

# Mineralogical Society of Western Australia (inc.)

**Forward Diary  
2004 – 2005**

December 2004

Volume 4, Issue 5

## Presidents Report

**In this era of uncertainty and strife throughout the world, I trust that you will all remain safe and well and will benefit from the true meaning of Christmas**

**Our field trip organizers, Suzanne and Nimal, have been busy organizing some very interesting and hopefully productive field trips for next year.**

**They would be happy to receive any suggestions if members would like to offer them ,especially new localities.**

**The arrangements for the 2005 Seminar are progressing in a satisfactory manner thanks to the hard working and dedicated Committee members.**

**It was great to see Mark Jacobsen again during his recent short visit and to be entertained by his instructive and interesting presentation of the Pegmatite Sites in the USA.**

**I look forward to seeing you all at our December meeting, when our guest speaker will be Dr. Peter Downes who, as you know, is the deputy Director of the WA Museum. Peter will be talking on the minerals of the Telfer Mine which will be accompanied with a PowerPoint slide show.**

*February 2<sup>th</sup>*  
Club Meeting

*April 6<sup>nd</sup>*  
Club Meeting

*June 1<sup>nd</sup>*  
Club Meeting

*August 3<sup>th</sup>*  
Club Meeting

*October 5<sup>th</sup>*  
Club Meeting

*December 1<sup>st</sup>*  
Club Meeting

Newsletter  
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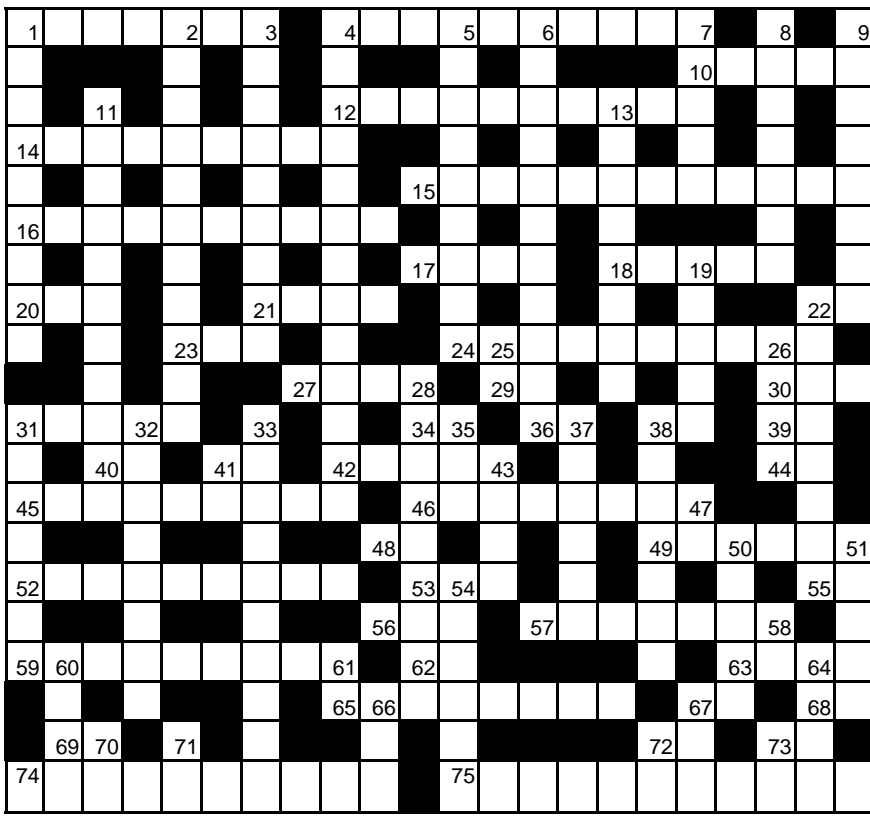
Presidents Report

Garnets by Beatie Smith.

Sues Second Mineral  
Crossword



What is this mineral.?Type locality is WA ,this specimen from South Africa. See the next issue for the answer.



