

# 12 Power Gems the myth, magic and science of crystals

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Aquamarine crystal from Shigar Skardu in Pakistan.

## Introduction

There are so many beautiful gems and crystals so, as you can imagine, to narrow them down to just twelve is not an easy task.

If that is the case, you may ask 'why just choose twelve?' First – it's a matter of space. I could write a whole book, or I could focus on just twelve stones in a more in depth way for this 'pocket guide'.

The number twelve symbolises a complete cycle – we have 12 months of the year, and 12 signs of the zodiac. There are 12 hours of the day and night in our modern timetables. It's likely that the number twelve was used for all these cycles because, as the result of 3 x 4, it symbolises both spiritual and temporal order. Three is the spirit overcoming duality, while four is the number of the earthly realms – such as the 4 directions, etc.

However, I haven't followed any of the traditional gemstone systems when deciding on the power 12. I've chosen them based on their intrigue (the folklore and stories surrounding them), their good looks (all these gems have strong colour and visual appeal), and their various attributes and powers that have come down to us through the centuries.

The idea is to get under the surface of the generally accepted gemlore, looking for correlations in how the gems have been used over the centuries. There's also a little bit of history, and a few anecdotes, but I've tried to keep it concise, since I know you don't have a lot of time. However, if you do want to read more let me know because this is the abridged version of all my research.

When talking about folklore or medieval medicine, or metaphysical attributes I don't use the words 'it's claimed' or 'they believed'. I'm not making any judgements on the folklore or the traits attributed

to stones, and I'm not interested in dismissing traditional or ancient understandings because they don't comply with how we expect that the world works.

I am just as fascinated by where gemstones come from and how they were made – by specific geological forces or events over millions of years – as I am by their various characteristics and properties.

Therefore, you'll find some of the science of gemstones here – both the geology and industrial applications. It's interesting that the crystalline properties of gems are not only used in devices that require precise timing, or pressure, but also in the field of electronics.

For those of you whose brains feel numb when you read about science, I've divided the chapters on each stone into sections so you can skip over that bit!

Overall, I am looking for synthesis, bringing together ancient and modern, into what could be called future knowledge. In each of these power gems I've looked for a blend of these to get a clearer picture of just what makes this rock special.

Whether you consider the folklore, or symbolism, the 15 million years it took to grow, the minerals that shaped it, the hands that it has passed through before it arrives in yours, or the intention that you wish to use it for, a power gem is made by the connections that adhere to it, the intentions it contains, and the energies it amplifies.

#### How to choose your stone

Are you thinking that you'd like a gemstone, but you're a bit overwhelmed by your choices? There are so many gems out there, and the 12 I'm talking about here are really just a taste of the possibilities open to you.

In some cases, you may read the attributes of a particular stone and then know that is exactly what you need. But even if this is the case, I still encourage you to consider the following.

#### The intention for the gemstone.

- Is it for a wedding or other love token? Don't feel you have to follow the traditional path when it comes to engagement rings and so on. You can choose any of the harder stones for these rings – and even the softer stones can work if they are set appropriately.
- Perhaps you are looking to mark another kind of occasion or landmark in your life?
  The intention for the iewellen, may then point you towards.

The intention for the jewellery may then point you towards particular qualities in the gemstones themselves.

#### Approach it from the sensory and sensual point of view.

- Do you have a favourite colour?
- What emotions, or feelings do you associate with these colours?
- Do these match the intention of the piece of jewellery?

#### Use your intuition

This is an extension of the sensory approach.

- Let go of logical reasons, and all the stories that you may be telling yourself about the gem you want.
- You may have been reading about a particular gem, nonetheless keep an open heart because when you are looking you may feel drawn to an entirely different gem by your intuition.
- If you find yourself drawn to a particular gem, or one that is different to what you expected, you can cross check the

attributes and qualities associated with that stone just to see if it feels appropriate for your intentions.

- If you are buying a gem or jewel and are faced with a shop full of choice, see which piece you are immediately and initially drawn to. How does it make you feel?
- There are many stories that I've been told about people walking past a gem shop and being suddenly 'called' into the shop where they've found a gemstone that they are immediately drawn to.

#### Be practical

- Since a ring faces much more stress than any other piece of jewellery its always good to choose a hard stone especially if it is to be exposed in a claw setting.
- Softer stones can be set in rings but they must be protected within a full bezel, or only worn as special occasion pieces.
- Generally earrings are best when choosing a piece of jewellery made with the softer stones. Pendants can be fine if they aren't too long.
- Crystal hardness is measured on the Mohs scale (invented in the 1800s by Dr Mohs as a comparison chart). At number 10 is the diamond, which is 140 times as hard as corundum (rubies and sapphires) at number 9. While these are 80 times harder than topaz at number 8. Quartz sits at 7. I've made note of the Mohs measurement in the chapter on each stone.

#### What is a crystal?

Strange as this may seem, considering gemstones generally gain their mystique from an aura of rarity, crystals are all around us. But their omnipresence should be more a cause of wonder than a reason to be dismissive of their powers.

Minerals are crystals. Most dust is silicon quartz, as sand is crystalline. A gem can be formed in the gas bubbles of molten magma 100kms below the earth's crust, rising to the surface in volcanic eruptions. Even when exposed to the elements over time, breaking down through erosion, all geological crystals still maintain their essential crystalline structure.

Many living organisms can also produce crystals (organi-genic crystals). For example mollusc shells are layers of calcite crystals, and the now extinct trilobite had unique compound eyes composed of clear calcite crystals.

Pearls are created by the oyster when it secretes the mineral aragonite to cover an irritation in its delicate belly. While, in addition to collagen, our bones contain the mineral apatite, which also occurs as a pretty blue gemstone.

Liquid crystalline forms of magnetite, found the brains of migrating birds, help them to orient themselves to the polarities of the earth. This same form of magnetite is also found in the human brain, although nowadays we depend more on GPS than our brain's inbuilt navigational capabilities.

Microscopically a single crystal has atoms in a near-perfect periodic arrangement (meaning highly regular intervals). Snowflakes, salt and diamonds are single crystal forms. The hardness, density, and diffusion of a crystal is determined by its grain boundaries – in other words the spacings between the atoms. Many minerals are poly-crystals rather

than single crystals and gemstones such as pearls and opals, while composed of microscopic crystals, are actually amorphous materials with irregular atomic spacings.

