



## THE MINERALOGICAL SOCIETY OF NEW SOUTH WALES INC

Website: [www.minsocnsw.org.au](http://www.minsocnsw.org.au)

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The Secretary, 58 Amazon Road, Seven Hills, NSW 2147

### NEWSLETTER      MAY 2022

**The May Meeting will be held in the clubrooms of the Parramatta and Holroyd Lapidary Club at 73 Fullagar Road, Wentworthville, on Friday the 6<sup>th</sup> of May at 7.30 pm.**

All members attending the meeting should be double vaccinated, masks can be worn but are optional and social distancing should be maintained. Everyone should sign the Attendance Register although registering by QR code is not required. Anyone who feels unwell or has had recent contact with an infected person should not attend the Meeting.

The program at the May Meeting will comprise the **Annual Member's Mineral Auction.**

There will be a period at the commencement of the Meeting for a few announcements but otherwise the entire evening will be devoted to the Auction. The Meeting will start at the normal time of 7.30pm but members bringing in specimens for sale are recommended to arrive by 7.00pm to set out their sales. After any announcements the Auction will commence immediately and may last to between 9.00 and 9.30pm. Whilst it is intended that virtual coverage will be provided for Society meetings in the future it was decided that this would be impractical for the Auction.

There will probably be a fifteen-minute break about half-way through the evening.

A list of fifty specimens to be auctioned has been compiled and is provided at the end of this Newsletter. The list may not be complete since any members with material to auction who have not yet sent in details may still do so. Information on more specimens to include in the auction could be communicated to Haley Bambridge on [haleybau81@tpg.com.au](mailto:haleybau81@tpg.com.au) before Friday and the final list will be available at the Meeting. It is hoped that by the commencement of the Auction there should be between 70 to 80 specimens being offered for sale. Members wishing to bid for any items should acquire a bidding number label at the reception table and write their names with their bidding number on a record sheet.

In addition a number of trays of minerals may be sold by silent auction. Members can bring in a tray to leave for display on a table accompanied by a bid form which will be provided. Specimens, trays or boxes should be labelled clearly and the vendor should write his or her name on the bid form. The bid forms would be checked at the end of the evening with the highest bidders purchasing the tray or specimen/s. There will be no need to notify the Society in advance about trays being brought in for sale as they will not be listed.

Transactions must be conducted entirely between the vendor and purchaser. The Society does not take any commission on the sales and would not enter into any transaction arrangements. Payments would need to be made by cash or cheque since it is unlikely that any vendors will have credit card facilities available. During the Auction if any vendor feels that bidding on any of their specimens is not proceeding high enough they can bid for the specimen themselves to take it back.

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## FORTHCOMING MEETINGS AND PROGRAMS

It is hoped to hold a ‘**Kids with Cancer Sale**’ of donated specimens later in the year.

June 3<sup>rd</sup>: There will be a lecture to be given by Kevin Capnerhurst on : - **The State of the State’s Economic Rock and Mineral Collection’.**

July 1<sup>st</sup>: Program not yet confirmed.

August 5<sup>th</sup>: The Society **Annual General Meeting** and the **Mayne-Walker Memorial Lecture**.

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### The SOCIETY COMMITTEE

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	Mark Walters	Mobile: 0421 012 647

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### The APRIL MEETING

At the commencement of the Meeting the Society President, Dieter Mylius, welcomed the members who were attending the first ‘in person’ meeting of the year after a long period of lockdown. Hopefully the ‘live’ meetings would continue permanently from now on. The meeting was also intended to provide a virtual connection for members outside Sydney so there was some extra equipment including three computers set up for that purpose and ‘experts’ who were hoping to manage the connection satisfactorily.

Thanks to the removal of most of the pandemic restrictions the Society had been able to organise the first field trip to be held for some time and a party would be travelling to Manuka in central NSW over the 23<sup>rd</sup> and 24<sup>th</sup> of April. The list of attendees was fairly full already but if there were to be any more applicants the President reminded members that to attend the trip they should be currently financial, double vaccinated and have completed the Safe Work Methods Statement.