## Sue's Second Mineral Crossword

Across

- 1 ———stone is a nodular and concretionary form of barytes  
 4 Serpentine variety  
 10 White quartz  
 12 A hydrous vanadate of lead and copper  
 14 Element of tellurides  
 15 Arsenic mineral  
 16 A feldspar  
 17 Element of Smithsonian  
 18 ———rock is tourmalinized granite from Cornwall which consists entirely of quartz and tourmaline  
 20 Residual masses of rock, usually capping hills  
 21 Queensland opals filling the cavity of dark brown ironstone nodules are known as 'Yowah'  
 22 Chemical symbol for Arsenic  
 23 Geological time unit  
 24 A hydroxide containing magnesium and aluminium  
 27 A standard quantity with which others of the same kind are compared for purposes of measurement  
 29 Chemical symbol for Scandium  
 30 Geological time unit  
 31 A binary compound of oxygen with another element  
 34 Chemical symbol for Silver  
 36 Chemical symbol for Einsteinium  
 38 Chemical symbol for Francium  
 39 Chemical symbol for Lithium  
 40 Chemical symbol for Titanium  
 41 Chemical symbol for Polonium  
 42 Hardness 8 on Mohs scale  
 44 Chemical symbol for Chromium  
 45 Opal sinter, deposited in geysers & hot springs  
 46 A Triiobite  
 48 Chemical symbol for Cobalt  
 49 A cut or notch at the edge of a thing  
 52 A feldspathoid mineral  
 53 A solution obtained by leaching  
 55 Chemical symbol for Erbium  
 56 To occupy a location; be situated  
 57 Cleavage allows rocks (slate) to be split along parallel planes. It is a product of pressure or ——— metamorphism  
 59 Red to reddish-brown chalcedony  
 62 Chemical symbol for Thallium  
 63 Molten rock  
 65 A Terebratulid  
 67 Chemical symbol for Aluminium  
 68 Chemical symbol for Einsteinium  
 69 Chemical symbol for Erbium  
 72 Chemical symbol for Silver  
 73 Chemical symbol for Manganese  
 74 Synonym of Bornite  
 75 The distance between two points in exactly similar positions on a wave.

## Sue's Second Mineral Crossword

Down

- 1 A manganese silicate (rhodonite) containing calcium  
 2 An Amphibole  
 3 A fold in the form of an arch  
 4 Monoclinic Amphibole  
 5 Yb  
 6 Having play of colours  
 7 Impure natural Corundum abrasive  
 8 Potassium mineral  
 9 A term which is used to include both pure melting and assimilation of country rock (—> anatexis)  
 11 May be developed in minerals either by friction or heat  
 13 Vesuvianite  
 19 'Colour' of rock crystal  
 22 A clinopyroxene; synonym of acmite  
 25 Chemical symbol for Arsenic  
 26 Hardness 1 on Mohs scale  
 28 Similar to niobite (columbite), named after the god Tapio  
 31 A fossil is defined as an\_\_\_\_\_ trace buried by natural process and subsequently permanently preserved  
 32 Synonym of Kyanite  
 33 A textural term. refers to large grains of one mineral enclosing smaller grains of other minerals  
 35 Capable of diffusing rapidly in all direction  
 37 Type of fossiliferous limestone  
 38 Flow or\_\_\_\_\_ texture  
 41 Chemical symbol for Praseodymium  
 43 A term used to mean a rock stratum ?  
 47 Chemical symbol for Tin  
 50 Used for boring holes  
 51 An abbreviation of triassic  
 54 Colour of Heliodor  
 58 Chemical symbol for Calcium  
 60 Fossil plant (Palaeocene - recent)  
 61 Chemical symbol for Neodymium  
 64 Volano opening  
 66 Cold mineral  
 70 Chemical symbol for Ruthenium  
 71 Chemical symbol for Beryllium

**GARNET** is a stone of vitality and passion!!

The name *garnet* has been used since ancient times. It was derived from the Latin word *granitium* which means a pomegranate because small, red garnet crystals were thought to resemble pomegranate seeds. The original name given this mineral group was *granat* but in time the r and a were transposed giving us *garnet*. The name was officially proposed to mineralogists by the German theologian and philosopher, Albertus Magnus.