The creation of a gem, deep underground is quite a wondrous process. If we were putting together a recipe for a gemstone it would read something like this:

- Combine all mineral ingredients a selection of minerals available in a particular geological location, and sometimes an influx of new minerals due to volcanic explosions, tectonic plate movement and the like.
- Cook under very high temperature generally pretty darned hot, upwards of 500°c
- 3. Maintain a lot of Pressure perspective: up to 5000 times the atmospheric pressure we experience at sea level.
- 4. For a long period of time anywhere from 15 million to a few billion years
- 5. Make sure there's some space for expansion. Crystals can grow in the cracks of rocks, or in caves, or in gas bubbles of lava. The important thing is that there is enough space for the liquid to expand into. If there is enough time, and the mix is right, crystals can become enormous. The giant gypsum crystals in La Cuerva de Los Cristales are large enough to dwarf a human.
- 6. Once well cooked, allow to cool (give it a few thousand years) although some crystals only form after things have cooled down.

Rather like baking a perfect cake, all the conditions have to be just right. And some crystals can get very complex; while others can change from one type into another when mineral influxes change. Very few gemstones are created from one mineral (diamonds are pure carbon) and most get their colour from trace amounts of other minerals. You'll find iron and titanium in blue sapphires and a dash of chromium makes corundum into a ruby. But if you add a bit of chromium to a beryl you get an emerald. Then there are all the variations in environmental conditions, which can mean a single fluid mix may actually produce entirely different crystal forms. Diamonds and graphite are two crystalline forms of carbon but the diamond is one of the hardest substances known and graphite is soft enough to write on paper.

Some crystals are formed in magma (liquid rock and gasses) while others are shaped by metamorphic processes where existing rock changes form due to heat and pressure, in the way marble is recrystallised limestone.

They could result when the collision of continental plates raises mountains, and rocks melt with the forces. Others form as lava solidifies after an explosion, or ithey grow in plutonic rocks inside the earth, cooled very slowly and under great pressure. Other crystals form within rock layers as water infused with minerals slowly drips into the crevices and then just as slowly evaporates, in arid climates, over long stretches of time.

In essence, crystallisation is an alchemical process, where molten minerals combine with great heat and pressure over an enormous length of time. In the darkness of the earth, liquids solidify into beautiful forms with astonishing richness of colour, extraordinary strength, and transparency that is only revealed when they come to light.

The unique qualities of a crystal allow it to insulate, and oscillate, resonate, and transform electrical energy. While these properties and behaviours are mostly used for electronic processes and industrial devices, we can also call on a crystal's electro-qualities because our bodies are, like the universe, alive with electromagnetic forces.

Synthetic gems aren't glass, or 'fake' crystals. They have the same crystalline structure as natural gems, but they take about a month to grow in lab conditions instead of tens of million of years.

Many argue that synthetics are a more environmentally friendly way to acquire gemstones. Putting aside the waste products and energy used to produce them, this is probably right. Certainly when people are simply concerned with the colour and appearance of a stone then choosing synthetics makes a lot of sense.

If, however, you are in anyway interested in the metaphysics of a stone then there is no comparison between a gem produced through the alchemical processes of the earth, and one made in a lab under mechanical conditions.

It is also important that when you are using a gemstone for any amuletic or ritual purposes that you are conscious of the conditions under which the stone may have been mined. All mining can be described as a fairly brutal process, although gemstones are also found in alluvial deposits. It's not always possible to know the stone's place of origin, which is why it becomes super important to cleanse the stones for yourself.

#### "So what can a power gem do for me?"

Ok, so you like gemstones, but you are feeling a little cynical about their purported effects. How can a crystal really do all the things that people say they do? There are a few ways that we can look at this question.

Firstly, the medical efficacy of gemstones, when used by physicians from Classical Greeks, Hindus, and Arabs through to Europeans in the 17<sup>th</sup> century, could be what we now know as the placebo effect.

The placebo effect is not some 'all-in-your-head' psychosomatic fantasy but a well-documented fact even in modern medicine. Placebos work at least 30% of the time and sometimes have up to 80% effectiveness. In modern medical trials placebos are actually used as the standard against which a drug's effectiveness is measured. If a drug cannot prove to be more effective than a placebo then it doesn't pass muster.

In addition there are many cases of spontaneous remission from very serious diseases, documented as much in the modern world as in ancient times. We just do not hear about these from mainstream news sources, or even from our doctors because they are all considered a bit strange and inexplicable.

However, our bodies are not inefficient machines inclined to breakdown, which has been a prevailing view in the medical world. Together the body and the mind form an intricate system with an extraordinary (non-logical) intelligence capable of remarkable self-healing. The research of Dr Lissa Rankin shows the placebo effect may depend as much on the patient's impression of the doctor's attitude.

People placed as much trust and authority in their physicians in ancient times, as we do today. Therefore we can expect that the patient's faith in the stone's reported powers, as well as their faith in the physician's abilities (and previous successes) increased the likelihood of all kinds of miraculous recoveries.

One thing we should credit the ancients with is an awareness of the connection dis-ease has to body, mind and spirit, something we actually lost track of in the modern world until quite recently. We are barely scrapping the surface when it comes to scientific knowledge of the extraordinary healing that our bodies are capable of, when supported by the right attitudes in our selves and our environments.

Our gemstones are part of that environment, both in terms of how they are created and in the way that when we wear them they become intimately connected to our bodies.

Secondly, crystals themselves possess some pretty impressive natural properties – so impressive in fact that they commonly used in many scientific and industrial processes that would have been impossible without them.

Piezoelectricy is one of the best known and most utilized properties of crystals. The stone can generate electricity, under pressure, by converting mechanical vibrations to electromagnetic oscillations. Because of the highly ordered atomic structure of crystals they are able to vibrate at very precise frequencies, making them useful for not only watches and gauges, but also for the development of microphones, loudspeakers, radios and other audio and video equipment. Precise crystal shapes vibrate at precise rates, transforming electricity into waves that can be broadcast as radio or television signals. They also transform solar energy into electricity in photovoltaic cells. In a microcircuit a small amount of crystal, for example quartz or sapphire, stores the energy that is the computers memory. Crystals, such as rubies, also focus the energy in lasers.

We are learning more and more about how our own bodies generate subtle electromagnetic fields, the disruption of which affects our health and wellbeing.

