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 NOVEMBER 2018

The November Meeting will be held on Friday the 2nd of November at 7.30 pm in the clubrooms of the Parramatta and Holroyd Lapidary Club at 73 Fullagar Road, Wentworthville.

The previously-scheduled talk for the November meeting has been moved to February.

The November meeting will be a 'Members Night'

The program will comprise a series of brief stories presented by members on various aspects of their mineralogical and collecting interests. A number of members have already been asked and agreed to contribute to the Member's Night and anyone else is at liberty to offer any further story, about their favourite specimen or specimens, a story about their collecting experiences or any interesting mineralogical snippet. The evening is intended to be fairly casual and presentations need only be a couple of minutes long.

Members who have any interesting or notable specimens are invited to bring them in to show to the Meeting and whilst they may not have a story to tell could perhaps describe how the specimen was obtained or could just bring in the specimen to display.

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FORTHCOMING MEETINGS AND PROGRAMS

December 7th: **Christmas Social and 'Swap n' Sell'.** The Christmas Social will comprise the established program for the sale or exchange of mineral specimens and mineralogical material, books, magazines and equipment. Also as usual there will be snack food refreshments and drinks provided.

Members intending to sell at the Social may advise the Secretary in advance of their requirement for an amount of table space which can be reserved for them.

The Meeting would be officially opened at 7.30 pm possibly with a few announcements but the Club rooms would be open from about 6.30 pm to allow time for members with material for sale to get set up.

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2019: The Society does not hold General Meetings in January and the first Meeting in 2019 will be on February the 1st. Meetings will be held on the first Friday of each subsequent month through the year unless the first Friday is before a long weekend when the Meeting would be put back one week.

The program for the February Meeting will include the lecture to be given by Glen Cathers on : -
'The Sepon Copper Mine, Laos'.

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The SOCIETY COMMITTEE

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WELCOME

Welcome to new member Maddy Dawes of Westleigh

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The September Meeting: Correction

In the summary of Jeff Davis's lecture on The Periodic Table of Elements it was stated that : -
'*Members were advised that some of the element samples may be quite expensive such as radium which today would cost about $4,000 an ounce. Some years ago it hit a peak of $10,000 an ounce.'*
This was incorrect. The element costing up to $10,000 was rhodium, not radium.

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THE OCTOBER MEETING

The Meeting was opened by the Vice-President, John Chapman, who reported that the next meeting of the Society **Micro-Mineral Group** would be held at his house in Ryde a week on the following Saturday and the Group would be studying acicular, filiform minerals. Members already attending the Group meetings would receive advisory e-mails and any other members who did not usually attend the meetings but wished to do so should contact John Chapman or Graham Ogle for more details.

Geoff Parsons reported on having accompanied a recent **field trip** made to **Muttama** by the Illawarra Lapidary Club. There had been a good attendance by Club members and the weather had been very fine. Geoff was unsure when any subsequent trips might be organised by the Illawarra Club which tends to arrange such a trip once a year around September.

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Misleading Mineral Localities

Professor Peter A.Williams

Peter Williams suggested that it was no doubt of some concern to many collectors that the locality information assigned to specimens might be misleading or inaccurate and in his talk this evening he intended to try to summarise the problems and provide some answers. He expected that after his talk some members would be prompted to take a quick look at their collections upon returning home. There were a number of ways, and sources of information, which could be accessed to correct or confirm localities and he proceeded to list the problems that would occur and how to address them. The speaker provided the following notes detailing his talk.

Not Enough Information

1. Unintentional A – simply not enough information.

The book by Archibald Liversidge - *Minerals of New South Wales Etc*' published by Trübner of London in 1888 lists a number of minerals to be found *'near Peelwood'* or *'from a lode near Peelwood'* such as the lead and calcium tungstates stolzite and scheelite. The references were clearly about the Cordillera mine and Peter Williams noted that the mineral raspite is also found there. Since however raspite was first named in 1898 after having been discovered at Broken Hill it could not have appeared in the 1888 Liversidge book. In such cases, reference to more recent publications is generally helpful and the speaker recommended that MINDAT is a good place to start for information but noted that this source is 'riddled with errors'. Other sources of information may be quite obscure and difficult to come by but the collector was advised to do his homework and research.

2. Unintentional B – the dreaded keystroke error. Where someone has given a location and whilst it could be presumed that the information should be reliable, this may not always be the case.

