

Garnet, (Birthstone for January) Large family of gemstones which occur in every shade except blue. The most popular varieties are in the pyrope (red), almandine (brownish-red), and rhodolite (pink-violet). Rarer varieties include grossular-hessonite (green and yellow) spessartite (yellow orange to brownish red) and malaya (golden orange to flame red).

Structure is cubic

Physical properties: hardness = 7.5 Specific gravity = 4
Optical: Refractive Indices = 1.76 – 1.83 Birefringence = none

Folklore: Garnet, believed from olden times to strengthen, purify, vitalise and regenerate bodily systems especially the bloodstream. Has strong affinity with the root chakra helping to harmonise the potent forces of the kundalini. Stimulating the pituitary gland and thus aligning the subtle bodies.
Chakra(s): root, heart.

Garnet stock:

- Rare Hessonite – Brilliant cut oval
- Melanite – Cubic crystals
- Malaya Pink – Brilliant cuts round
- Malaya Pink – Step cuts octagonal
- Malaya Pink – Brilliant cut oval
- Rhodolite Raspberry – Mixed cut oval
- Rhodolite Raspberry – Mixed cut oval
- Rhodolite Pink-Red – Emerald cut
- Green Grossular – Nugget bead strand

Amethyst, (Birthstone of February) crystalline quartz in shades of purple, lilac or mauve is called amethyst, the name is originally from the greek 'amethystos' which means to prevent drunkenness. The stone was traditionally worn to guard against drunkenness and to instil a sober and serious mind. No wonder the ancients loved to drink from an amethyst cup!

Structure is trigonal

Physical properties: hardness = 7 Specific gravity = 2.65
Optical: Refractive Indices = 1.54 – 1.55 Birefringence = 0.009

Folklore: Says it aids mental disorders, used in purification and regeneration on all levels of consciousness. Transmutes one's lower nature into the more highly refined aspects of higher potentials. Physical representative of the violet ray of alchemy and transformation. Cuts through illusion and enhances psychic abilities. Excellent for meditation and aids channeling capabilities. **Chakra(s):** third eye and crown.

Amethyst stock:

- Large perfect – Square cut
- Calibrated group – Seven 2mm round brilliant cuts
- Double cabochons – Bean cuts (pair)
- Double cabochons – Pillow cuts (pair)

Beryl, is the gemstone family that includes Emerald and . . .
Aquamarine, (Birthstone for March) a variety of Beryl that enjoys a romance with travellers (given and worn as good luck) and meditators use it for purpose and clarity. As the name implies it refers to water hence its long association with the tranquility of the sea. In the 19th century the preferred colour was sea-green as the name itself means sea water but today the most sought after colour is that of sky-blue and dark blue. Found mainly in Brazil, Nigeria and Zambia.

Structure is hexagonal

Physical properties: hardness = 5.5 Specific gravity = 2.80
Optical: Refractive Indices = 1.57 – 1.58 Birefringence = 0.008

Folklore: known as a nerve calmer, and aids the reduction of fluid retention. Known to strengthen kidneys, liver, spleen, thyroid thus purifying the body. Enhances clarity of mind and aids creative self expression.
Chakra(s): throat and solar plexus.

Aquamarine stock:

- Sky blue – Unusual high cabochons all carved
- Sky blue – Briolette pairs
- Blues – Flat and high cabochons

- Flawless Sky blues – Cushion cuts, brilliant cuts and step cuts
- Flawless Sky blues – Faceted and carved briolettes
- Blue Class (A) – Fancy cut strands
- Blue Class (A) – Button cut strands
- Blue Class (A) – Tube bead strands
- Blue Class (A) – Oval bead strands
- Pale blue – Long minute crystals
- Pale blue – Large square cut cabochons
- Pale blue – Graduated briolettes
- Huge Blue cabochon - Pear shape

Green Beryl stock:

- Flawless green – Faceted ovals, set of six
- Blue Beryl stock:
- Flawless Blue – Single kite cut
- Chrysoberyl stock:
- Light Green (and completely clean) – Brilliant cut ovals

Morganite, another variety of Beryl that is (thankfully) coloured by Manganese impurities, the pink, rose, peach and violet varieties are all called Morganite.

Named after the American Banker and gem enthusiast, J. Pierpoint Morgan.