We have magnetite crystals in our brains, and the mineral apatite along with collagen makes our bones into an LED – when stimulated with external energy in the form of light our bones emit infrared light. Our brain's theta waves resonate at the same frequency as the earth's ionosphere (7.8hz – called Schumann Resonance). The electromagnetic field of our heart is 1000 times stronger than our brain, and has a measurable impact on other people's fields, as well as being affected by our own thoughts and emotions. I know of more than a few people who send electronic devices (like computers, cash registers, photocopiers) into a spin – particularly when they are in bad moods!

Light, sound, magnetism and thought energies have all been used to heal people, and to affect other things, not only in ancient times but also in the modern age. You may already be aware of light therapy, colour therapy (and colour is a result of light), magnetic therapies and the power of prayer and intention for healing.

When we consider the electro-magnetic forces in our own body, and the particular electro properties of crystals, it is not so difficult to see how we can use the ability of crystals. We can work with them to amplify subtle energies, to focus thoughts, store energy as information, and transfer energy over a distance (as in telepathy) or to communicate with other forms of consciousness in the same energy field (minerals, plants, animals, non-tangible beings etc). These qualities fit with many of the ways that gemstones have been used through the ages. And they make gemstones and crystals appropriate accessories for realising our intentions.

Even if you find all of this unconvincing, I invite you to consider that, if the powers of gemstones operate on a purely metaphorical level, don't think that the symbolic is entirely disconnected from the physical world, or that your body and wellbeing is not in anyway influenced by something intangible like metaphor and symbol.

It is actually not so simple to separate the physical world and the mind, as we in the West have been encouraged to believe for the last four hundred years. I talk more about this in the next chapter on philosophy.

#### Some philosophy (read at your peril!)

Our entire universe from the mythical Big Bang via the emergence of hydrogen, helium, galaxies, fixed stars, planetary systems, viruses, bacteria, fleas, dogs to the Glorious Arrival of Western Man has been constructed by generations of scientist-artisans from a partly yielding, partly resisting material of unknown properties.

- Paul Feyerabend

For some time now in the West we have followed the notion that spirit is quite separate from matter. At the extreme end of this belief matter is animated simply by chemical and electrical reactions, which have evolved through random chance into the complexity that exists today. And spirit is a rather challenging concept.

Or if you're not on the agnostic side of the argument, spirit enters matter and animates it, which is rather how God has been imagined in our culture for a few millennia. It follows a conception that has come down to us from the Classical Greek philosophers.

Following these notions of matter as mechanical and inanimate, crystals are considered 'inorganic'. And yet there in our very organic bones and brains we find mineral crystals. If minerals are inorganic materials what function can they serve in living tissue? Not to mention that certain minerals are essential nutritional supplements. In short, a lot of categories that have been developed around 'life' and 'animation' are problematic.

Crystals grow like other organic life, only at an entirely different time scale. Think of a spectrum of time, a scale of numbers 1 to 10 where our human conception of time and being, dictated by our life span, is maybe a 7 or 8. 10 would be the world of a fly, a butterfly or other small, fast moving, short-lived thing. Down the other end at number 1 time flows in a way where mountains move like water. This is the scale of time in which gemstones grow.

In essence, a crystal's power comes from its ability, in interaction with light, to amplify, store, focus, and transform energy. While this is quite accepted in science applications, many are sceptical of the crystal's ability to do the same at a metaphysical level.

We need to realise that the terms 'physical' and 'metaphysical' are no longer valid divisions. According to Einstein, matter is in fact the principle part of the electromagnetic field, and electric energy is therefore the fundamental origin of our entire physical world. For some this shuts down possibilities and denies spirit, but only if your world view divided matter and spirit in the first place. Since electromagnetic forces are still not clearly understood there are still spaces available for the mysterious, the unexplained, and the spirit.

How does the world look if there is no division between spirit and matter? What kinds of things become possible? And lest you think this is just an exercise in rhetoric, consider how much our language limits the ways that we can understand the world. Anyone who speaks more than one language also knows that some ideas in one do not translate clearly across to the other. And its particularly hard if the concept you're trying to explain does not even exist in the other language. Reality shifts are required.

This is exactly what happened when Western anthropologists studied the spiritual concepts of indigenous people. They were forced to shape these concepts to fit our own ways of understanding the world. Deformation and distortion resulted. The category of 'supernatural' (a Western invention) was applied to any concepts that didn't fit our view of reality. If we can't grasp the reality of a Navajo medicine man for whom a piece of turquoise is a sacred tool, does that mean the turquoise does not do the work he uses it for?

In ancient times a gemstone had a symbolic and auspicious significance, and the symbol was experienced in such a way that the gemstone and the concept it symbolised couldn't be separated. Do we still believe in any innate power held within the symbol? Can a symbol also be an experience nowadays? Or is it more likely to be just

a reminder, evoking thoughts, or emphasising beliefs?

In fact our language is symbolic, we talk continually in metaphors. We use them to explain our personal realities; scientists use them to explain the reality they are seeing in test tubes and particle accelerators. And language and symbol are not intangible ideas confined to the mind. Modalities like NLP recognise the links between our nervous systems, and subconscious, the way we talk, and how well we perform. Research into the placebo effect, mentioned earlier, shows that what our doctor tells us, or what we tell ourselves, can be as effective as any drug when it comes to our physical health.

Let's take another symbolic example, the Evil Eye. This is a symbol of the intention to harm, but it's not just symbolic. Jealousy, hatred, desire for revenge, all these are only emotions, not yet actions, and yet for millennia people were convinced these intentions had an effect. However, this might not be simply a curious 'superstition', but an intuitive fact. Recent experiments using scientific methodology document the impact of human intention on colonies of bacteria in Petri dishes, or in yoghurt. And yes, intention has a measurable impact. Interestingly, negative thoughts or intentions are most harmful from a distance and positive thoughts are more effective up close. Just made an enemy? Someone unhappy with your behaviour? Could be time to call upon one of those gems that protect against the Evil Eye.

Let's also give some credit to the extraordinary intelligence of the natural world. No need for Darwinists to be alarmed. When we consider all the elements that come together to create a gemstone then we can see that the creation of a perfect crystal by geological events is an art to be celebrated rather than glossed over by geospeak. I use the geological information not to reduce or de-mystify the creation of crystals but to actually increase the sense of awe and wonder.

Way too much energy is expended in our modern society extolling the creative glories of human achievements and technologies, particularly when it comes to science, while dismissing the mysterious beauty of

the creative natural world – from creating crystals to creating humans with all the myriad processes that need to come into synergy in order for the new life-form to appear.