Graham Ogle addressed the meeting to remind members about the ‘Freebie Day’ at his house on the following Saturday after the meeting. He was down-sizing an amount of specimen material subsequent to moving house and there would be many hundreds of ‘freebies’, mostly Australian specimens and some from overseas, to give away and a few specimens to sell for a small price. Visitors were welcome from 9.30 am.

Dieter Mylius reminded members about the forthcoming AGAMEXpo being held in the Hawkesbury Indoor Stadium in South Windsor over the 9th & 10th of April. The Society would be provided with an information table and members had been invited by the organiser, Peter Beckwith, to set up displays of specimens from their collections and a number of cases had been set aside for the Society. The Expo last year had been very well attended by the general public and was obviously quite popular.

With there being no more announcements the President handed the meeting over to the first speaker for the evening, long-time Society and Committee member David Colchester to deliver a lecture and report on the occurrence of the mineral datolite in the Albion Park quarry outside Shell Harbour on the South Coast. The following notes on his lecture have been provided by the speaker.

## **Datolite Crystals from Albion Park**

**David Colchester**

### Introduction

'About 10 years ago, Dioni, our main speaker tonight, attended the Illawarra Gem and Mineral open day in Wollongong. On sale were some nice crystals labelled calcite. Dioni recognised them not as calcite but as datolite a much less common mineral. He lent them to Ian Graham to examine and in turn Ian in passed them on to me to make crystallographic drawings of them.

Datolite is a calcium borosilicate having a formula  $\text{CaBSiO}_4(\text{OH})$ . The crystals from Albion Park were glassy with a faint green tinge and having complex, almost equidimensional habit. Datolite usually occurs as a secondary mineral in cavities in basalt associated with prehnite, calcite and zeolites.

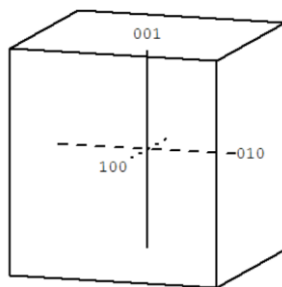
Albion Park is about 3 km south of Lake Illawarra. The datolite occurs in a secondary mineralized zone exposed in a quarry operated by Cleary Bros. extracting latite. This is a rock similar to basalt but has a high potash content present in sanidine and the non-crystalline matrix.

### Basic Crystallographic data used for drawing the crystals

Datolite is monoclinic with unit cell dimensions of:

$$a = 4.832, \quad b = 7.608 \quad c = 9.636 \quad \text{having the ratio of } 0.635: 1: 1.267 \text{ and a } \beta = 90.40^\circ.$$

It is interesting to note that the reported values of these dimensions vary in different publications. My values were taken from *The Handbook Of Mineralogy* which can be readily accessed on the internet. The unit cell is the starting point for drawing the crystals.



### Datolite crystals their habit and morphology

The several datolite crystals I was asked to describe were up to 4 cm with easily visible well-formed faces. Because the crystals had a semi equidimensional habit and a beta angle close to  $90^\circ$  keeping track of a particular crystal face and form was difficult and confusing. I solved this problem by placing stickers on some

of the faces with the same forms having the same colours. The stickers you will see on the crystals in some of the photos are 6mm in diameter.

I used the crystal drawing program called SHAPE because I have been using it for a long time and am familiar with it. It was the first computer crystal drawing program. There are now several other crystal drawing programs available on the internet for free which are just as good.

### A note on crystal morphology

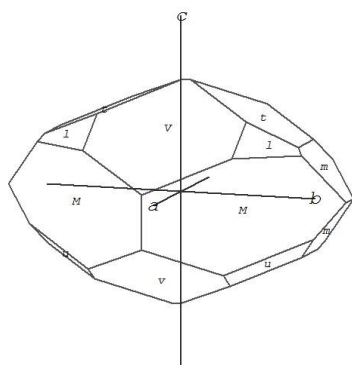
Up to about 60 years ago the quantitative analysis of crystal morphology using a goniometer to measure the angles between adjacent faces was an important component of mineral identification and characterisation. Nowadays the routine use of powder XRD to identify a mineral has made this technique in mineral identification redundant. However, in a less rigorous fashion, when the characteristic geometric shapes of crystals, are visually recognised it still remains an important tool in mineral identification. Also, minerals having well-formed crystal faces become treasured items in a mineral collection.