An example of a keystroke error is the location given for the oxidized copper deposit Long Panel mine in central NSW which is exactly one kilometre out of kilter in the reference : - Gilligan, L.B. and Suppel, D.W. (1993) Metallogenic Study and Mineral Deposit Data Sheets: Nymagee 1:250 000 Metallogenic Map. The speaker and Jim Sharpe spent some time out in the bush and running out of water before they found it.

Another location error identified by the speaker was when he and Jim Sharpe looked for the Queen Sally mine near Kajabbi in central Queensland and which is noted for the presence of unusual cobalt minerals. The researchers also looked 'for some considerable time' but the grid coordinates on the deposit map published by the Geological Survey of Queensland are completely wrong. A dot is given on the map but is a kilometre away from the actual mine location. Jim Sharpe eventually found the mine with the help of 'an old codger miner' in Cloncurry who had worked at the Queen Sally. The location still took some time to find with Jim managing to get his 4WD trapped on top of a granite boulder for a period!

The fix for this sort of problem is hard, it would not be a matter of just doing the homework but also doing footwork. There is no way of recovering from mistakes which are published but which are not known about until the researcher or collector gets out into the field to check on the published information.

Bad Information

1. Intentional A – the mark-up is a classic

As an example Peter Williams referred to three specimens of wulfenite from different locations which he had brought in to display and asked members to indicate which one they thought would be the most valuable.

One specimen was from the Tiger mine in Arizona noted for wulfenite and other rare minerals. The mine is now inaccessible and has been so since 1912. Another specimen was from the Red Cloud mine which is now mined out and the third from the San Francisco mine in Mexico, also mined out. The estimated values of the specimens ranged from about US$500 to US$10,000 for the Tiger mine specimen for which the speaker asserted that he had paid US$150! The other two specimens had cost US$200 and US$1,000 and all three had been purchased over the last five to eight years.

2. Intentional B – the deception about the origin.

Unfortunately the fact is that if someone were to assign a label to a specimen of wulfenite indicating the source location to be the Tiger mine, this would enhance the value of the specimen very considerably. The fix here is to do the homework, look at the minerals and read the published descriptions in references such as the Mineralogical Record etc. Study what is being offered for sale – with knowledge the collector will know what is OK and what is not; gauge the market – ask people for their opinions! Most dealers may be reliable but they don't know about everything, are beholden to their sources, and the latest mineral in vogue is what is on show.

3. Intentional C - Other Bad Information

The mineral wupatkiite, $CoAl_2(SO_4)_4.22H_2O$, was originally described by the mineralogist Dr Sid Williams, then at Phelps Dodge, later of the Hudson Institute of Mineralogy in Virginia and who passed away in 2006. The type locality was given as 8 miles ESE of Gray Mountain, Coconino County, Arizona, near the Wupatki Indian reservation, Little Colorado River. The details of the location proved to be unreliable because it later took Malcolm Alter of the eponymously-named mineral dealership about ten years to find the location. The speaker speculated that the location details were deliberately given vaguely because the finder wanted to keep the location, and its minerals, to himself.

Australian collectors may have specimens of wupatkiite in their collections since whilst it is found in only a few sites around the World one is the Lorena gold mine near Cloncurry in Queensland and in the speaker's opinion the Lorena wupatkiite is better quality than the material from the type locality in Arizona. Members may be able to collect at Lorena today, subject to obtaining permission from whoever are the current owners, but Peter Williams recommended that the collector should not go in the rainy season. Wupatkiite is somewhat ephemeral and specimens would have been washed away with rain.

4. Intentional Bad Information D

Sid Williams has also described many tellurium minerals, especially secondary minerals, from the Tombstone area in Arizona. Probably these are about right as species but the localities were taken away by Sid by the truck-load and stored on his property elsewhere!

In conclusion Peter Williams recommended to members that in regard to purchasing specimens the end message is *caveat emptor*!, (buyer beware).

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The second lecture for the evening was given by Ross Pogson, BSc (Hons) MSc, who is Collections Manager, Geosciences (Mineralogy and Petrology) at the Australian Museum. The following summary of his lecture is based on his PowerPoint presentation at the meeting.

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The Molong Pallasite Meteorite – A Visitor from Outer Space

Ross Pogson

Meteorites are extra-terrestrial rocks of minerals and metal. Since 70% of the Earth's surface is water most meteorites arriving on the Earth will be lost in the oceans and also in heavily forested or vegetated land but will be found more readily in desert areas (sandy deserts and Antarctica); in flat non-mountainous areas (like the Nullarbor Plain); in sparsely vegetated areas and non-tropical areas (last longer due to less rusting).