**Garnets** as a group are relatively common in highly metamorphosed rocks and in some igneous formations. They form under the high temperatures and or pressures that those types of rocks must endure

Garnets can be used by geologists as a gauge of how much temperature and pressure the rock has endured.

As a **gemstone** garnets have a mixed reputation – they do possess high indices of refraction, are hard enough, have pretty colours, are wonderfully transparent, lack cleavage and are durable thus making good candidates for gemstones. But due to their relative abundance and widespread use – also their low price, they are considered to be inferior.

**The general formula** for most of the garnets is  $X_3Y_2(SiO_4)_3$ --

X represents divalent metals such as calcium, iron, magnesium and/or manganese.

Y represents trivalent metals such as aluminum, chromium, iron and/or manganese and in the rarer garnets, vanadium, titanium, zirconium and/or silicon.

The  $SiO_4$  indicates silica tetrahedrons, a silicon ion surrounded by four oxygen ions.

Garnets are *isostructural* – meaning that they share the same **crystal structure**. This leads to similar crystal shapes and properties.

Garnets belong to the *isometric* crystal class which produces very symmetrical, cube-based crystals.

The most common shape for garnets is the **rhombic dodecahedron**, a twelve sided crystal with diamond shaped faces.

Most garnets are red in colour leading to the erroneous belief that all garnets are red.

In fact a few varieties, such as grossular can have a wide range of colours.

Uvarovite is always a bright green.

**Garnets are silicate minerals** which occur in all colours EXCEPT BLUE.

**THE GARNET GROUP** is actually a larger group than most people know.

**ALMANDINE** – also known as carbuncle.-- reddish brown - found in schists and gneisses – this is the common garnet found in many metamorphic rocks. It is an iron-aluminum garnet. When it has a clear red colour it is sometimes called precious garnet and is cut as a gem. –Slices of garnet have been used in windows of churches and temples and legend has it that Noah suspended garnet in the ark in order to disperse light. Garnet was once said to cure melancholy and to warm the heart.

**ANDRADITE** - Brown, black or green – in serpentinites and skarns This garnet contains calcium and iron. Colour varies depending on impurities. It occurs in igneous rocks and some metamorphosed limestones. The green form of andradite, demantoid, is a gem. The black variety is Melanite. Opazolite is the yellow variety and is also sometimes cut as a gem.

**GROSSULAR** also called **ESSONITE** and **HESSONITE**- colourless, orange or green – in contact marbles – is a calcium aluminum garnet. It is coloured when it contains iron as an impurity. Both the Ancient Greeks and Romans made cameos, intaglios and cabochons from hessonite. Hessonite has been called cinnamon stone. The pink grossular is known as rosolite – the pink colour is due to iron content.

The name 'grossular' is derived from the botanical name of the gooseberry, *R.grossularia*. Massive grossular garnet of a gooseberry green colour was first discovered in Russia – and has since been found in Hungary and Italy. Massive green grossular is also known as Transvaal Jade.

**PYROPE** also called Bohemian garnet or Cape Ruby. - dark red to ruby red – serpentinites and gneisses - sometimes called precious garnet though it is mined in large quantities for garnet paper. Perfect specimens have been found in South Africa with diamonds. It is a magnesium aluminum garnet. The name pyrope comes from the Greek *pyripos* meaning fiery.

**SPESSARTINE** – orange, pink or brown. – gneisses and marbles - this is comparatively rare – contains manganese and aluminum. The manganese gives the garnet a violet tint which makes gem quality specimens particularly valuable. Spessartine is named after the Spessart district in Bavaria, Germany. It is sometimes confused with hessonite garnet or yellow topaz.

**UVAROVITE** – green – in serpentinites – associated with chromium ores – chromium gives it the rich green colour. Unlike most other garnets it will not fuse when heated with a blowpipe.

Other rarer members of the garnet group include calderite, goldmanite, henritermierite, hibschite, katoite, kimzeyite, knorringite, majorite, morimotoite and schorlomite.

I acknowledge that the above information was obtained from Minerals By Name Web Site, who also acknowledged Fleischer's Glossary of Mineral Species.