### Albion Park Datolite crystals – their habit and morphology

Two crystal habits could be distinguished and crystals and crystallographic drawings were made. The Miller indices of main crystallographic forms are given here:

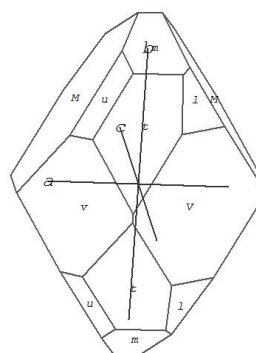
#### Habit 1

110 M  
011 m  
111  
112



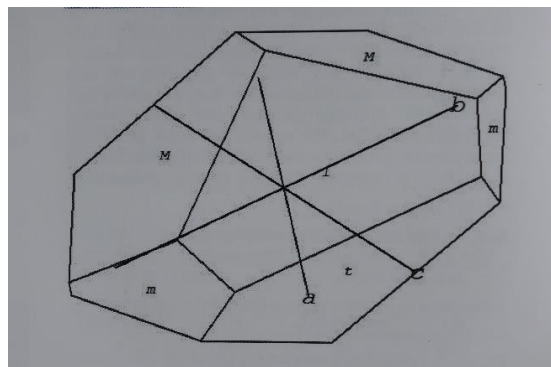
#### Habit 2

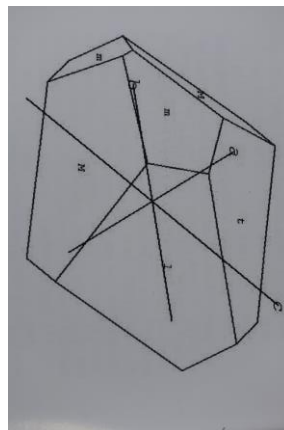
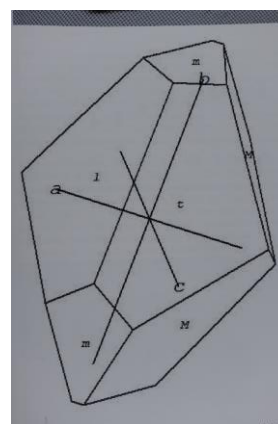
110 M 013  
011 m 113  
103 123  
10-3  
114  
012



### Crystal habit 1

Has fewer faces than habit 2



Crystal habit 2Crystal habit 2 – another view

The crystal drawings are based on the unit cell lengths and the  $\beta$  angle determined by X-ray crystallography. The close match between the shape of the crystal drawing and the crystal it represents clearly demonstrate how the shape of the crystal reflects the arrangement of the atoms within the crystal. I.e. crystal morphology is controlled by the internal arrangement of the atoms within the crystal.

Postscript

Two years ago, Dieter and I went to the Illawarra Gem and Mineral Show. I made some enquiries and tracked down the seller of the datolite crystals. He worked for Cleary Bros. at the quarry for many years but is now retired. He told me the vein containing the datolite has now been quarried out.'

In conclusion David Colchester referred to a Spanish mineral magazine which the next speaker had brought in and which had an article with a few photographs and drawings of datolite crystals. He was interested to note that some European mineral publications still made use of crystal drawings.

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Dieter Mylius introduced the next speaker for the evening. Dioni Cendon is an environmental research scientist with a special interest in the hydrogeochemistry of surface, groundwaters and evaporitic deposits. He is originally from Spain where he obtained a BSc in Geology (Crystallography and Mineralogy) and then a PhD from the UAB (*Universitat Autònoma de Barcelona*). He immigrated to Australia in the 1990s first to continue research at the University of Wollongong and since 2006 has been with ANSTO. He has been a member of the Society since 1999 and has given lectures to the Society before, on 'Mineral Collecting in Spain' and 'Evaporite Deposits in Europe'.