These are not 'random' processes in the rather belittling sense that word has been employed over the last few hundred years. Evolution came to be labelled as 'random', and thus unintelligent, in order to appease the delicate egos of rational gentlemen of the Euro-type who seemed only able to appreciate the glorious flowering of their own intellects by belittling and undermining the achievement of other cultures, as well as the creative processes of nature. Making babies became known dryly as 'reproduction' (as if we are making photocopies of ourselves), and the extraordinary diversity of intelligent processes in the natural world was reduced to a random fumbling that finally, after millions of years, chances upon these rather amazing results. Is evolution just one big gamble? I'm of the opinion there is a more coherent arrangement, intelligent design that straddles the divide between traditional religions and current evolutionary theory.

So, now I've got that off my chest...on to the stones.

## The 12 Stones



The iconic gold burial mask of Tutankhamun, inlaid with turquoise, lapis lazuli, carnelian and coloured glass.

### 1. Amethyst

The most valuable member of the quartz family, Amethyst was actually named after a Greek maiden who was the unlucky bystander when Bacchus, feeling slighted one day, set wild beasts loose to attack any passing humans. Since Amethyst was on her way to the shrine of Diana she called on the goddess for help but the best Diana could do was turn her into a white stone. Then, in great remorse for his tantrum, Bacchus poured a cup of wine over her petrified form creating the lovely violet hues of the amethyst. Therein lies the connection between amethysts and 'sobering effects'. The Greeks also reckoned that if you drank alcohol from amethyst goblets you wouldn't get drunk. You can try this at home, although you may have some difficulty finding an amethyst goblet nowadays.

The sobering effect of the gem works against intoxications of all kinds. Not only in cases of drunkenness, but also when the passions are 'over-excited', consequently it has a reputation for being appropriate for nervous tension and over-indulgence. It was also used in ancient times to protect the wearer against contagion, as in pestilence and plagues, as well as the Evil Eye. For the Rosicrucians amethyst symbolises love, truth, passion, humility and hope.

The violet to indigo-purple colours of the stone relate to the third eye and crown chakras, which is why it has a reputation for assisting the pineal and pituitary glands, and is a great aid for meditation. It enhances right brain creativity, cutting through the illusion our society tends to sustain of being separate and isolated entities. Thus it helps to develop the sense of oneness that is a prerequisite for psychic ability and channelling.

Since the pineal, pituitary and hypothalamus are the 'directors' of the endocrine system, its calming effect helps to strengthen the entire endocrine and immune system. If you are troubled by difficult dreams these can be connected to your overall state of stress, or even to your hormonal balance as fluctuating oestrogen levels can lead to disturbed dreams. They could also be a result of not trusting your intuitive urgings, or being off your path, so to speak. In all of the above scenarios the amethyst's reputation as a healing gem for developing peace of mind, tranquillity, and acceptance can be put to use by following an old tradition of placing the stone under your pillow to ensure peaceful dreams.

Astrologer and crystal expert Judy Hall recommends using an amethyst crystal to reflect away harmful energies from your home – but be sure to position it with the point outward.

Edgar Cayce, early 20<sup>th</sup> century spiritualist and psychic, recommended amethyst for controlling temperature so here we see the endocrine connection again, and it may well be beneficial for hot flashes.

Amethyst is traditionally the stone for Pisces, and by association, February. However 19<sup>th</sup> historian and mythologist E.A. Wallis Budge noted that in ancient times amethyst was the gemstone for Aries.

#### And now the geology:

Amethyst gets its lovely violet colour from high levels of natural radiation (gamma rays from radioactive sources in the earth) and the presence of iron. All quartz is a form of silicon dioxide, which is one of the most plentiful materials in the earth's crust. However the fine specimens used for gemstones are rare.

Quartz crystallises directly from igneous magma, which is molten rock that doesn't quite reach the surface in volcanic eruptions. You will often see amethyst growing in geodes, which are actually gas cavities that are created in the lava due to pressure changes as it rises to the surface. As the liquid rock hardens, the trapped gas then contributes materials to the minerals present in the rock and over millions of years this recipe produces crystals growing into the space left by the gas.

The most famous source of amethyst is Minas Gerais in Brazil,

although it also occurs in Uruguay, Sri Lanka, Canada, the Urals, Zambia and Czech Republic.

#### Caring for your amethyst:

Don't expose your amethyst to direct sunlight for a long time as the ultraviolet radiation can cause it to go pale and lose colour. Even sunlight coming through glass such as a window can damage the stone, as, while ultraviolet B is filtered by glass, ultraviolet A is not. This is also something to remember with any quartz varieties whose colour is irradiation-induced (eg: smoky quartz, citrine, pink quartz).

Quartz stones are very hard at 7 on the Mohs scale making them suitable for claw-set jewellery designs.

#### Some quick sci-facts about quartz in general:

When heated to 500°c amethyst will becomes citrine. This is why you will occasionally find ametrines with colour ranges from purple to yellow. Much of the citrine available nowadays is laboratory heat-treated amethyst. Citrine is another favourite of mine, and is the best crystal to use to attract abundance and prosperity.

Science and technology has many uses for the unique properties of quartz crystals. Because of the particular properties quartz possesses, such as piezoelectricity (i.e. it generates electricity under pressure) it is used for special pressure gauges, oscillators, resonators and wave stabilizers. It has the ability to rotate the plane of polarisation of light passing through the crystal, used, for example in polarimeters. And it is used in heat-ray lamps, prisms and spectrographic lenses for its transparency. Most of the crystals used in technological applications are now grown synthetically in the lab.



Gaze upon this gem and rest your eyes! The Gachala Emerald is one of the largest gem emeralds in the world, at 858 carats (172 g). This stone was found in 1967 at La Vega de San Juan mine in Gachalá, Colombia. It is housed at the National Museum of Natural History of the Smithsonian Institution in Washington, D.C.

### 2. Beryl (emerald, aquamarine and more)

In choosing the beryl, I'm cheating a little because if I include beryl rather than the individual varieties of this gem then I can squeeze a few more stones onto the list...

Two of the most popular beryls are aquamarine and emeralds. More rare varieties include golden beryl, heliodor, red beryl and pink morganite.

Back in the days of men wearing jewels in Europe, the beryl was used to help 'against foes in battle or litigation', the idea being that the wearer becomes 'unconquerable', but not in a bombastic kind of way since he was also made more amiable, his intellect was sharpened and he was also cured of laziness. Quite advantageous for an active Renaissance gentlemen considering the political intrigue of the age.

