



THE MINERALOGICAL SOCIETY OF NEW SOUTH WALES INC

Website: www.minsocnsw.org.au

Please address all correspondence to :-
The Secretary, 58 Amazon Road, Seven Hills, NSW 2147

NEWSLETTER SEPTEMBER 2021

The September Meeting will be held by virtual mode on Friday the 3rd of September at 7.30 pm

The program will comprise a lecture to be given by Paul Melville on :-

‘Top End Specimen –Producing Localities’

FORTHCOMING MEETINGS AND PROGRAMS

October 2nd to 4th: The **43rd Annual Combined Mineralogical Societies of Australasia Seminar** will be held by Zoom on the theme of ‘43 Shades of Silver’ over the October long weekend.

November 5th : The program is not yet finalised but may include a talk to be given by Dieter Mylius on :- **‘The Prettiest Mine in the World’**

December 3rd or 4th: **Christmas Swap and Sell.** At the present time it is not certain what degree of pandemic restrictions may still be in place by December but these may have been reduced sufficiently to allow an outdoor Social to be held during daytime hours on Saturday in the grounds of the Parramatta and Holroyd Lapidary Club, as was held last year.

2022: February 4th: Society Meetings will resume on February and will be held on every first Friday throughout the year except in October after the long weekend.

Minutes of the ANNUAL GENERAL MEETING Friday 6th of August 2021

The 2021 Mineralogical Society Annual General Meeting was conducted by virtual mode commencing at 7.30 pm on Friday the 6th of August and was opened by the Society President, Dieter Mylius. The President noted that the A.G.M. required a quorum of at least fifteen members and that there were about thirty attending by virtual mode. He also noted that information from the Department of Fair Trading had been referred to for the 2020 A.G.M. which indicated that if necessary and in view of the pandemic limitations, any association’s meetings could be conducted ‘*with appropriate technology*’,

The President outlined the procedure for the A.G.M. He would first deliver a President’s Report for the past year, the Treasurer would present the Annual Financial Report and then it was necessary to hold an election to appoint the Committee for the commencing 2021/2022 year.

President's Report 2021

“And then nothing happened.

Last year I commented on how extraordinary the year had been. Little has changed.

Last year I reported that we don't know how things will pan out. Nothing has changed.

In many ways the year has been frustrating but we are settling relatively comfortably into a routine of staying home on Friday nights, listening to an interesting presentation from a variety of speakers, while putting our feet up, having a drink and not having to drive home. Thank goodness for Zoom that at least we can do something. Imagine if this had happened 20 years ago - there would have been no way of meeting in any form.

The Committee also meets on zoom and for us the format works very well. The Committee is a fairly cohesive bunch of like-minded people with few disagreements, largely held together by our Secretary, George Laking. Thank you to all of you.

However, it is with sadness, that I must announce that one of our Committee members, Ed Zbik, has decided for personal reasons, not to stand for re-election and take a break from serving on the Committee. Ed took on a huge load with organising field trips, accessing a large number of properties for us to collect on, getting underway and running the Safe Work Methods Certificates and reorganising the library. He has done nothing short of a remarkable job that is both complex and often frustrating. But we have all benefited, and will benefit in the future from the legacy he leaves and what he has left in place. Ed, you will be greatly missed, but he has assured us that he will remain part of the Society.

Over the year, our income has shrunk a little, and financial memberships are down to a little under 100, but what can you expect in the current situation. Luckily our expenses were low, so we remain a very healthy Society. I would encourage everyone to remain engaged with the Society so we can all keep in touch and meet when we can.

As you all know, the proposed seminar in October 2020 had to be changed to a virtual seminar on Zoom. It was well supported with participants from around Australia and New Zealand, and even a couple from the US. All very encouraging. The "43 Shades of Silver" program was to be moved to 2021, but unfortunately with the current uncertainties, this seminar will now also be online, with the 2022 seminar moving on to New Zealand. It's sad we could not host people in our city this time around, but a pesky virus that we can't even see, has other ideas.

The two meetings we were able to hold were the December sale which we held outside, and a May auction. When "normal" live meetings will recommence is at this stage unknown.

One of the few things that we could continue with, as restrictions permitted, was the Micro Mineral meetings, suitable for a small number of people in houses. Once restrictions are lifted, these are likely to be open before the main meetings, and are open to anyone.

Field trips suffered under Covid, and they are getting increasingly difficult to run as sites close, mine managers are wary of outsiders, deposits deteriorate, Sydney people are persona non grata and now we have bio-security controls on many properties. It's getting very complex, and it will take some effort to get to interesting collecting areas. Ed and his unofficial team of volunteer scouts have done remarkably well, and we hope this work will go on, as places to visit in the future.