## ‘A Mineralogical Trip Around Spain’

**Dioni Cendon**

Dioni Cendon described himself as a second-generation mineral collector, his father having been a keen collector who had impressed his son with the interest. The lecture was substantially illustrated with a series of images including a view of part of his father’s collection : -



Initially the speaker introduced his lecture by displaying an image listing the subjects he would cover and then proceeded to describe each subject in detail :- ‘Me and minerals • Collecting in Spain, a personal overview • Main mineralogical clubs • Exhibitions and amateur journals • Geological diversity of the Iberian peninsula • A Little mineralogical tour: Aerinite, Andalusite, Aragonite, Cordierite and Linarite • Final remarks with other key Spanish minerals.’

### Field Collecting and collectors in Spain



## The Expominer Exhibition



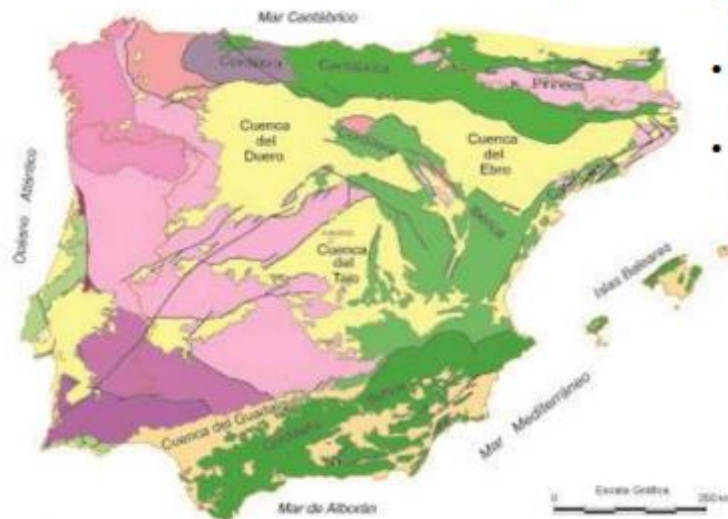
Expominer (Barcelona)  
November generally

Expominer is a mineral, fossil and jewelry exhibition, that is held every year generally in November in the pavilions of the Fira de Barcelona (Barcelona Fairs and Congresses).

### Minerals described from Spain

[Aerinite](#)  
[Andalucite](#)  
[Aragonite](#)  
[Bolivarite](#)  
[Cervantite](#)  
[Cobaltarthurite \(2002\)](#)  
[Conicalcite](#)  
[Cordierite](#)  
[Ferberite](#)  
[Fluorapatite](#)  
[Glauberite](#)  
[Jarosite](#)  
[Linarite](#)  
[Moganite](#)  
[Morenosite](#)  
[Rodalquilarite](#)  
[Thenardite](#)  
[Villamaninite](#)  
[Westerveldita](#)  
[Zaratite](#)

### Major geological units of the Iberian peninsula



- Pinks-purple colours: Iberian Massif terrains
- Greens: Alpine cordilleras
- Yellows: Terrestrial and/or marine Cenozoic basins

A number of particular minerals originally discovered in Spain were described in detail with illustrations of the minerals, their typical locations, their history of discovery and naming, their formulae and their crystal systems. These were aerinite originally found in Aragon and the Spanish Pyrenees and with the very impressive formula:-  $(\text{Ca}_{5.1}\text{Na}_{0.5})(\text{Fe}^{3+}, \text{Al}, \text{Fe}^{2+}, \text{Mg})_4(\text{Al}, \text{Mg})_6[\text{HSi}_{12}\text{O}_{36}(\text{OH})_{12}][(\text{CO}_3)_{1.2}(\text{H}_2\text{O})_{12}]$ ; the name was derived from a Greek word 'aerinos' meaning sky blue for the colour of the mineral.

Andalusite, (also named chiastolite), is named after Andalusia where it was first found; aragonite was also found in Aragon, cordierite in Almeria and named after the French geologist, Louis Cordier; linarite was named after the Linares Plateau in Spain where it was first found and jarosite which was first described in 1852 by the German mineralogist August Breithaupt. Samples were from Barranco del Jaroso in the Sierra Almagrera, Cuevas del Almanzora, Almería, Spain.