Structure is hexagonal

Physical properties: hardness = 7.5 Specific gravity = 2.69
Optical: Refractive Indices = 1.58 – 1.59 Birefringence = 0.0086

Morganite stock:

- Flawless pinks – Set of 3 drop trillion cuts
- Flawless Pink – Large square step cut
- Flawless Pink – Set of 5 Baguette cuts

Golden Beryl, takes in the colour varieties between lemon, yellow and golden yellow. The pigment present is probably iron and is mostly flawless. New experimentation with faceting and carving is taking place with the younger contemporary cutters and we have embraced these new developments, see below.

Structure is hexagonal

Physical properties: hardness = 7.5 Specific gravity = 2.8
Optical: Refractive Indices = 1.58 – 1.59 Birefringence = 0.005

- Lemon – High voluminous cabochon (multiple) pairs
- Lemon – Matched scissor cuts in fours & pairs
- Yellow – Pair of new triangular faceted cushions
- Golden yellow – Pair of new Triangular faceted cushions
- Golden yellow – Large eight sided carved and faceted stone
- Golden yellow – Lozenge shaped carved and faceted stone
- Golden yellow – Pair large pear shaped buff tops

Diamond, (Birthstone for April) The hardest mineral on earth and most the revered/remembered of gem stones probably because from olden times it was known as the thought amplifier. All types are used from marriage bonds (pure and colourless) to industrial grades. Diamonds are graded by colour, cut, clarity and carat (weight) – the four c's.

Structure is cubic

Physical properties: hardness = 10 Specific gravity = 3.52
Optical: Refractive Indices = 2.42 Birefringence = none

Folklore: Enhances brain function and aids the alignment of cranial bones. Breaks up blockages in crown chakra and in the personality. Master healer. Disperses negativity and reflects the will and power of God. Enhances the full spectrum of energies in mind/body/spirit. **Chakra(s):** all

Diamond stock:

- Whites – Brilliant cuts
- Brown – Brilliant cuts (parcel of twenty)
- Brown – Flat cuts
- Cubic habit – uncommon (multiples) and sliced crystals
- Whites – Antique rose cuts
- Cape coloured – Briolettes

Emerald, (Birthstone for May) derives its beautiful green colour from the presence of chromium and vanadium. Emeralds are rarely flawless and usually have either cloudy inclusions or

tremolite inclusions that are usually seen as short rods or long fibres.

Structure is hexagonal

Physical properties: hardness = 7.25, Specific gravity = 2.71

Optical: Refractive Indices = 1.57 – 1.58 Birefringence = 0.006

Folklore: Historically it was one of the most valuable stones and used for curing a wide range of ailments. Cleopatra's mine near the Red Sea has been mined since 2,000 BC. Aids alignment of subtle bodies and is a dream enhancer and used to aid deeper spiritual insight. A strong emotional balancer Chakra(s): heart, solar plexus.

Emerald stock:

- Bright deep green – Octagonal step cut
- Flat beveled - Carved top and base
- Flat beveled - Carved top and base
- High cabochon – Carved top and base
- Fancy cut large – Drilled beads
- Crystal lengths – Drilled beads

Moonstone, (Birthstone for June) is the opalescent variety of orthoclase with a blue or white sheen (or schiller), rather like a shine of the moon after which it is named. This is caused by the reflection of light from the internal structure, made up of alternating layers of albite and orthoclase feldspar. Stones of large size and fine quality are rare, we also have beautiful carved ones!

Structure is monoclinic

Physical properties: hardness = 6 Specific gravity = 2.56

Optical: Refractive Indices = 1.51 – 1.54 Birefringence = Vitreous

Folklore: Said to align emotions with the higher self. Has healing affinity with the stomach, spleen, pancreas and lymphatic system. Relieves anxiety and stress and aids the birthing process. Emotional balancer, helps lessen the tendency to over-react emotionally. Chakra(s): heart.

Moonstone stock:

- Rainbow Moonstone – Cabochon high round
- Rainbow Moonstone – Carved round (multiples)
- Rainbow Moonstone – Cabochon round
- Rainbow Moonstone – Cabochon high round cat's eye
- Rainbow Moonstone – Faceted round (pair)

Ruby, (Birthstone for July) One of the hardest and most durable gemstones, Corundum enjoys a preeminence amongst gems. The finest specimens command the highest prices of any precious stones. Depending on the Chromium and Iron content of the stone, Rubies run shades of red, from pinkish to purplish or brownish red. Ruby is found mainly in Thailand, Burma and East Africa.