How are meteorites named?

Meteorites are named after the place where they are found or seen to fall. This might be a river, mountain, county, city, town or property.

How many named meteorites are there?

There are probably over 22,500 named meteorites (up to the year 2000), including 285 from Australia. About 17,000 meteorites or pieces of meteorites were found in Antarctica between 1969 and 1993, representing over 700 different named specimens. The first Antarctic meteorite was found on 5th December 1912 during the Australian Antarctic Expedition of Sir Douglas Mawson.

What do meteorites look like?

Most meteorites are dark on the outside but paler inside. The outer surfaces are usually brown to black with a smooth melted appearance. They often have small depressions (regmaglypts) where areas have melted and have been scooped out during heating by friction (ablation).

Iron meteorites can form smooth or rough shapes, sometimes looking like pieces of twisted shrapnel. They show bright silvery metal when cut open, and are very magnetic.

Stony meteorites are smooth and more 'boxy', with a speckled brown and white interior with bright flecks of nickel-iron metal. They can be slightly to moderately magnetic. Stony-irons tend to be rounded and 'lumpy'.

How Heavy are meteorites?

Iron meteorites weigh about 7.8 tonnes per cubic metre (a 10 cm cube would weigh about 7.8 Kg). Stony meteorites weigh about 2.1 – 4.0 tonnes per cubic metre. Stony-iron meteorites weigh about 4.25 – 4.9 tonnes per cubic metre.

Meteorites come from : - The Asteroid Belt; The Oort Cloud/Kuiper Belt; from the Moon and from Mars.

The Asteroid Belt:

About 400 million km from the Sun, between the orbits of Mars & Jupiter. The region has objects as small as dust, and as large as asteroids 100's of klm in diameter (e.g. Vesta 540 km). Many meteorites are thought to be debris from collisions & breakups of asteroids, as well as material that failed to aggregate under gravity to build larger planetary bodies.

The Oort Cloud and Kuiper Belt

These are the the very cold, far outer regions of the Solar System. The Oort Cloud is 0.22 - 3.8 light years [50,000 - 200,000 AU] from the Sun. It is a zone of icy planetesimals made of ices of water, methane, ethane, carbon dioxide, hydrogen cyanide, and ammonia with dust and rock. It is the source of long-period (Oort Cloud) and short-period comets. The Kuiper Belt lies from the orbit of Neptune to 50 AU from the Sun.

[1 AU = 150 mill Km].

The Moon: 384,400 Km from the Earth,
150 million klm from the Sun.

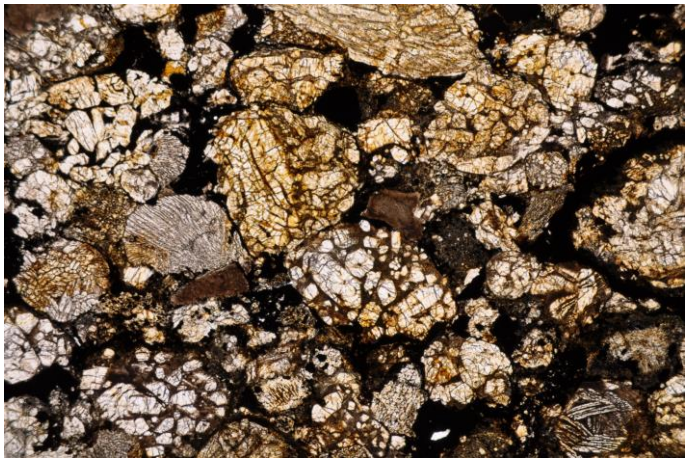
Mars: 228 million Km from the Sun
54.6 million klm from the Earth.