The beryl was also used to awaken the love of married people for each other, so is a very appropriate anniversary gift! When it comes to wedding anniversary stones, according to the accepted list of gems for anniversaries, the aquamarine comes in at no 19 - for the  $19^{th}$  year of marriage, while the emerald is appropriate for the  $35^{th}$ .

#### Emerald

The emerald is the best known beryl, and we can find much legend and folklore around it because it has been so popular across many cultures.

The writings of Hermes Trismegistus, the purported father of alchemists, were inscribed on an emerald tablet found in an Egyptian tomb.

Even though our eyes will normally tire if we gaze intently at an object, Pliny declared that the eye actually gained renewed strength when gazing upon the lush green of the emerald. He was writing in the early 1<sup>st</sup> century CE, but the emerald already had a well-developed reputation for resting and relieving the eyes as this same quality was mentioned in Theophrastus' thesis on gems in 3<sup>rd</sup> century BCE.

In ancient times eight barleycorns of powdered emerald was recommended as an antidote for poisons. It was also famed from Europe to India as cure for demonical possession. Back then demonical possession may well have been associated with the spasms of epilepsy since, later on, we find emerald pendant necklaces recommended for alleviating fever and epilepsy.

16<sup>th</sup> century Spanish physician Michaele Paschali wrote of curing dysentery using one emerald worn in a way that it touched the stomach, while another was placed in the mouth. German physician Wolfgang Gabelchover in 1603 also wrote of his invariable successes when using the stone as a cure for dysentery. It was quite commonly held that the stone worked this effect – we find Hindu physicians also used it for the same purpose, saying that it diminished secretions of bile and stimulated the appetite.

Emerald is considered a stone both 'cold and sweet', which may account for its ability to cool overheated systems, and counteract biliousness. Interestingly, there is a link here in emerald's common connection with bile-related disorders and the Taoist tradition of associating the colour green with the liver.

These stories suggest some of the reasons emeralds were associated with restoring sight and curing eye diseases, easing stomach and liver problems, as well as being an antidote to poison. It was also used to alleviate pain in childbirth.

It gained a reputation for being associated with good luck and a bright future, which is quite understandable if it was able to effect all the medicinal cures mentioned above.

The colour green is associated with the heart chakra, and as mentioned before, also the liver.

#### Aquamarine

The aquamarine has always carried the symbolism of youthfulness, hope, health and joy.

Its name means 'sea water', which makes it a natural sailor's amulet, its hopeful qualities banishing fear when in difficult circumstances at sea. It was certainly prescribed as such in a fragment of a Greek Lapidary from around the  $3^{rd}$  or  $4^{th}$  century CE.

A commonly used stone around the Mediterranean, for a time it was the only gem faceted by the Romans who used it for rings and ear drops, while Greeks preferred it for intaglios. Aquamarine beads have also been found in Egyptian tombs.

The stone was used for curing throat ailments, which may well show a link to the blue colour associated with the throat chakra. Rather like its cousin the emerald, legends told of how aquamarines strengthened the will and helped establish happy marriages, having the unique power to reconcile partners after discord. They also shared the tradition of the emerald for healing stomach problems, jaundice and other disorders of the liver. This suggests that these traits were traceable to their beryl-ness rather than to their particular colours.

Aquamarine is now considered the birthstone for March, and is ideally suited to watery Pisces. In ancient times the beryl varieties pretty much had three zodiacal signs wrapped up, with the beryl standing for Gemini, the blue emerald (which may well have been the aquamarine) for Cancer, and the green emerald for Libra. Green stones in general and the emerald in particular are sacred to Venus, who as the goddess of love, and also rules the heart. This links the emerald to the Hindu chakra system where the colour green aligned with the heart.

Even though Greek goddesses might seem half a world away from Hindu metaphysicians, there was actually a good deal of crosscultural mixing over the millennia so that ideas circulated and were adapted in much the same way as they are today – except of course everything took a much longer!

#### Now a look at the geology of the beryl:

Beryls are composed of the minerals beryllium aluminium silicate, of which beryllium is the most rare material and only occurs in combination with other minerals. The green colour is created from varying percentages of chromium and sometimes vanadium. The golden colour is from iron, and the red colour from manganese.

While there are trace amounts of beryllium in our bodies, its purpose is unclear because it's considered toxic. If this is the case, we can only wonder how it could have been an effective gemstone to drink in powdered form! It could well have been the placebo effect in action – or there may be something about beryllium that we don't yet understand. Fortunately, no harmful effects have been reported from wearing beryl!

Emerald is mostly found in Columbia – Muzo, Chivor and Somondoco where it occurs in veins of white calcite running through blackish metamorphosed limestone. It is also found in Minas Gerais and Salininha (Bahia) and in the Urals and Siberia, South Africa and Zimbabwe.

The best aquamarine comes from Brazil and the Urals, Madagascar, India, Namibia and Ireland.

Morganite comes from Brazil and Madagascar, as well as Pala and Ramona in California, where it is also associated with exceptionally fine tourmaline.

Heliodor is found in Siberia, Namibia, Madagascar and Brazil.

Red beryl is officially the rarest of stones because it has only been found in one place – the Wah Wah Mountains in Utah.

Industrial beryllium is used as a light, very strong, alloy for highspeed aircraft, and communication satellites. The salts are used in fluorescent lamps and x-ray tubes, because its low density and atomic mass make it transparent to ionising radiation.

#### Some other fancy facts:

Emerald is one of the most expensive and rarest stones, particularly specimens that are transparent with a fine, clear green colour. Synthetic emeralds are now manufactured with artificial inclusions making them very similar to the real thing.

It is actually the red beryl which is *the* rarest stone, and can sell for up to \$10 000 a carat.

Giant crystals of heliodors and aquamarines have been cut into huge gems.

Aquamarines are one of the few stones that not only maintain their brilliance under artificial light; they can even gain in brilliance.

Heliodor and morganite can change colour in ultraviolet light.

Beryls are very hard at 7.5 - 8 on the Mohs scale, making them excellent for claw-set designs. However, emeralds are often heavily included which can make the larger gems very fragile and vulnerable to stresses like being hit (accidentally) against hard objects.



A rough diamond crystal still embedded in the matrix of magma. Its lustrous faces indicate that this crystal is from a primary deposit.