Structure is trigonal

Physical properties: hardness = 9 Specific gravity = 4.00

Optical: Refractive Indices = 1.76–1.77 Birefringence = 0.008

Folklore: Aids regeneration of physical/spiritual heart. Enhances circulation and vitalises the blood. Strengthens immunity. Helps to refine lower passions. Helps banish sense of limitation. Chakra(s): root and heart

Ruby stock:

- Large & small drops – Drilled
- Best colour – Fine round cabochons
- BET Red parcel of eight ovals
- Drilled drop
- Oval cabochons – Star effect
- Pear cut Burmese pair

Spinel, occurs in a wide range of colours, it is a tribute to this usual red or pink gem that many of the world's celebrated 'Rubies' (including several in the Crown Jewels of England) were found to be Spinel. Even after they were correctly identified as Spinel, these gems were still referred to as 'Balas Rubies' or 'Ruby Spinel'. The red is coloured by chromium, the blue is coloured by the presence of iron. They are found mainly

in Burma and Sri Lanka.

Structure is cubic

Physical properties: hardness = 8 Specific gravity = 3.60

Optical: Refractive Indices = 1.71 – 1.73 Birefringence = none

Folklore: Mostly covered by the Ruby detail. The name may derive from the Latin word spina, meaning little thorn, referring to the sharp points on some crystals.

Spinel stock:

- Mauve & Blue – Brilliant cuts round
- Bright Red – Drilled tear drops
- Red – Drilled drop

Peridot, (Birthstone of August) is mineral olivine but we see the gem quality specimens cut for use. The bottle green colour is due to the presence of iron, it has a distinctive oily or greasy lustre. Good quality crystals are rare.

The Crusaders brought peridot to Europe in the middle ages, transporting stones from St John's Island in the Red Sea where it has been mined for over 3,500 years.

Structure is Orthorhombic

Physical properties: hardness = 6.5 Specific gravity = 3.34

Optical: Refractive Indices = 1.64–1.69 Birefringence = 0.036

Folklore: Strengthens heart and eyes, Aids tissue regeneration, reduces stress and helps personal disorders. Chakra(s): navel solar plexus and heart.

Sapphire, (Birthstone for September) one of the hardest and most durable gemstones, they have been most revered throughout the ages. The Persians believed the world rested on a sapphire, thus producing the blue colour of the sky. Many ancients believed that the Ten Commandments were written on a sapphire tablet. Sapphire is found mainly in Sri Lanka, Thailand, Australia and East Africa.

Structure is Trigonal

Physical properties: hardness = 9 Specific gravity = 4.00

Optical: Refractive Indices = 1.76–1.77 Birefringence = 0.008

Folklore: Strengthens heart & kidneys, Activates pituitary gland thereby aiding entire glandular system. Aligns body/mind/spirit, stimulating psychic abilities, clarity and inspiration. Excellent for meditation. Chakra(s): throat and third eye.

Sapphire stock:

- Padparasha - Numerous colours all faceted
- Ceylon – Princess cuts
- Orange – Trillion cut
- Orange BET – Princess cuts
- Orange – BET Oval brilliant pair
- Pinks – Faceted set of three stones
- Purples – Oval brilliant cuts
- Yellows – Buff tops
- Yellow – Cabochon pair & large oval cab
- Chrome Yellow – Large brilliant cut oval
- Greens – Princess cuts – Trillion cuts
- Fine Blue – Faceted oval
- Fine Blue – High round cabochon
- Blue – Teardrop pair with mounts
- Blue Grey – Oval
- Pink & Blue – Radiant cuts
- Pink – Three trillion cuts
- Round Ceylon – Star
- Pale Pink – Round cabochons
- Dark Blue - Bright Australian group
- Mixed set – Oval cuts
- Brown – Brilliant cut
- Blue Grey to Greens with Pinks – Seven graduated strands

Opal, (Birthstone of October) up until the 1800s the Opal was a gemstone symbolising hope. However in 1817 with the production of Sir Walter Scott's book, Ann of Geierstein, in which the Opal was used as a symbol of mis-fortune, the

gemstone lost its popularity. It later regained favor when Queen Victoria, a devotee who presented her daughters with wedding gifts of Opals. The name is derived from the Indian name for 'stone'. Found mainly in Australia, Brazil and Mexico.