We now have a new website that you will no doubt have seen. Some work still needs to be done, but this will happen in the next few months.

So to finish, thank you all for still being with us and a plug. If you have not done so, get yourself vaccinated, so we can reach the magic number that will allow restrictions to be lifted sooner.

I wish the incoming committee a successful year, as they settle in to the new 'normal' limitations and restrictions that are so hard to predict.

Thank you

Dieter Mylius, President, Mineralogical Society of NSW. August 2021"

The President called on the Treasurer, Graham Ogle, to deliver the **Annual Financial Report**. A spreadsheet of the Society finances for the year was projected on to the virtual screen for all attending members to view. The Report was presented as in previous years showing the records for the financial year ended on 30th June last and the record for the immediately preceding year for comparison.

The Treasurer reported that the Society was in a strong financial position. There were the two term deposits totaling just over a hundred thousand dollars. Currently the interest from the Betty Mayne deposit when paid was transferred to the operating account whilst the interest from the Walker deposit was re-invested, added to the capital which was allowed to accumulate. He noted that there was the one liability item shown on the Report, the Society's collection of funds from the sale of donated specimens for the Kids with Cancer charity which was still to be paid.

The Society financial situation was similar to the previous year given that there had been no exceptional income or expenditure and the membership had remained fairly constant. Due to the decision to hold the October Seminar in virtual mode there were some deposits already paid by delegates which would be reimbursed and a deposit the Society had paid to the intended Seminar venue, the Ryde-Eastwood Leagues Club, would be recovered.

MINERALOGICAL SOCIETY OF NEW SOUTH WALES INC

FINANCIAL STATEMENT 2020 – 2021

		2020-2021	2019-2020
Funds in hand:	Balance in Operating Account CBA # 06 2016 28023647 @ 30th June 2021	\$ 8,468.05	\$ 7,487.40
	Funds in CBA Term Deposit 1 - Betty Mayne Bequest	\$ 31,966.32	\$ 31,966.32
	Funds in CBA Term Deposit 2 - Walker Bequest	\$ 69,055.69	\$ 68,346.04
	Cash in Hand	\$ 46.00	\$ 46.00
Liabilities:	Kids with Cancer Foundation	\$ 1,120.00	\$ -

Total Funds at 30th June	\$108,416.06	\$107,845.76
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Increase in funds	\$570.30	\$1,356.02
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Income:	Membership subscriptions	\$2,155.00	\$2,250.00
	Supper donations and mineral sales	\$ -	\$1,170.40
	Sale for Kids with Cancer	\$1,120.00	\$1,380.00
	George Smith /Gemstones of NE book sales	\$ 398.30	\$ 322.44
	Donation	\$ 200.00	\$ -
	Interest on operating account	\$ 31.23	\$ 30.61
	Seminar	\$ 196.00	\$ -
	Interest on term deposit (into operating account)	\$ 737.24	\$ 735.23
	Interest on term deposit. (reinvested into term deposit)	\$ 709.65	\$ 1,089.36
	Total	\$ 5,547.42	\$ 6,978.04

Expenditure:	Supper items	\$ 197.96	\$ 1,020.49
	Rent - hall hire	\$ -	\$ 680.00
	Transfer of money raised for Kids for Cancer	\$ -	\$ 1,380.00
	Printing, postage, stationery, Subs, PL ins., Dept of Fair Trading, PAI, Speaker, Website, Library, Equipment etc.	\$ 3,659.16	\$2,541.53
	Total	\$ 3,857.12	\$ 5,622.02

Income - Expenditure:		\$ 1,690.30	\$ 1,356.02
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Other assets: Display cabinets, Geiger counter , George Smith books,
Library and shelving, Microscopes – 2, Mineral trimmer,
Projector, PA system, UHF radios (2), Urn, UV Lamp.

The above statement indicates that the Society is in a sound financial position.

Graham Ogle

Treasurer

3rd August, 2021

The Treasurer asked if there were any queries about the Financial Report and then advised that it would need to be proposed and accepted by the Meeting since a report had to be sent to the Department of Fair Trading within a month of the A.G.M. Haley Bambridge proposed that the Report be accepted, the proposal was seconded by Peter Beddow and carried.

The President then asked Gary Sutherland to assume the task of Returning Officer for the election of the 2021/2022 Society Committee. A list of the nominees for election to the Committee was projected on the virtual screen for all members to view.

