my most common brother, I was mined in the first half of the last century in the Harts Range pegmatites; when I form euhedral or ‘perfect’ crystals, my habit is pseudohexagonal prismatic

6: I am volumetrically the most abundant mineral group in and near the earth’s crust

7: I am named after a famous Australian geologist, who distinguished himself not only as an academic at Sydney University, but as the oldest allied Major in WW1 (at the tender age of 58), in charge of the Australian Tunnelling Corps; I am full of certain rare earth elements, and uranium; type locality for my lanthanum-rich variety is Radium Hill, Olary area, SA

8: I am the mineral used as one of the most common example of physical anisotropy, in that I have quite different hardnesses in different directions

9: I am named after a mountain range in what used to be THE “Workers’ Paradise”, I comprise an oxide of iron and another metal (which is commonly used in space-age alloys, as well as to make a brilliant white pigment)

10: I can constitute monomineralic sedimentary or metamorphic rocks; sometimes I get

ground up to be used as a coating for high class glossy paper, and I comprise the bulk of toothpaste

11: I am a dark violet-red to dark brownish-red nickel and cobalt arsenate mineral, named after a grumpy but lovable Australian professor (still alive, and who always leans one way – as in monoclinic!)

12: I am a dark red to brown to black monoclinic tantalum-rich mineral, with sub-metallic lustre when fresh, mined at, and named after, a locality in WA, in the Pilbara region; I am a mineral and also an exclusive mineral group

13: I am a triclinic calcium-sodium tantalum-niobium silicate solid solution, with essential hydroxyl/fluoride; I am named after a famous Russian geochemist and mineralogist, after whom a mineral museum in Russia is also named

14: I am an isometric or cubic mineral, but may be assigned to the sodalite group, or to the feldspathoids; I am of highly variable colour (blue, white, grey, yellow, green, pink); my type locality is Mt Vesuvius; I am named after a Frenchman, who is sometimes referred to as the ‘Father of Crystallography’

15: I am the mineral comprising much of the mineralogically most boring sedimentary rock (which rock was called ‘freestone’ by some of the early pioneers), but which rock can form spectacular landforms

16: I am a trigonal waxy to greasy purplish carbonate mineral, free-standing crystals probably not known (?), with essential chromium giving me my diagnostic colour, with both type locality and name intimately connected to Tasmania and the Mt Lyell Mine

17: I am an orthorhombic mineral, hardness just below corundum, sometimes a gem in my own right, with colours from yellows through greens to browns; rarely, I can form spectacular cyclic twins; I am .....

18: I am a grayish-green to black monoclinic epidote-like silicate mineral, containing essential scandium, named after a Norwegian engineer, with type localities in Norway; I am rare

19: I am a mineral beloved by poor and rich mineral collectors alike, with rare pseudomorphs of the high temperature polymorph comprised of the low temperature polymorph

20: I am a cubic mineral and a metal, with a high electrical conductivity, famous specimens associated with native Americans from Michigan; I am (.....) .....

21: I am a common mineral that is always chemically quite pure, crystallizing in the trigonal system, with conchoidal fracture

22: I am an orthorhombic carbonate mineral, am fairly common, and sometimes form sixling or cyclic twins, I am colourless to white, but may be of any pastel shade

from impurities; I am an old mineral, with a Spanish type locality

23: Of necessity, I am beloved by MicroMobbers, with a name derived from the Greek words to indicate that I am a mineral that boils (bubbles) when heated; I am the mineral group .....

24: My name is derived, via Latin and French from 'green mallow' (mallow being a large plant group); in massive form I have been and still am used for carvings and jewellery; there is a room or hall named after me in the Hermitage Museum (St Petersburg, then Leningrad, but once more St Petersburg); good free-standing crystals are rare but do occur; I don't like acids!

25: I am genetically related to the green mallow mineral, but I didn't like the colour, and so chose to be chemically a little different; I am the mineral .....