Jarosite was named for its yellow colour after a local flower. Interestingly and definitely noted from outside Spain, jarosite which is an iron sulphate,  $\text{KFe}_3(\text{SO}_4)_2(\text{OH})_6$ , has been identified on Mars by one of the NASA rovers. The speaker with a special interest in hydrochemical processes made it clear that he would like to obtain a sample of Martian jarosite since, as he advised, it would allow researchers to reconstruct the hydrological history of Mars, when were rivers flowing, for how long and what happened to the water.

### The Final images



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## FORTHCOMING EVENTS

The Lismore Gem & Lapidary Club has had to cancel this year's **Lismore Gemfest** due to the impact of the flooding disaster over the previous two months.

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### Blaxland Gem and Mineral Club Open Day

Saturday 7 May 2022 8:30am to 3:30pm at 15 The Valley Rd, Valley Heights

Free Admission: Displays and Sales of lapidary work, rocks, minerals.  
Demonstrations on cutting, grinding and polishing gemstones.

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### Campbelltown & Districts Lapidary Club Open Day

Saturday 7th May, 9.00am – 2.00pm weather permitting  
Free Entry/Kid friendly. Lot 1 Bensley Rd, Macquarie Fields, (Next to Hazlett oval)  
We will be having market stalls showing club member's handcrafted jewellery and polished crystals and stones  
There will be minerals, fossils, opals, cakes and slices and a sausage sizzle.



## MEMBER'S MINERAL AUCTION

Name of Vendor	Item Number	Sample Description	Bid	No
Paul Melville	1	<b>Anglesite on Cerussite.</b> 5 x 3 x 3.5 cm - Proprietary Mine Broken Hill, Australian Museum, Sydney D25514. Ex Sweetapple Collection		
	2	<b>Brochantite with malachite on matrix.</b> 5 x 3 x 2 cm - Mount Oxide Mine NW Queensland		
	3	<b>Carrollite with Dolomite.</b> Xls to 2 x 2cm. 3 x 2 x 1.5 cm - Kamoya West Mine Katanga DRC		
	4	<b>Cassiterite.</b> Single xl 2.5 x 2 x 1.5 cm - Elsmore NSW, Ex Jim Johnston collection		
	5	<b>Cerussite.</b> Compound cyclic twins / arrowheads. White. 5 x 3.5 x 3.5 cm - Proprietary Mine Broken Hill, Ex South Australian Museum.		
	6	<b>Chrysocolla.</b> Turquoise-blue-botryoidal. Ironstone matrix. 5.5 x 4 x 4 cm - Great Australia Mine Cloncurry western Queensland, Ex Prof. Peter Williams 1998		
	7	<b>Smithsonite.</b> white frosty dog-tooth xls on matrix of Psilomelane / Coronadite. 6 x 3 x 1.5 cm - Proprietary Mine Broken Hill		
	8	<b>Tetrahedrite.</b> Lead grey metallic xls forming clusters associated with 'needle' quartz. On quartz vein / granitic rock matrix. 8 x 5.5 x 3 cm - Sweet Home Mine Alma Colorado USA, Purchased from Collectors Edge of Golden Colorado Tucson Show 1998. Dealer label supplied.		
	9	<b>Pyromorphite on Malachite.</b> 6 x 4 x 2.5 cm - Browns Open Pit Rum Jungle NT, Collected Nov 2010		
	10	<b>Malachite - botryoidal on matrix.</b> 7 x 5 x 3 cm - Browns Open Pit Rum Jungle NT, Collected Nov 2010		
George Laking  Specimen Sizes range from 5 cm to 7 cm across.	11	<b>APOPHYLLITE and STILBITE</b> - Nasik, Maharashtra, INDIA		
	12	<b>CALCITE</b> - Zinc Corporation Mine, Broken Hill, NSW, AUSTRALIA		
	13	<b>CALCITE on Matrix</b> - Bundoora, Victoria, AUSTRALIA		
	14	<b>DOLOMITE with Pyrite</b> - Black Rock District, Arkansas, U.S.A.		
	15	<b>DRAVITE</b> - Mt Isa, Queensland, AUSTRALIA		
	16	<b>GYPSUM Roseballs</b> - Victoria, AUSTRALIA		
	17	<b>MALACHITE and CERRUSITE</b> - Rum Jungle, N.T., AUSTRALIA		
	18	<b>MOLYBDENITE</b> - Kingsgate, New England, NSW, AUSTRALIA		
	19	<b>PREHNITE</b> - Tarthra Farm, Basin Plains Road, Mullaley, NSW, AUSTRALIA		
	20	<b>STIBNITE</b> - Hillgrove, New England, NSW, AUSTRALIA		
	21	<b>STILBITE and Drusy QUARTZ</b> - Tambar Springs area, NSW, AUSTRALIA		