ELECTION OF THE SOCIETY COMMITTEE FOR 2021/2022

Gary Sutherland advised that according to the Society Constitution if there was only one candidate being nominated for any position they could be declared elected unopposed. Since there were only single nominees for all the Committee positions he would be able to declare them all elected. Most of the previous year's Committee members had been re-nominated but with one change. Ed Zbik had stepped down from the Committee and Mark Walters had been nominated in his place.

The Returning Officer then read out the list of positions and was able to declare the nominees duly elected. The nominees and positions were : -

PRESIDENT:	Dieter Mylius
VICE-PRESIDENT:	John Chapman
SECRETARY:	George Laking
TREASURER:	Graham Ogle
COMMITTEE MEMBERS:	Haley Bambridge
	Peter Beddow
	David Colchester
	Geoff Parsons
	Mark Walters

Gary Sutherland thanked the Committee for their work over the previous year noting that the virtual meetings had kept the members in touch during difficult times. He particularly noted that the virtual Seminar held last year had been very interesting and expected that everyone who attended it had found it very enjoyable.

The President thanked Gary Sutherland for his help with the election and agreed that everyone hoped that the difficulties over the previous year would soon be behind us. He then declared the 2021 Annual General Meeting closed.

In introducing the guest speaker for the evening the President first described the reasons for holding a keynote presentation for the year entitled the **Mayne-Walker Memorial Lecture**. The Memorial lecture is given each year after the A.G.M. in acknowledgment of three Society members and major benefactors to the Society, Betty Mayne and brother and sister Harold and Edna Walker.

Betty Mayne was a Society member in the 1980s becoming Secretary and then President. She competently organised and presided over the 1991 Mineralogical Seminar held that year in Sydney but sadly passed away only a short time afterwards. She had put together a fine mineral collection and in her will had stipulated that half the proceeds should be bequeathed to the Society. A term deposit was set up with the bequest in 1992 and the interest allowed to accumulate but with sums being occasionally used for commendable projects such as re-printing the George Smith books. The Memorial Lectures were established after a recommendation by the late Professor Laurie Lawrence to commemorate the Betty Mayne bequest and have been held every year since.

Some ten years ago the Society lost two other members who also provided a bequest to the Society and the title of the Memorial Lectures was extended to include their names. Siblings Harold and Edna Walker were very loyal members of the Society and in spite of being in poor health managed to attend

most meetings and other events including field trips. They absolutely turned up everywhere. In Edna's will she bequeathed a substantial portion of her estate to the Society and accordingly the title of the Memorial Lecture was adjusted to include their name.

This year the **Memorial Lecture** was to be given by a guest speaker, Professor Martin van Kranendonk who is a geologist and exobiologist. He hailed originally from Ontario in Canada where he obtained a PhD from the Queen's University. In 2012 he joined UNSW after two decades working in the Geological Survey of Western Australia. In 2018 he became the head of the School of Biological, Earth and Environmental Sciences at UNSW and latterly relinquished that role to devote time to a newly awarded Australian Research Council Discovery Project.

He is a professor at UNSW and a director of the Australian Centre for Astrobiology, a regular keynote speaker at conferences, has presented in many TV documentaries, appeared on Q and A and was one of the featured scientists in the 3D IMAX movie 'Earth Story. His list of publications is extensive.

This evening the Society was privileged to welcome the accomplished speaker.

'The Role of Minerals in the Emergence of Life: Lessons from Deep Time Earth and the Test Tube'

Professor Martin van Kranendonk

Professor van Kranendonk commenced his lecture by describing how he had originally come to move to Australia from Canada in 1994. This was the result of his conducting a research project about the Pilbara when still a student and being fascinated by the names of some of the places in that area. A feature of the Pilbara was that the researcher could be a time traveler and re-imagine the Earth three and a half billion years ago by walking on rocks which were part of an ancient sea-floor and observing the earliest traces of life. The professor later moved to Australia and has been working initially in Western Australia and then in Sydney for almost thirty years.

He then moved on to describe the nature of the Earth's surface three and a half billion years ago. At that time the oceans would have looked green due to the presence of iron compounds and the atmosphere would have appeared orange with much carbon dioxide, probably like the atmosphere of Venus today. There would have been no continents but only volcanic islands like the Galapagos and Hawaii. In considering how early life may have developed the speaker has postulated about the types of environments which may have supported the development process and the requirement of various minerals which have acted as catalysts to cause the formation of complex organic molecules.