### 3. Diamond

I didn't actually want to include diamonds on the list, because, well, they're pretty omnipresent in the jewellery world, and rather overused. Also it meant that I had to bump something else off the list. But the more I researched diamonds them the more I thought that they really are quite remarkable manifestations that I could not ignore.

A crystal of pure carbon, the diamond takes at least a billion years to grow in liquid magma some 150km below the earth's surface. In fact a diamond specimen could be as much as 75% of the age of the earth itself.

As the hardest substance on this planet it's appropriate that its name comes from the Greek, meaning 'unconquerable'. The clear colour of the stone and its durability account for why, through the ages, it has been a symbol of purity and fidelity.

The tradition of the diamond engagement ring may have begun in 1477 when Maximilian I of Austria gave one to Mary of Burgundy as a betrothal ring. Certainly the idea was popularised by De Beers in a splendidly orchestrated publicity move during the 1950s with the now famous slogan 'a diamond is forever'.

The Arabians, Persians, Egyptians, Jews and medieval alchemists all insisted that diamonds made excellent amulets bringing good fortune and attracting planetary influences that make the wearer damn near invincible. Even invoking states of spiritual ecstasy.

As an amulet it was used to avert evil, protect in battle, promote spiritual, mental and physical well-being as well as give courage and financial success. Ancient Romans wore diamonds on their left arm to protect in battle, tame wild beast and drive away witches (all necessary manly attributes required for maintaining empires). Queen Elizabeth I wore one to protect her from the plague, while Napoleon had one set in his sword hilt for victory in battle. Wearing a diamond set in gold on his arm, so that it came into direct contact with his skin, cured an Austrian nobleman of his insomnia. The diamond was also celebrated as a cure for heart problems, gout, circulation, acidity, and even insanity.

Notions of purity and steadfastness sit quite well with an interesting legend that the spirit of the stone is offended at being bought and sold. If the wearer has acquired the stone for themselves the spirit was supposed to depart, since the diamond should be given as a pledge of love or friendship. Something to remember if you're thinking you need a diamond amulet. This may have been the problem with Napoleon's diamond – he probably acquired it for himself because its effectiveness was limited, since he won the battle but ultimately lost the war.

Considering the vast age of the diamond, and its indestructibility, its no wonder there are so many outstanding legends and fancies associated with the places where the stones are found – even when people of those times had no idea of how they were formed, at least geologically speaking (since that's a relatively new way of looking at the world).

Since so much curious lore and power has attached itself to the diamond, this leads me to speculate that the ancients were intuitively aware of their rather awesome origins.

Diamonds were generated 'in the land were there is 6 months day and six months night' and were guarded by venomous creatures, is one such tale.

There is also a great deal of bad luck associated with stones that are stolen, or acquired in underhand ways. (So where did Napoleon get that stone?) One example is the legendary Hope diamond that now sits in the Smithsonian, as everyone who came into contact with it had some terrible fate befall him or her. Robbery, suicide, murder, accidental death and more followed the stone on its journey from India through Europe to its resting place in New York. At 10 on the Mohs scale, diamonds are as tough as gems get. This makes them excellent for all kinds of jewellery designs, and most specifically for modern 'tension' settings.

#### Some science stuff:

The diamond's vital stats are so impressive I've already mentioned them above.

Interestingly, some crystals conduct electricity due to their boron content, while others are insulators. They have also been used in industry to measure nuclear radiation.



A crystal rough of a grossular garnet, from the Jeffery Mine, Quebec, Canada.

### 4. Garnet

Although garnets come in different colours, it is the reddish hues that are most well known. Thus their associations with the heart and the blood. Amulets of garnet bring the wearer happiness and lasting, fulfilling love.

Early Egyptians and Phoenicians used them for healing snakebite, food poisoning and diseases of the blood.

In medieval Europe cabochon-cut red stones were referred to as carbuncles, and most often these carbuncles were garnets, although we occasionally hear mention of carbuncle rubies. The word 'carbuncle' actually means 'fire coal' which is a reference that makes sense when you see flashes of fire in the centre of a dark red garnet.

Funnily enough in modern usage a carbuncle is more likely to mean a hard red lump on the skin, no doubt because of its resemblance to the gemstone rather than a fire coal.

The smooth cut carbuncle garnet also resembled the heart, and was associated with the sacrifice of Jesus Christ. As a carbuncle, the stone symbolises, determination, assurance, success, energy, but also war and bloodshed. The carbuncle was most likely the almandine garnet, a darker red due to iron content – and thus we see an interesting correlation between the iron-induced redness of the stone and its link with the blood as well as warfare and iron-like qualities of determination etc. An intuitive assessment of the stone from a time before mineral content was scientifically identifiable.

When cut as a faceted stone its symbolism changes to devotion, loyalty, energy and grace. This may also reflect a colour change as it is the more translucent gems that are faceted. Also the pinker hues of rhodolite garnet make it more appropriate if you're looking for a gem to develop love, compassion and harmony. The garnet's traditions show that it is useful for strengthening, purifying and revitalising the blood, and supporting the heart, thus its connection with love and compassion. It also stimulates the pituitary, balancing hormones and stabilising mental upsets.

The colour red is associated with the root chakra, thus rubies relate to the head, the heart and the sacrum. This may be why they align subtle bodies and help to harmonise the potent forces of the kundalini, as well as enhancing the imagination.

Garnets are the modern birthstone for January.

At 6.5 to 7.5 on the Mohs scale garnets are hard stones and excellent for claw-set rings, as well as many other styles of jewellery.

#### Geology and science stuff

Garnets are actually a family of different minerals rather than coming from one mineral composition as with most other gems. Usually, they are aluminium silicates with the addition of another mineral.

Almandine garnet is iron aluminium silicate and is the least expensive because the mineral is more common and found in many places. These stones were often the carbuncles of ancient time (although as mentioned, almost any red stone could be a carbuncle). They have been sourced in Sri Lanka and Myanmar (Burma), as will as the Northern Territory in Australia.

The strong reds of the pyrope garnet (its name comes from the Greek fire+eye) are a combination of magnesium aluminium and silicate. Lovely blood red pyrope crystals are found in Bohemia (Czech) and South Africa.

A violet-red to pink variety called rhodolite garnet comes from Macon County in North Carolina and is a mix of pyrope and almandine materials, with iron and magnesium.
Grossular garnets are the multi-coloured cousins of the garnet world, composed of calcium aluminium silicate. These excellent quality stones come in colours varying from pink, red and black to pale green, cinnamon brown, through to emerald-green. These green garnets are laced with chromium and known as tsavorite – which is connected to Tsavo in Kenya where the gem was discovered. Hessonite, the cinnamon brown version comes from Sri Lanka and India, as well as Brazil and California.