DR17905 Dhofar 461 Lunaite. Anorthosite melt breccia from the Lunar highlands. 3grm, 40 x 25 x1.5 mm, found in Oman,

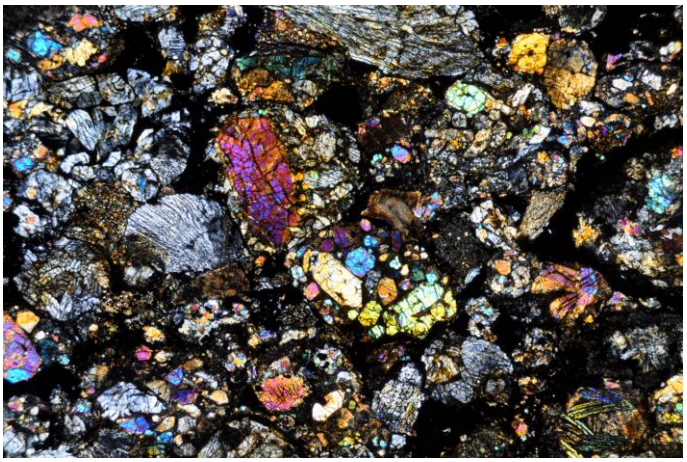
Meteorite from Mars. Fragment of the Dar al Gani 476 Shergottite, (olivine/pyroxene) meteorite found in Libya in 1998. The original was 2015 grams.

Classification of Meteorites - Iron, Stones, Stony-irons

Irons (6% of observed falls) (Hexahedrites, Octahedrites, Ataxites).
Stones (92.4% of observed falls) (Chondrites and Achondrites)
Stony-Irons (1.6% of observed falls) (Pallasites and Mesosiderites)



Barratta No. 3, L4 Chondrite. Natural lighting
Found on the 'Barratta' Station, 56 Km NW of Deniliquin NSW



Barratta No. 3, L4 under plane-polarised light, Mag x50, field of view 4.75 x 3.05 mm.

Minerals In Meteorites

Mineral compositions vary, depending on where the material came from in the parent meteoroid and its composition. In larger bodies elements separated out during their formation with heavier nickel, iron, cobalt settling towards the core leaving stony silicates in the mantle and outer layers. When bodies in the asteroid belt broke up from collisions pieces of core (iron meteorites); mantle/core boundary (stony-iron meteorites); and impacted "rubble regolith" containing chondrules (chondrite stony meteorites) are released (ordinary chondrites).

Comets produce carbonaceous chondrites, rich in hydrocarbons.

Igneous activity – volcanics on the Moon (Lunaites), Mars (SNC Group) and Asteroids (HED Group – basaltic breccias) resulted in achondrite stony meteorites of mainly basaltic composition and collections of settled crystals of olivine, pyroxenes and feldspar in magma chambers.

Over eighty mineral species have been identified in meteorites, although many are present in only minor amounts. Twenty-six mineral species have been described for the first time from meteorites or moon, about half of these also occurring on earth. About thirty other minerals occur in meteorites and also on Earth, including: copper, gold, sulfur, rutile, spinel, quartz, tridymite, cristobalite, chromite, apatite, alabandite, pentlandite, pyrrhotite, vallerite, pyrite, sphalerite, calcite, dolomite, magnesite, gypsum, epsomite, bloedite, clinoenstatite, gehlenite, grossular, sodalite, nepheline and perovskite.

About 12 mineral species or groups make up the majority of meteorites: these are : -
Olivine(forsteritic: Magnesium-rich , iron silicate)
Orthopyroxenes (Fe,Mg silicates: hypersthene, bronzite, enstatite)
Clinopyroxenes (Fe,Mg,Ca silicates: augite, diopside, pigeonite)
Plagioclase feldspar (mainly Calcium-rich)
Kamacite (Iron-Nickel alloy, 4 - 6% Nickel)
Taenite (Iron-Nickel alloy), 15% and up to 40% Nickel)
Magnetite (magnetic iron oxide)
Hematite (iron oxide, mainly in fusion crust)
Troilite (iron sulphide)
Schreibersite (iron-nickel phosphide)
Carbon (graphite and diamond)
Serpentine Group (water- bearing Magnesium, Iron silicates)

Stony-irons: (Silicates + Nickel-Iron)
Pallasite – equal olivine and nickel-iron. Mesosiderite – pyroxene, plagioclase feldspar , nickel-iron

Pallasites in Australia (Total of 5 known)