Even if one envisages the most primitive organisms they are in fact incredibly complex structures and probably represent many millions of steps to have formed from simple molecules and the researchers have considered what environments could have provided the conditions necessary to accomplish this. Environments would have had to provide the basic materials for life forms, hydrogen, oxygen, carbon and nitrogen and phosphorus but there were very important trace elements which were vital for catalyzing the complexity of organic molecules and minerals had a vital role to play in that process.

Early experiments involving directing electrical charges into vessels containing a mixture of very simple chemicals with water had shown that more complex organic molecules such as amino acids could be created. Further early experiments showed that the presence of borate would help stabilise organic molecules which had been formed. Other trace elements found to be significant were high concentrations of sodium and potassium and also of zinc and molybdenum. The speaker had established in 2005 that the clay mineral montmorillonite was found to be very effective in catalyzing the formation of nucleic acids. Since it was known that montmorillonite forms in geological environments associated with hydrothermal activity these may also have provided other significant minerals.

A number of environments that may have contributed to the formation of life forms had been considered by the researchers including deep-sea volcanic smokers which provide localized high-temperature chemical-laden conditions. However the suggestion was that in the ocean chemical reactions would tend to become diluted and that there would be too much water in the system. The environments more favoured by the researchers for the development of life or at first, of complex molecules, were hot spring sites on land where hot water with a mix of chemicals would periodically dry up, constantly altering the pH of the water and concentrating the constituents.

Elements and minerals for Life on Land

Active hot springs and geysers : 3.48 Ga Dresser Setting

Wet-dry cycles

Elements in fluids: S, Fe, H⁺, P, Si, K, B, Mn, Zn, Ba

Mineral Deposits: Ti K, Fe Mn, Zn Ni

Chemicals: H₂S, COS, CS₂, CH₄, acetic acid, organic [poly]-sulfanes, thiols

Geological Features: Subsurface: Hot spring plumbing, magmatic vapour, Footwall basalts, Kaolinite clays, Terracettes + palisade fabric, Microbialites, Sintraclasts, Bubbles trapped in EPS, Vent (low)

Citations: Nishizawa et al., 2001; Van Kranendonk et al., 2021; Milbach et al., 2021

Professor Van Kranendonk has examined various hot spring locations such as the Pilbara Craton in Western Australia and the Rotorua area of New Zealand which provide an environment which he considers likely to have promoted the development of life forms. The surrounding rocks at the Craton contain remains of stromatolites and traces of zinc and nickel.

Competing models for the Origin of Life

Deep sea hydrothermal vents

Permanently wet

Terrestrial hot spring fields

Exposed on land

Generate chemical complexity through water:rock interaction

Our research: Oldest life flourished in hot springs, on land

Wet-dry cycles + Kaolinite - anatase

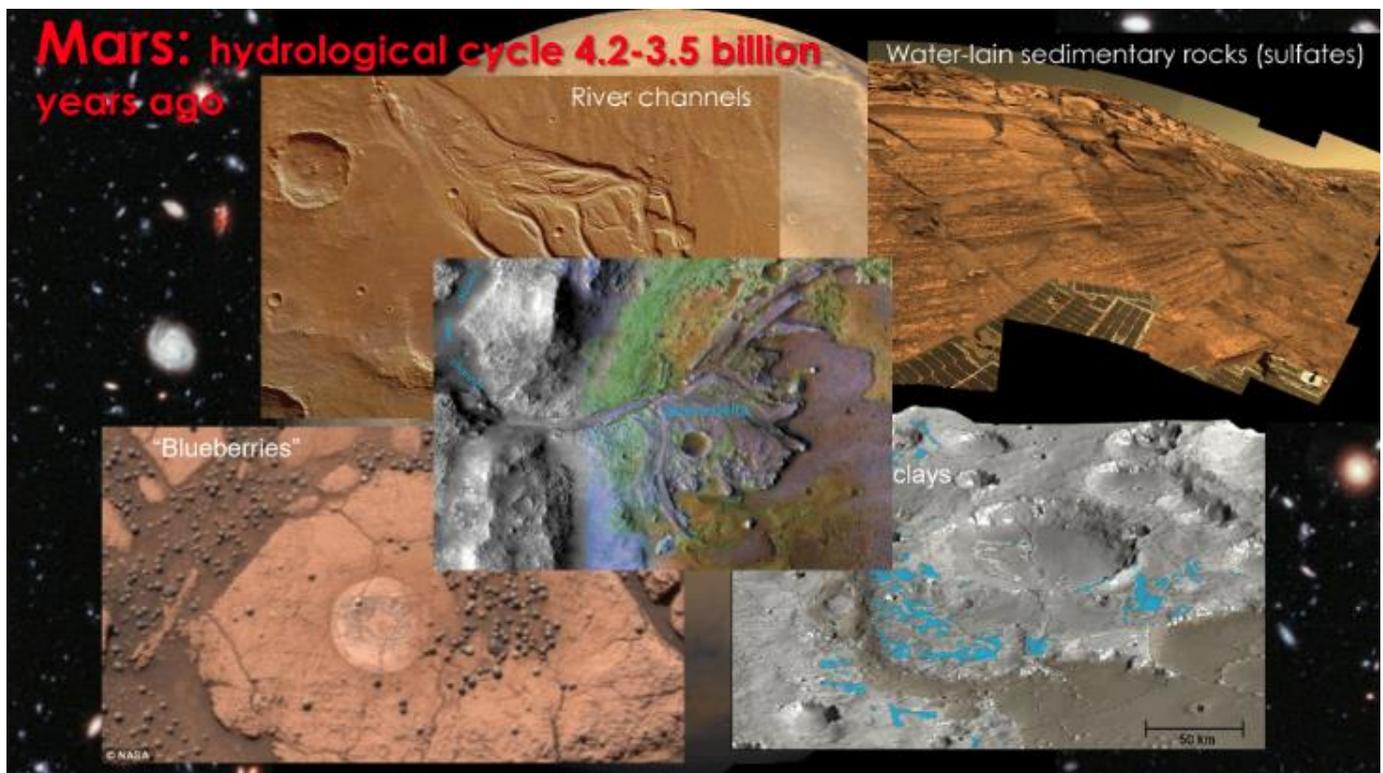
Earliest signs of life on land preserved in ca. 3.5 Ga hot spring deposits