A jadeite Pectoral amulet from the Mayan Classic period between 200-1000 CE. (195mm high)

## 5. Jade

'Its flaws do not mar its beauty, nor does its beauty conceal its flaws' The Book of Rites.

As the jewel of heaven in Chinese symbolism, jade comes from the interaction between mountain and water, the unified powers of yin and yang. It confers good fortune on the wearer. When polished and shiny it represents purity, when smooth and lustrous it shows benevolence. The jade disk with the square hole in the centre (the *pi*) symbolises the circle of heaven and the square of the earth and is known as the 'Gate of Heaven'.

There are two types of stones that are called jade – nephrite and jadeite and it was only in the 19<sup>th</sup> century that these were determined to be different compositions of minerals, and thus different species. The rarer form is jadeite, which can come in a variety of colours from white to lavender-pink to rich soft green most popular in Chinese ornaments.

From earliest times the hardness of jade made it useful for adzeheads (an ancient edging tool), knives and other weapons due both to its toughness and its ability to be shaped by other harder stones such as garnet. Many jade artefacts have been found in a variety of places across the globe.

For the ancient Chinese, jade (and in particular green jade) was the most noble of gems, although in earlier times much of the jade found in China was actually nephrite. They needed to import the fine coloured stone that they treasured from Myanmar (Burma).

The qualities of the stone – smooth compactness and strength – that made it so useful for weapons, also gave it the reputation for developing sureness of mind. This may well be why it's also used as protection against intangible threats as well – often it appeared as an

amulet against sorcery, demonic possession, tragedy and depression.

Jade was used as an amulet for those conducting business in China as its attributes of benevolence and righteousness, endurance and ingenuousness made it excellent guide towards good fortune.

For medical purposes it was reduced to a powder the size of rice grains, and used for strengthening the lungs, the heart and the vocal chords. It also prolonged life, especially if silver and gold were added to the powder. Perhaps an easier way to partake of its healing essence was the 'divine liquor of jade'; a mix of jade, rice and dew-water boiled in a copper pot and then filtered. Drinking this elixir over a period of time prevented susceptibility to temperature extremes, hunger and thirst. It was also a tonic taken to strengthen the muscles, harden the bones, calm the mind, enrich the flesh and purify the blood – a good all round green juice by the sound of it!

For those who have a piece of jade, it is recommended that you handle it often as the virtues of the substance are absorbed through the skin. The resonance of the stone was also important (one reason it may have been prescribed for improving the vocal chords), and stone chimes of jade were used in court and religious ceremonies. Disappointed by his lack of success in reforming the morals of his contemporaries, Confucius reportedly consoled himself by playing the jade chimes.

The Aztecs also prized jade, using it for religious rites, and Montezuma's imperial robe was held with a huge jade clasp. Of course many of their carvings were stolen by the Conquistadors who brought the stone to Europe and gave it the name by which we now know it. The Spanish called it 'piedra de hijada' meaning 'stone of the flank' which referred to the Aztecs' use of jade stone for diseases of the kidney. In Europe through the following centuries it was often used as a cure for kidney stones and colic. Over time the name became shortened to jade.

The Maori in New Zealand carved their "*hei-tiki*" of nephrite jade, found only on the south island. When it was time to make a Tiki the stone-seekers would follow a tohunga (similar to a shaman) who was

shown the exact location of the nephrite by spirit-beings. The Tiki was so closely associated with the seeker, that it was buried with him when he died, to be exhumed after a time by his nearest male relative.

The lovely clear green of jade relates to the heart chakra and radiates divine unconditional love. The qualities of clarity, modesty, courage, justice and wisdom are all attributed to the stone which is peaceful and nurturing, dispelling negativity and balancing the emotions (as it did for Confucius in the story above).

Across the ages it has been used for eye disorders; kidney, stomach, heart & intestines. The Chinese considered it a cure for all ills. And that would seem to be the case because in addition to the qualities listed above it strengthens heart, kidney, immune system and intestines; it cleanses the blood and increases longevity and fertility.

Jadeite is a relatively hard stone at 5-6 on the Mohs scale. It is never faceted and is more commonly set bezel-style in rings. However it is a tough enough stone to be worn as unset or strung in a pendant.

#### Some geology:

Jade can vary from pure white to pale blue, yellow, pink or dark green, with clear green being the most valuable. Jadeite is a crystalline form composed of sodium aluminium iron silicate. A very rare stone, it is found in Myanmar, Yunnan in Southwest China, Tibet, Guatemala, California and Japan.

Nephrite is hydrous calcium magnesium iron silicate, which actually means it is a different species of stone according to geological definitions. It can be found in central Asia, New Zealand, Siberia, USA, Canada, Germany, Poland and Italy.



A slab of uncut Lapis Lazuli, showing flecks of pyrite, from the famous mine of Badakhshan in Afghanistan which has been operating for six millennia.

## 6. Lapis Lazuli

Lapis lazuli resembles the star-studded night sky, and was the most prized blue gem of ancient times. Many early documents refer to it as sapphire, which has lead to some confusion in identifying exactly which stone the ancients were referring to.

The mine of Badakhshan in the Kokscha Valley, Afghanistan has been operating for over 6000 years, and much of the lapis used through the ancient Middle East and as far away as Africa came from this source. Famous Italian Marco Polo visited here in 1271.

The Assyrians and Babylonians made seals and ornaments of lapis, and reportedly sent objects of lapis as gifts to the ancient Egyptian Pharaohs. Whether the Egyptians recut these, or imported their own supplies from Afghanistan, the gemstone was very popular as amulets and charms in the shape of scarabs and other forms often found in tombs. In Egypt, with their goddess Nut of the night sky and Sothys (later known as Isis) who was connected to the star Sirius, it's clear that Lapis lazuli's resemblance to a starry sky may have played a large part in its value. Such were its mystical properties, it was considered only suitable to be worn by the royal family and the priests. It was an amulet that protected the dead on the journey to the Western lands, and the Egyptian Chief of Justice wore a lapis amulet with the image of Ma'at who was the goddess guardian of truth.

On a practical level, in the early centuries CE lapis was crushed to create ultramarine dye and the pigment appears in medieval manuscripts and paintings where it is often the colour of the Virgin's robes. The tsars of Russia used huge slabs of lapis lazuli (along with malachite) as ornament for their interiors. No common marble for decorating their palaces, thank you very much!