Structure is amorphous
Physical properties: hardness = 6 Specific gravity = 2.10
Optical: Refractive Indices = 1.37 – 1.47 Birefringence = none

Folklore: Pretty well covered in the above, it is a hardened silica gel usually containing a small percentage of water. It is therefore non-crystalline, unlike most other gems and may eventually dry out and crack. Known to stimulate the pineal and pituitary glands, thus enhancing intuition and is an emotional balancer. Chakra(s): heart (and depending on colour), is said to assist others as well.

Opal stock:
– Oregon Fire opal – Hexagonal with buff top
– Mexican Fire opal – Lighter, base faceted buff top oval
– Mexican Fire opal – Darker, base faceted buff top oval
– Mexican Fire opal – Two transitionals, square and round Cabs
– Mexican Fire opal – Fantastic orange faceted bead strands
– Australian Boulder opal – Pairs and singles, twenty doublets
– Australian opal – Tube bead drilled strands
– Australian Lambina opal – Graduated drilled orange strand
– Australian opal – Button shaped drilled bracelet beads
– Australian Free forms – all unusual Hong Kong cuts
– Peruvian Blues – High cabochon, round & smaller pair
– Peruvian Blue-Green – Cabochons, three shapes
– Peruvian Blues – Spheres drilled as strands

Tourmaline, (also October) occurs in the widest array of colours of any gemstone species. It has only been recognised as a separate gemstone family in the last 250 years. Green and red were long mistaken for emeralds and ruby. Emerald green is the most rare with the colourless Achroinite (a variety of Elbanite) being particularly scarce. Found mainly in Brazil, Mozambique, Madagascar, Nigeria and the United States. We have friends from San Diego, California who mine and cut them in newer contemporary cuts you'll love to own.

Structure is trigonal
Physical properties: hardness = 7.5 Specific gravity = 3.6
Optical: Refractive Indices = 1.62–1.64 Birefringence = 0.018

Folklore: All colours aid in the balance of the endocrine system, and help to fight sleeplessness. Activates and enhances the crystalline properties of the body/mind. Chakra(s): Black tourmaline (schorl) root, Watermelon (red/green) root, Green heart, Blue (indicolite) throat, third eye Red/Pink (rubelite) root & heart.

Tourmaline stock:
– Green to Black – Hand drilled beads and drops (multiples)
– Emerald Green African – Brilliant cut
– Emerald Green Brazilian – Pear cut (large)
– Chrome – Cabochons
– Chrome – Pear cuts
– Chrome – Square step cut deep stone
– Raspberry Rhodolite – Ovals, both brilliant cuts
– Pink – Brilliant cut with buff top
– Pinks – Cabochons in ovals, squares, triangles and pairs
– Pink to Purple – Double cushions (large)
– Bi and Tri-coloured – antique carved tops (multiples)
– Pink & Green matching – Brilliants with buff tops (several pairs)
– Smokytrines – Newer cuts, lozenge and pairs
– Brown – Dravites in single drilled beads and faceted stones
– Paraiba – Pair of high cabochons
– Himalayan Achroinite – Stepped flats (pair)
– Tourmaline & Amethyst – Cabochon beans (pairs)

Topaz, (Birthstone of November) All colours have the distinction of being curative. Among other things it apparently cools temperatures, restores sanity, has cured asthma & relieved insomnia AND even warded off sudden death! Topaz is found mainly in Brazil, Nigeria and Sri Lanka.

Structure is orthorhombic
Physical properties: hardness = 8 Specific gravity = 3.54
Optical: Refractive Indices = 1.62 – 1.63 Birefringence = Vitreous

Folklore: (Gold topaz) Big on tissue regeneration and detoxification processes. Warming and awakening are descriptions of its powers. Chakra(s) navel, crown.

Topaz stock:
– Yellow – Buff top oval
– Imperial gold – Brilliant cuts round (pairs)
– Great oval millenium cut 4.36ct

Turquoise, (Birthstone for December) is found as microcrystalline, massive form usually as encrustations, as veins or as nodules. It is opaque to semi-translucent, light and very fragile. Wax or resin maintains its appearance. Funny that the Persian Blue colour is found in Arizona hey? (I have two palm-sized specimens from a famous 19th Century USA collection).