Mineral Catalysis and Prebiotic Synthesis: Montmorillonite-Catalyzed Formation of RNA

The research into life-forming environments has had astrobiological significance. It has been surmised that other bodies in the Solar System may have the conditions necessary to support the development of life. The moons Enceladus and Europa are supposed to have a considerable amount or depth of water below an icy surface but the speaker suggested that without the ideal mix of minerals the development of life there was not well favoured.

Mars on the other hand was a more likely candidate for providing life-forming conditions and with the aid of a number of images of the Martian surface the speaker spent some time pointing out features which he felt were significant. These particularly included all the geographical indications of water having flowed over the Martian surface in the past showing the remains of river channels and water-deposited surface materials including clays, sulphates and 'blueberries', (spherical hematite inclusions). Also shown were maps of the movement of the Martian Rover over a part of the surface, the various geographical features named along the track with the sulphate and opaline silica minerals found.

Professor Van Kranendonk stressed that from his studies on Earth the most likely site for life to have developed to any degree on Mars was around any hot spring sites which might have entombed microbes in opaline silica and he had a number of locations in mind. He and colleagues were trying to develop a mission to Mars to include sampling of nodular opaline silica at one or more of the notable sites. If there was any place on Mars where life might have existed then it would have been in association with hot springs. There had been consultation with JAXA (Japanese Space Agency) engineers in Japan to organise a mission which would include soil sampling. The speaker had been advised that this would probably cost about US\$300 million.



At the end of his lecture Professor Van Kranendonk answered quite a number of questions, some of which speculated about further missions to Mars which were becoming fairly regular. Now-a-days one could book a seat on a mission for about US\$100 million !

The speaker advised that his lecture had been a slightly modified version which he had given for the Einstein Lecture at Harvard last year which was available on Youtube.

FORTHCOMING EVENTS

2021: Members have already been advised that the normally well-established annual calendar of lapidary and mineralogical events have been cancelled in NSW from the start of the June virus outbreak.

The **2021 GEMKHANA**, to have been held at the end of September at Clarendon is cancelled and also the **Central Coast Crystal, Gem & Jewellery Show**. However the pandemic restrictions may become eased towards the end of the year and members are advised to look for up-to-date information on whether other events are still being held as originally scheduled.

2022: It is to be presumed that pandemic restrictions may have been substantially reduced by the New Year and the normal calendar of events resumed.

58TH GEMBOREE 2022

The 58th Gemboree will be held over Easter 2022, from Friday to Monday, the 15th to 18th of April at the Australian Rural Education Centre, 267 Ulan Road, Bombira, north Mudgee, central NSW.

The Gemboree 2022 Booklet and other information is available and can be downloaded from the AFLACA, (Australian Federation of Lapidary and Allied Crafts Associations Inc), website : -

<https://aflaca.org.au/gemboree/>