	<b>22</b>	<b>STILBITE on Matrix</b> - Black Rock District, Arkansas, U.S.A.		
<b>John Chapman</b>	<b>23</b>	<b>Azurite</b> - Girilambone Copper Mine, NSW		
	<b>24</b>	<b>Azurite</b> - Girilambone Copper Mine, NSW		
	<b>25</b>	<b>Galena, quartz</b> - Pachapaqua, Peru		
	<b>26</b>	<b>Cavansite, stilbite</b> - Waghopi, Pune, India		
	<b>27</b>	<b>Wulfenite, mimetite</b> - Mina Ojuela, Mapimi Durango, Mexico		
	<b>28</b>	<b>Malachite, pyromorphite</b> - Browns Prospect, Rum Jungle, NT		
	<b>29</b>	<b>Prehnite</b> - Mullaly, NSW		
	<b>30</b>	<b>Scholzite</b> - Reaphook Hill, SA		
	<b>31</b>	<b>Stibinite</b> - Baiut, Romania		
	<b>32</b>	<b>Prehnite</b> - Prospect Quarry, Prospect, NSW		
<b>Jim Sharpe</b>	<b>33</b>	<b>Atacamite</b> - E26 Pit , North Parkes Mine		
	<b>34</b>	<b>Wire Silver with pyrite</b> - Browns Shaft, 12 Level, Broken Hill.		
	<b>35</b>	<b>Paratacamite with Cuprite</b> - Peko Mines, Tennant Creek.		
	<b>36</b>	<b>Mimetite, Hidalgoite, Beudantite</b> - Kintore Open Cut, Broken Hill.		
<b>Asahel Bush</b>	<b>37</b>	<b>Andradite</b> - Kembeie, MALI		
	<b>38</b>	<b>Boloangerite and Biotite?</b> - Yindu Mine, INNER MONGOLIA		
	<b>39</b>	<b>Magnetite</b> - Potosi, BOLIVIA		
	<b>40</b>	<b>Okenite</b> - Poona, INDIA		
	<b>41</b>	<b>Chalcedony</b> - Salawesi, INDONESIA		
	<b>42</b>	<b>Kutnohorite</b> - N'Chwaning Mines, SOUTH AFRICA		
<b>Paul Melville</b>	<b>43</b>	<b>Malachite with Pseudomalachite on Quartz</b> - Nchanga, Zambia		
	<b>44</b>	<b>Molybdenite</b> - Wolfram Camp Dimbulah North Queensland		
	<b>45</b>	<b>Quartz Faden</b> - Waziristan Pakistan		
	<b>46</b>	<b>Sphalerite with Siderite</b> - Panasqueira Portugal		
<b>Jim Sharpe</b>	<b>47</b>	<b>Chalcotrichite on cuprite with brochantite</b> - Great Australia Mine, Cloncurry		
	<b>48</b>	<b>Azurite nodules</b> - Burra, South Australia		
	<b>49</b>	<b>Jamesonite with Boulangerite</b> - Godkin Range, Zeehan, TAS, XRD confirmed		
	<b>50</b>	<b>Cosalite</b> - Wolfram Pipe, Kingsgate, NSW, XRD confirmed		