26: Sometimes my crystals have a habit that is quite canine, but really are scalenohedral; I am fairly common and beloved by MicroMobbers

27: My crystals are sometimes said to exhibit 'half-forms', and as a related phenomenon, old-timers used to rub my prismatic crystals with silk to develop a charge; I can occur in virtually all colours, and spectacular enough to be faceted as gems; my structure can accommodate many elements (group)

28: I was a beloved ancient gem mineral, still facted as such, but not much in vogue currently; I am a solid solution, from colourless through various greens to brown and black; I can occur in basalts and ultramafic and ultrabasic rocks, and also in metamorphosed impure marbles; I crystallize in the orthorhombic system, but perfect sharp crystal are rare; I can also occur in volcanic bombs

29: I am the mineral that would have been awarded the Iron Cross by Herr Shickelgruber in WW2 (had he been a mineral collector instead of a painter); I am the 'mother' of 'devils dice'

30: My name is somehow connected to a particular duck, and to an old name for a city in THE "Workers' Paradise", but when thin-skinned, I'm quite flexible about it; I am the mineral .....

31: I can occasionally occur in colourless to pale transparent to translucent small hexagonal prisms with flat terminations (basal pinacoids); in this habit, I am sometimes mistaken for little beryls; MicroMobbers of course will not make this mistake

32: I am a paragon of micaceous virtue; I am always sodic by nature

33: I am a tetragonal mineral, and a phosphate containing copper, as well as one other metal; in small perfect bladed crystals or micro-aggregates, I can be transparent, in shades of green, often emerald green, and can look spectacular under the microscope; larger crystal are generally less spectacular; I radiate menace,

so look upon me sparingly; I do occur in the Radium Hill (Olary) area of SA

34: I am a dimorph of cavansite, in various bluish colours, my crystals can exhibit pseudosymmetric 'fiveling' twinning; small transparent aggregates are beloved by MicroMobbers; I was discovered in 1973

35: I am a mineral group, and all individual species are appreciably more dense than quartz; I crystallize in the cubic system, with habits of rhombdodecahedra and trapezohedra, commonly both developed; I can form in metamorphic and igneous settings, but small rounded grains are common in the heavy fraction of beach sands; I have an abrasive personality

36: I am a blue triclinic mineral, named after my discoverer, type locality Mt Oxide Copper Mine, Qld; I am a hydrated copper aluminium hydroxyphosphate, I tend to occur in equant crystals or spherical aggregates, often with libethenite; I was approved by the IMA (International Mineralogical Association) in 1987

37: I belong to the pyroxene mineral group, and contain essential sodium; isolated well-formed crystals are almost unheard of; I am one of the two minerals that, in aggregates of minute intergrown and interlocking crystals, are used to make carved jewels and ornaments

38: We are three minerals having essentially the same composition; we are largely metamorphic in origin, though we may occur in granitoid rocks as well; we are polymorphs of each other, and are orthorhombic or triclinic (3 minerals!)

39: I am a hydrated ferrous (iron) phosphate, usually colourless when first dug out of the depths, turning various shades of blue to green when exposed to light, then with further exposure, getting darker, to almost black

40: I am named after a German chemist and mineral collector: I am an orthorhombic hydrated calcium zinc phosphate; I am colourless, white, or in pale pastel shades; world class specimens come from Reaphook Hill in SA

41: I am not named after Bazza McKenzie, though there is a vague connection; I am hexagonal, and occur in hexagonal prisms with basal pinacoids, and I must contain appreciable scandium; crystals are typically 1cm or less long; I am also flogged on the internet as a rare mineral, and only those that have access to analytical facilities will ever know if I really am what I'm sold as

42: I am named after a very famous American mineralogist, am a silicate, and must contain beryllium and sulfur; I am not a sulfate; I do occur at several localities in Tasmania

43: I am a monoclinic mineral belonging to the pyroxene group; I differ in that I must contain significant lithium; I am sometimes cut as a gem, being either clear, or in

various pastel hues; I can also be boring white or gray; good specimens are currently coming from Afghanistan and Pakistan

44: We are three polymorphs, (all) oxides of titanium, we are either tetragonal or orthorhombic (3 minerals)