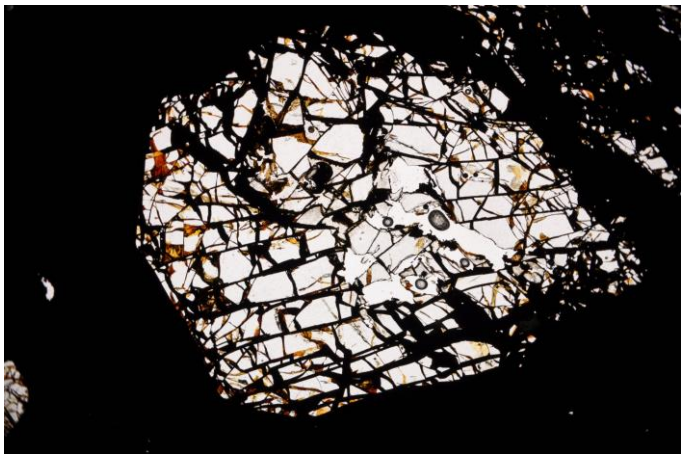
Huckitta, NT	1.5 tonnes	Molong, NSW	105.2 Kg
Bendock, Vic	27.3 Kg	Mount Dyrring NSW	11.4 Kg
Rawlinna 001, WA	74 g		

Notable Overseas Pallasites (Total of 48 known)

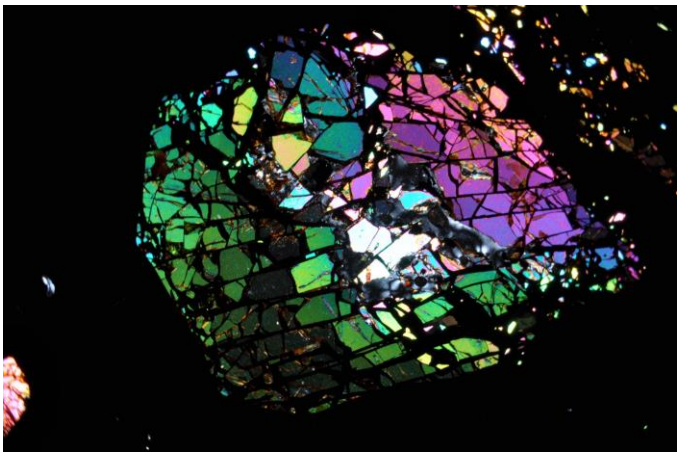
Brenham, USA	4.95 tonnes	Brahin, Belarus	1.047 tonnes
Fukang, China	1.003 tonnes	Seymchan, Russia	1 tonne
Imilac, Chile	920 Kg	Esquel, Argentina	755 Kg
Krasnojarsk, Russia	700 Kg	Pallasovka, Russia	198 Kg
Finmarken, Norway	77.5 Kg	Eagle Station, USA	36.36 Kg

Pallasites are the most beautiful of all meteorites. What do they look like inside?

Meteoritic masses totalling over 1,500 kilos were found through the 1920s and 1930s on the Huckitta cattle station some 17 klm north of Alice Springs in the Northern Territory, Australia

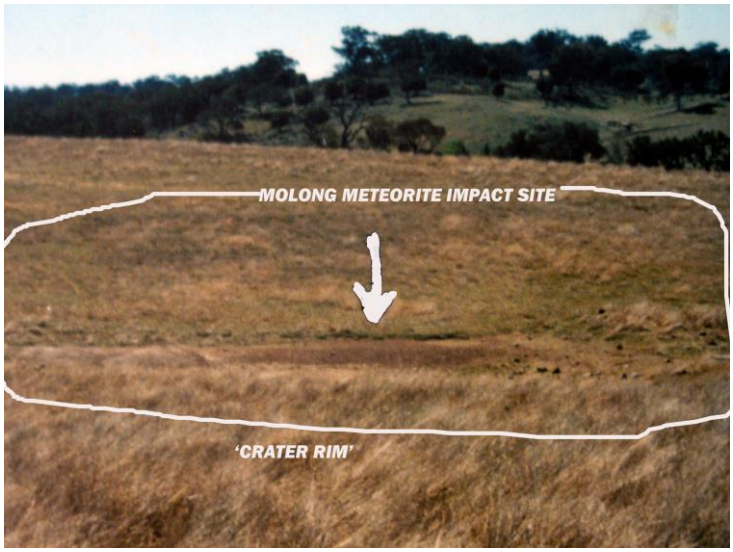


Huckitta Stony-Iron – Pallasite. Natural lighting. Fragment mag x20, field of view 11.75 x 7.65 mm.



Huckitta meteorite under plane-polarised light,

The Molong Pallasite Meteorite



Molong meteorite impact site, image: Brian Wyer.