Structure is Triclinic
Physical properties: hardness = 6 Specific gravity = 2.80
Optical: Refractive Indices = 1.61 – 1.65 Birefringence = 0.40

Folklore: Strengthens the entire body. Aligns chakras. creative expression and peace of mind. Chakra(s) throat

Turquoise stock:
– Stabilised Blue – Perfect Chinese square cabochons
– Stabilised Blue – Perfect Chinese pear shapes
– Carved Blues – German cut flowers

Iolite, is a beautiful violet-blue gemstone, whose name is derived from 'ios' the greek word for purple. Because of its soft, almost liquid colour it is often mistaken for Sapphire. Iolite is found mainly in East Africa and India. Recently it has become supremely fashionable and in Tucson is highly sought after. It can be recognised by its strong pleochroism, visible without equipment, which gives the gem its other name of dichroite.

Structure is orthorhombic
Physical properties: hardness = 7 Specific gravity = 2.63
Optical: Refractive Indices = 1.53 – 1.55 Birefringence = 0.010

Folklore: Nothing gleaned of interest to pass on.

Iolite stock:
– Purple gem quality – Checkerboard cut
– Purple gem quality – Checkerboard cut
– Purple gem quality – Buff tops (multiples)
– Purple gem quality – Newer faceted cut strand
– Purple gem quality – Faceted smaller cut strand

Sunstone, is a species of plagioclase feldspar and the variety used in jewellery is the aventurine feldspar named sunstone. We remember seeing it first at Tucson in 1999 where it was voted the gemstone of the show and research shows it was only discovered in 1980 in Oregon, USA. Our stocks come from friends who mine and cut this unusual gem, all have been sold but one fantastic specimen.

Structure is triclinic
Physical properties: hardness = 6 Specific gravity = 2.64
Optical: Refractive Indices = 1.54 – 1.55 Birefringence = 0.007

Folklore: Nothing found.

Sunstone stock:
– Orange Lozenge - Faceted base, checkerboard cut top

Kunzite, is a member of the Spodumene family and is named after George Frederick Kunz, who in the latter part of the 19th Century was the chief gem buyer for Tiffany & Co New York. He was a pioneer of the science known as Gemmology. His most significant book is 'The curious lore of precious stones';

an illustrated guide to the History and Powers of Gemstones published by Bell Publishing Company NYC USA. The two gem varieties- lilac pink (coloured by manganese) and bright emerald-green called Hiddenite (coloured by Chromium) are very popular with collectors. (That's why I won't sell the Johnson Fong octagonally cut piece I have).

Structure is monoclinic
Physical properties: hardness = 7 Specific gravity = 3.18
Optical: Refractive Indices = 1.66 – 1.67 Birefringence = 0.015

Folklore: Very high lithium content used for manic depression and mental disorders. Aids in longevity and is used as an emotional balancer. Soothing and calming qualities.

Kunzite stock:
– Large faceted sample 13.55ct from Johnson Fong (Hong Kong)
– Bi-coloured 4.29ct

Jadeite (Jade) and Nephrite (Jade), are recognised separately since 1863. Nephrite is found as aggregates of fibrous amphibole crystals. These form an interlocking structure tougher than steel. Hence it was first used as weapons and now used as ornament. Jadeite is made up of interlocking, granular pyroxene crystals and occurs in a wide range of colours, we seek the lilac tints and the most prized variety being the imperial jade colour, rich emerald-green, due to the presence of chromium. Also seeking the black nephrite found in Australia.

Structure is monoclinic
Physical properties: hardness = 6 Specific gravity = 3.33
Optical: Refractive Indices = 1.66 – 1.68 Birefringence = 0.012

Folklore: One of the few gemstones to have retained its ancient association with medicine and magic and is often worn as an amulet. Strengthens heart, kidneys, immune system. helps cleanse blood. One of the toughest known minerals. Known (of old) to cure hip and kidney complaints.

Jade, Nephrite & Serpentine stock:
– Pi disc – Timeless style (we use a bracelet enhancer)
– Burmese Jadeite – Unusual cuts, polished forms, by Janis Ho
– Burmese Jadeite – Go-Go loops (copied from the Hmong people)
– Burmese Jadeite beads – all unusual necklace shapes; cones, lozenge, button and free-form discs
– Antique Jadeite – Bracelet flats and beads
– Antique Nephrite – Collection of amulets to be recycled
– Antique Serpentine pieces – Four esoteric shapes to be recycled

Pearl, (also June) is formed in shellfish - especially oysters and mussels as a natural defence against irritants. Layers of aragonite, known as nacre, are secreted around the irritant and gradually build up to form the pearl. Every cultured pearl should be examined using the following four judgements; Lustre, Colour, Size and Surface.