45: I was discovered in 1839, in my type locality in Connecticut (and named thereafter); I am colourless, white, or virtually any pale pastel shade; I am orthorhombic, and tend to form tabular almost spade-like crystals; currently, good specimens from San Luis Potosi are going cheap, I'm a silicate, boron essential

46: Discovered in the 1970s, I am not blessed with formal recognition by the IMA (so I'm a heathen); my exact type locality is undisclosed, but is somewhere in the Peoples' Republic of China; my name is almost unbelievable, but alludes to my crystal morphology, being in the HEXAgonal system, and also alludes to my chemical composition, containing TELLurium, antimony (Latin = STIBIum), and NICKEL

47: I am not barite, but have some chemical affinity with enemas; I am monoclinic, and belong to the feldspar group

48: I am a common sulfate mineral, and form naturally as the first solid (mineral) to crystallize in the evaporation of seawater; I also form after sporadic inundations of Lake Eyre

49: I am a real mineral, alluded to by a night-owl, oily, anatomically chrome-pated, singing federal politician, in *Blue Sky Mine*

50: I am a member of a mineral group, and am named after an Island off the coast of Tuscany; when colourless, I can sometimes be referred to as *achroite*

51: I am a trigonal beryllium nesosilicate, and named after the Greek for *deceiver*, as I used to be mistaken for quartz, though I am somewhat harder; I am relatively rare, usually colourless, white or pale pastel shades, and tend to occur in prismatic habits; I can be faceted, and good specimens come from Russia, Brazil, and Myanmar (Burma)

52: I am a carbonate mineral, named after a mountain range in northeast Italy

53: I am a common carbonate mineral with perfect rhombohedral cleavage; I comprise the bulk of QuickEze tablets

54: I am also a carbonate mineral, but have a specific gravity of 6.5, and when in perfect colourless or pale crystals, I possess a near adamantine lustre

54: I too am a carbonate, containing one of the less common elements, but second in abundance only to my sulfate cousin; I have an SG of 4.3, and tend to be white or in pale pastel colours; I am orthorhombic, and can form cyclic twins

55: I am a sulfosalt, containing silver and a range of base metals, reflected in my name; I am monoclinic, with prismatic crystals, which are black, but with deep red internal reflections (so, I am one of the 4 'ruby silvers'); I have a hardness of 2.5 to 3, and an SG of around 6.1

56: So what are the other 3 so-called 'ruby silver' minerals?

57: While stuck on red and ruby colours, what mineral is sometimes dark red, and can then be called ruby tin?

58: Last ruby question – what mineral comprises rubies?

59: I am *the* zinc-bearing spinel

60: I am also a spinel, the most common of them all, but people tend to forget me when thinking of spinel

61: I am an orthorhombic dark green hydrated copper sulfate,.... oh dear, a spelling mistake

62: I am a sulfide mineral, with the highest percentage copper content of them all; excellent crystal have come from both WA and Qld mines (Telfer, and Mt Gordon)

63: I am an otherwise unprepossessing zeolite mineral, but I sometimes form tiny, but geometrically spectacular, 6 armed twins

64: I am photochromic or tenebrescent (I become coloured when exposed to light; in the darkness, the colour fades; this reaction is repeatedly reversible, but is destroyed by heating); I am a beryllium sodium aluminosilicate, with chlorine, a member of the feldspathoid family; my type locality is in Greenland; on exposure I blush, and usually turn various shades of pink or red

65: I am a relatively soft and common mica-like phyllosilicate mineral group, usually green or greenish in colour; my name derives from the Greek word for green, and a similar name is also given to a corrosive gas; I am not much sought after by collectors

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Answers will be published in the next newsletter; if you cannot wait, send an obscene amount of money to the editor, who will spilt it with MinsocQ. After the answers are published, the editor *will* enter into correspondence by email, for those of you from the pedantocracy. If you really, really, **really** want the answers, write the editor a *nice* email!

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For those of you interested in the history and mining history of Torrington, Eric Stevens has written an extended article in *Matrix* (sadly now defunct). A copy of the particular volume will be placed in the MinsocQ library, once the editor has finished scanning it.