Molong Pallasite, Main mass, before cutting, 105.2 Kg, 35 x 38 x 30 cm

Find

The Molong meteorite was found around 25th September 1912 by Mr Edward Farrell (some records say Mr John Williams, to whom Mr Farrell gave a piece of the meteorite) on E.J. Farrell's Selection on Ti-Tree Creek, 20 Km west of Orange, Portion 218, Parish Molong, County Ashburnham, NSW. Some records have the location as Molong Creek, Amaroo. The main mass weighed 232 pounds (105.22 Kg). Its width was 38 cm, its height was 35 cm, and it was about 30 cm thick.

Fate

The meteorite was purchased by the NSW Mines Department for five pounds (£5) and presented to the Geological and Mining Museum, Sydney. A plaster cast was made by the Australian Museum in 1913 and is still in its collection (L.1044).

Report in the Molong Argus Friday 9 March 1917

"*Scientists are an inquisitive lot of people. They are never satisfied until they have investigated the "innards" of things, so to speak. After the Australian Museum had made a kind of a death mask of the meteorite – a cast of its full proportions – the geologists decided to hold a post mortem examination of this dead world, and proceeded to cut it up".*

The cutting of the meteorite

The meteorite was cut in halves at the Department of Engineering, Sydney Technical College, around 1913. The cutting was very slow and difficult, and eventually they employed strips of copper 1/8 inch thick (3.18 mm) and 2 inches (5 cm) wide, loaded with abrasive powders and lubricated with water. Total cutting time: 141 hours. Abrasives used: 4 pounds of coarse emery and 37 pounds of coarse carborundum.

Molong Pallasite DR.1201, 15 x 11 x 12 cm, 3 Kg, Cut and polished surface

Cut olivine gemstone, (top left in image), five uncut olivine crystals, and a polished slice of the meteorite

WHERE HAS IT ALL GONE ?

The Australian Museum has a half main mass (DR.2507, 52.16 Kg in one mass) acquired in 1934 via exchange with the Geological and Mining Museum, Sydney, plus 6 smaller fragments (11.8 Kg) acquired from the same Museum in 1929. There are portions in other museums:-

'Sydney Technological Museum' (Museum of Applied Arts and Sciences) (1 Kg)

Natural History Museum, London (1974g)

(former) Kyancutta Museum, South Australia 1 Kg.

US National Museum, Washington (864g)
Field Museum of Natural History, Chicago (523g)
Monnig Collection, Fort Worth, Texas (488g)
Natural History Museum, Paris (474g)
American Museum of Natural History, New York (411g)
Museum Victoria: (306g)
University of California, Los Angeles (160g)
Vatican Observatory 4g
Total 7.204 Kg + 63.96 Kg (Australian Museum) = 71.16 Kg.
Some smaller pieces are still in private collections

(Where is the other 34.1 Kg ???)

Properties

Classification: Stony-iron, Pallasite (named after a German naturalist Peter Pallas (1741 – 1811) who first studied this kind of meteorite).

Appearance: a continuous meshwork of silvery nickel-iron metal enclosing rounded yellow-green, glassy olivine crystals (black to reddish where altered) up to 2 – 3 cm, mostly fractured, with some troilite (iron sulphide), schreibersite (nickel iron phosphide) and iron oxides. There was no gold, but a tiny trace of platinum.

Density: 3.357 grams per cubic centimeter

Composition: About 50% metal and 50% olivine.
48.62% nickel-iron and troilite; 51.38% olivine
Olivine: magnesium-rich Fo 89.5%. Nickel-iron metal: 9% nickel, 91% iron (octahedrite composition).

Stability: susceptible to rapid oxidation (rusting) and corrosion, the main mass is kept in a vat of oil.

The Gemstone

A 'smaller than pea-sized' peridot gemstone was cut from a flaw-free olivine crystal by the Mines Department Lapidary, Mr W.H. Gilding before 1916 but it has since disappeared.

Molong Argus Friday 9 March 1917.

"*It was in this mass of olivine that the soul of the dead world was discovered – a small piece of yellowish crystalline substance free from flaws. This was handed over to Mr. W.H. Gilding, the lapidist of the Mines Department. In his wizard's cavern under his deft hands, amid whirring wheels, with a touch here and there of diamond dust and oil, this small crystal of olivine, plucked from the interior of a mass of iron nickel alloy, commenced to assume a form of beauty. The dull fire burst into flames as each facet was added. For hours he labored at it until all the dross had vanished, and the gem shone forth – the soul of a dead world. This soul of the dead world was fashioned in the furnace of a blazing star shooting through a shining firmament to eternity. There is a mystery in its scintillating light."*

This may well be the world's first peridot gemstone cut from a pallasite meteorite. Olivine from the Eagle Station, Kentucky, USA pallasite was mentioned in a catalogue published by Tiffany & Co. for the 1900 Paris International Exposition, but it is not clear if it was faceted or not.