Various types abound; Akoya are saltwater pearls from the (*Pinctada imbricata*) oyster, generally round but they come in shapes called baroque, button, oval and drop. Primarily white, cream and yellow, they do come with greenish overtones and sometimes grey. But seldom pinkish to rose. White South sea cultured pearls are harvested from a type of mollusc called (*Pinctada maxima*). This is the biggest of all species and includes the (gold-lipped or yellow-lipped) shell and the (white-lipped and the silver-lipped) shell we know of here in Australia. Tahiti cultured pearls come from the (black-lipped) oyster found in that territory. Fresh water pearls are mainly from the (*Hyriopsis schlegelii*) freshwater mussel. The Japanese started cultivation in the Lake Biwa region in 1946 and strangely all good white freshwater pearls are called after this region's high quality lustreous stock and the extraordinary natural colours of their nacre. The Mabe cultured pearl is a half pearl from the (*Pinctada margaritifera*) or abalone shell and are known as blister pearls. Keshi; a Japanese word meaning 'poppy' is probably the hardest to distinguish from all pearls as it is the only pearl resulting

from seawater cultivation without man-made nucleus and as such is a special pearl appreciated by true pearl lovers worldwide. Reshi; a special pearl we have sourced from Hong Kong merchants which has an unusual gold lustre and has become most fashionable of late.

Structure is orthorhombic
Physical properties: hardness = 3 Specific gravity = 2.71
Optical: Refractive Indices = 1.53 – 1.68 Birefringence = n.a.

Folklore: Once thought to be the tears of Gods. The gem of the Moon and of Venus. They have a history going a far back as records exist. Mainly coveted by Kings and Princes of the Church, the nobility and found in significant collections throughout the ancient world. Sensitive to acids, dryness and humidity and so are less durable than most gemstones.

Pearl stock:
– Mabe – Three sided different coloured
– Mabe – Newstock from N.W. Australia
– Natural freshwater – Myriad shapes and colours
– Natural freshwater – Winged and baroque specials
– South Sea – Large Tahitian blacks
– Keshi – Whites to silver to greys
– Reshi – Golds
– Natural freshwater – Mississippi purple-pimpleback
– Natural freshwater – Numerous strands
– Dyed freshwater – Numerous strands

Zircon, (Birthstone for December) has been known since antiquity. The intense fire and great brilliance comes from its high refractive index and its strong dispersion. Although 6.5–7.5 on Moh's hardness scale the stone is never the less easily damaged at the edges and can be sensitive to pressure and knocks.

All Zircons (except the rare Green colour) have strong double refraction which can be seen under the loupe at the facet edge, an important identification mark as Zircon has always been fraudulently offered as Diamond.

The yellow-Red and Red-Brown colour is called Hyacinth. The Blue variety is called Starlite and is usually heat enhanced. The Green variety is rare to the trade and are sought by collectors.

Structure is conchoidal
Physical properties: hardness = 6.5–7.5 Specific gravity = 3.9–4.71
Optical: Refractive Indices = 1.77–1.98 Translucent

We have a couple of beautiful faceted stones to view
– Cambodian Red-Brown oval 3.14ct
– Cambodian Blue oval 2.98ct
– A single synthetic round brilliant cut for the collection

Folklore: Nothing, but in his tract in 'The curious lore of precious stones', Frederick Kunz mentions on page 238 that the Kalpa Tree; the symbolic offering to the Gods, in the Hindu religion has the foliage (except the young leaves) entirely formed of Zircons. Remember that Zircon also can have relatively high content of radioactive elements; Uranium and Thorium which cause large variations of the physical properties of these gems.

Last updated October 2005.

Sources: 'Solid Friends' notes, Daddow's Rock Shop notes, Michael Gates' Santa Rosa notes, Cally Hall's 'Gem Stones'; a Collins Eyewitness Handbook, George Kunz's book mentioned earlier, Jewellery World's Pearl Issue January 2003, my buyers notes and Tucson AGTA Guide books. Help from R, Webster's 5th Edition 'Gems, their sources, descriptions and identification'. And my fave rave; Walter Schumann's 'Gemstones of the world'.

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