**USES:** Garnets are used for grinding and polishing agents as well as for gemstones. It is ground to a variety of sizes for garnet sandpaper. It is used to make sanding belts, discs, and strips. Today the vast majority of garnet is used as an abrasive blasting material, for water filtration and in a process called water jet cutting. A number of natural and synthetic materials could be used in place of garnet for abrasive purposes – natural materials include staurolite, quartz, diamond and corundum. The synthetic materials include fused aluminium oxide and silicon carbide.

Use of garnets as gems is traced to the Nile Delta in 3100 B.C. Egyptian artisans created beautiful garnet beads, bracelets and other jewelry. Garnets since ancient times are said to have been used by Asiatic tribes in place of bullets.

**HEALING ABILITY:** - Garnet is an excellent assistance for blood deficiency diseases. It stimulates bloodstream and pituitary gland, relieves rheumatism and arthritis pain. Combats depression and lethargy. Also stimulates the spleen and protects against depression and impure thoughts. Cures fever and promotes good health.

**Mystical power:** Garnet should be carried close to the body. Its energy is balancing and peaceful. This stone of passion stimulates the sexual drive. Garnet gives energy and courage and is said to encourage robust good health. Garnet symbolizes fire, faith, courage, truth, grace, compassion, constancy and fidelity. It also offers protection to the traveller.

As this info came from the Encyclopedia of Gemstones, do we fully believe all we read? If so, it must be time for everyone to have and wear garnets!

**BIRTHSTONE;** Many gem scholars agree that the tradition of birthstones arose from the Breastplate of Aaron described in the Bible (Exodus 28, 15-30). The breastplate was a ceremonial religious garment set with twelve gemstones that represented the twelve tribes of Israel and corresponded with the twelve signs of the zodiac and the twelve months of the year.

It is well known to be the birthstone of January. – Zodiac sign. Capricornus (Goat) – Dec 22 to Jan. 19.

**LUSTRE – VITREOUS**

Distinguishing property – Brittle. Conchoidal fracture, very common dodecahedron crystals.

Occurrence – In many countries including Australia.

Significance – Garnet is a general term used to describe the six varieties of one similar mineral.

**HARDNESS** – varies from 6.0 to 7.5.

Specific Gravity is approx. 3.8+

Streak is white

Index of refraction is 1.75 – Andradite is 1.89 which is the highest of all the garnets.

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## Membership Details:

Joining Fee \$5.00

Adult Member \$20.00

Newsletter only \$15.00

Email Newsletter- No charge to Min Soc members. Email to newsletter editor at [jandsman@bigpond.net.au](mailto:jandsman@bigpond.net.au)

An application form for membership can be obtained by writing to: -

The Secretary, J. Reeve

Mineralogical Society of Western Australia (Inc)

13 Buchan Place, Hillarys, W.A. 6025

Ordinary meetings of the Society are held on the **FIRST** Wednesday in February, April, June, August, October and December in the **W.A.Lapidary and Rock Hunting Club rooms 31 Gladstone Street Rivervale**, commencing at 7.30pm. The January meeting will involve social activities at a time and place to be notified.

## Visitors are most welcome

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Newsletter of the Mineralogical Society of Western Australia  
13 Buchan Place, Hillarys, 6025  
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## OUR SOCIETY'S MISSION

To encourage mineralogical study by amateur and professional alike and, in so doing, discover, document and preserve the earth's and in particular Western Australia's natural history.

## OBJECTIVES

Whilst focusing on the minerals of Western Australia, the overall objectives of the Society shall be:

- (a) To advance the science of mineralogy.
- (b) To disseminate knowledge of minerals, their occurrence and associations.
- (c) To establish and maintain a register of mineral species and their occurrences in Western Australia.
- (d) To increase knowledge of related fields of earth science.
- (e) To keep members abreast of developments in mineralogy.
- (f) To encourage an appreciation of the aesthetic value of minerals.
- (g) To promote the proper care and preservation of mineral specimens.
- (h) To promote the conservation of the geologically unique and of the environment in general.
- (i) To provide a means of contact between professionals and amateurs in the various fields of the earth sciences.
- (j) To foster a sense of cooperation and understanding between individuals, institutions and resource companies in the field of mineralogy.
- (k) To provide a forum for debate and discussion on matters relating to mineralogy.

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