D.58186 Peridot gem cut from the Admire pallasite, Lyon County, Kansas USA,
Faceted pear shape, 6 x 4 x 3 mm, 0.38 carats.

FORTHCOMING EVENTS

THE ILLAWARRA LAPIDARY CLUB INC presents

The 2018 Jewellery Gems and Minerals Festival

When: Sat 3 Nov 9am – 4pm and Sun 4 Nov, 9am to 3.00pm
Where: Heininger Hall, Ribbonwood Centre, 109 Princes Hwy, Dapto
Entry: Adults $3, children under 12 years free
Featuring: Gemstone Faceting, Cabochon Cutting, Silvercrafts, Jewellery Making and Valuations,
Mineral Group displays, Club and Fossicking Information,
Refreshments, Raffle, Lucky Door Prizes and Kid's Games.
Dealers Selling: Lapidary Supplies, Minerals, Jewellery, Crystals, Findings, Fossils, Beads and Opals.
Enquiries: John (02) 42675618
http://www.illawarralapidaryclub.com.au/ Or Like Us on Facebook

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WINDSOR GEM & MINERAL FAIR

Over Saturday and Sunday the 24th and 25th of November at the Windsor Function Centre, on the corner of George and Dight Streets, Windsor. Saturday 9.30 am to 5 pm, Sunday 9.30 am to 4 pm.

'A bi-annual fair held at The Windsor Function Centre on the corner of George Street and Dight Street Windsor. Hosted by The Hawkesbury Valley Lapidary Club and Crystal Habit, the show will have a number of traders from around Australia displaying their wares as well as displays and demonstrations by the Hawkesbury Valley Lapidary Club.

Items for sale by the many traders there will include Jewellery, gemstones, beads, opals, carvings, gem rough, lapidary cutting rough, fossils, meteorites, metaphysical and healing crystals, mineral specimens from all over the world. A great day out for the whole family. There is also a great lucky door prize for one lucky person who comes!'

For more information please contact Peter at raregems@optusnet.com.au or 0412 333 150

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ILLAWARRA LAPIDARY CLUB INC – ROCK & MINERAL FAIR

Sunday 24th February, 2019, At Stuart Park, North Wollongong
Between 8am and 2 pm (Kid's rock scramble 12 noon).

Club members and others will be selling Jewellery, Gemstones, Cabochons, Minerals,
Opals, Findings, Beads & Fossils and maybe some Lapidary equipment.
The Rock Scramble is at 12 noon where children and young people can "bag" themselves a rock or two.
Bring a bag! and maybe a picnic lunch!
For more information contact John on 0242675618
http://www.illawarralapidaryclub.com.au/ or like us on Facebook

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GEMBOREE 2019

The 55th National Gem & Mineral Show will be held at the Rockhampton Showgrounds, Rockhampton, QLD from the 19th to the 22nd of April 2019.

'Australia's biggest Lapidary, Rock, Fossil, Mineral, Gem and Jewellery Competition and Trade Show. For the first time, the GEMBOREE in 2019 will include an international symposium sponsored by the Gemmological Association of Australia (GAA) and will include guest presenters and lectures.

The aim of the symposium is to attract more national and international visitors as well as provide an additional opportunity to learn more about minerals and gemmology, particularly those in the Central Queensland Region.

The GEMBOREE will give visitors the opportunity to visit the Sapphire Gemfields in the Central Highlands. They will be able to see operating sapphire mines, learn about fossicking and lapidary activities in the area. The site visit will also enable local gemstone retailers and supply businesses to showcase their products. Visitors can learn about end-to-end sapphire and other gemstone production for the area.

The GEMBOREE will attract competitors from all over Australia and Internationally and traders from all over Australia. Traders may sell only items related to lapidary. As well as the competition and trading there will be demonstrations and workshops of lapidary related skills.'

For full details and competition schedule, visit the Gemboree 2019 website at : - *http://aflaca.org.au/gemboree*

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