Across cultures lapis has been used to heal eye disease, epilepsy, circulation and skin trouble. As the colour of a clear night sky, the

stone is often associated with tranquillity, keeping away evil and promoting universal love and good fortune.

Its rich blue colour, varying at times almost to indigo, connects this stone to both the throat chakra and the third eye. Thus it activates thyroid and energises those with diseases of the throat. In this capacity it also releases tension and anxiety, strengthens bones and augments strength, vitality and virility (all of these latter qualities would be a direct result of tranquillity and relaxation from releasing tension).

Through its connection to the third eye it facilitates mental clarity and illumination, aiding creativity, as well as enhancing psychic abilities and communication with spirit guides.

Edgar Cayce recommended wearing lapis as its one of the most powerful agents for developing spiritual and psychic abilities. He traced its powers back to the Atlantis where it was used by the priests.

Lapis is medium-hard at 5 on the Mohs scale, and can be quite fragile depending on cleavage and fractures in the stone. For this reason when used in rings it is best set in bezel style.

### The geology:

Lapis is composed of sodium calcium aluminium silicate sulphate. A very rare stone, it sometimes occurs spotted with white (calcite) and gold-yellow (pyrite) – creating the 'night-sky' effect. As well as the famous mine in Afghanistan, small masses are found in the lavas of Vesuvius in Italy, as well as Chile, Burma, Siberia, Angola, Canada, Pakistan and USA.

## 7. Opal

The name of this iridescent stone most likely comes from the Sanskrit úpala. It arrived in Europe in the last centuries BCE with the Romans buying the stones from traders who were being supplied from as far away as India.

Many Early European descriptions of the opal are probably of some iridescent quartz since the main source of opal for Europeans, in Cernowitz, Hungary were not operational until the early Middle Ages.

During the Middle Ages, they were worn to attract happiness, love, and good fortune – all the usual things that people desire from beneficial elements. This was due to them containing all the colours of other gems in the one. Talismans of opal were said to turn grey to presage a forthcoming minor illness for their wearer.

Elizabethans admired the unusual and variegated colours of the opal and it wasn't until the 19<sup>th</sup> century in Europe that it gained its reputation for being unlucky. There are two theories for how this happens.

One theory is that it all began with the popularity of a novel. George Frederick Kunz can find no other reference to this idea other than its mention as an enchanted talisman warn by Lady Hermione in a Walter Scott novel *Anne of Geierstein* – the stone changed colour according to her moods, and when holy water was used to quench its supernatural radiance the lady herself was reduced to ashes along with the opal, this breaking the enchantment.

Interestingly this story reflects a physical quality of the opal – their brilliant colour fades over time as they lose the water that has fossilised within them. This may take a century or a matter of years, depending on the stone and its source.

The pragmatic-market-forces theory of how the opal became unlucky



Boulder Opal from Opalville Mine in Queensland, Australia.

Discovered in 1989, this is one of the largest (2765 carats) and finest quality boulder opals ever mined. This opal is unique not only for its size but also for its quality---every color of the spectrum is visible which is extremely rare, even in the finest of opals.

suggests that the notion may have been encouraged by jewellers and gem-cutters for whom opal cutting can be a bit of a headache due to their delicacy, brittleness and tendency to crack and lose their colour. It could be that the jewellers used the popularity of the novel to push the notion to their clients.

The spell of enchantment against the opal was finally broken when the black opal was discovered in 1900 in White Cliff, NSW. Samples of this beautiful gem with its flashes of extraordinary colour were sent back to England where they were presented to Queen Victoria. She had pieces of jewellery designed and given to members of her court, who, afraid of offending her, had to wear the apparently unlucky stone openly. It soon lost its unlucky standing. If this anecdote were true it would all have happened very quickly since Queen Vic was dead by January 1901. Again economics may be at play here, because the quantities of this rare gem discovered in the colonies made it viable to revive and re-popularise the opal.

Australia supplies more than 90% of the world's opals, and it is mined from South Australia up to Queensland in a vast swathe of territory that used to be an inland sea millions of years ago. In Queensland where the boulder opal (veins of opal threaded through ironstone matrix) is found, local legend tells that wherever you find the Manarichie tree – a tough local hardwood – there you will find opal. Therefore it behoves the opal miner to recognise this tree... I can find naught about what it looks like on Google!

Interestingly the opal's 'unluckiness' may have some echoes in the folklore that it is not a stone for the impure of heart. It helps develop our conscious connection with nature spirits (interesting considering its association with the Manarichie tree), and resonates with all chakras because it carries the spectrum of colours.

Edgar Cayce said that an opal worn with good intent helped control temper and handle anger. But they could also be unlucky if used for selfish or evil intent.

As a stimulant for the pineal and pituitary glands the opal aids psychic vision and helps to open the third eye. On the physical level, corresponding to the metaphysical, it was considered to restore dim vision and eye disorders generally. Because its colour encompasses qualities of all gems it was known as a general cure.

Here's an old trick to try at home: if you are feeling a little bit like someone might be giving you the Evil Eye, wrap the opal in bay leaf to cloud the eyesight of your enemies.

Opal is the stone for those born in October.

At 5-6 on the Mohs scale opal are relatively soft and should only be set in bezel-style settings when worn as rings. The surface of the opal can fracture and flake if struck against a hard surface.

## The geology:

Opal is not, strictly speaking, a crystal, but an amorphous 'mineraloid' of hydrous silicon oxide. Unlike other stones it does not occur as crystals but as small veins, globules and crusts, commonly 'precipitated' from silica-rich solutions. It can also replace the skeletons of many marine organisms and plants, thus you van get opalised shell and wood.

It owes its fragility to the loss of water when it is exposed to air. The surface becomes crazed with tiny conchoidal fractures. The characteristic play of colours in many opals results from the way that light is dispersed according to the angle of incidence (the angle in which the light strikes the surface).

Fire opal, which comes from Mexico, is reddish although not necessarily iridescent.

Most black precious opal is found in Australia, although precious opal is also found in Transylvania (Romania), Nevada, Idaho and Oregon in the USA, and in Hungary.

Wood opal occurs when the fibres in fossilised wood are replaced with

opal, without destroying texture or detail. It is most frequently found in the petrified forests of Yellowstone National Park (USA), Egypt and Lake Omodeo in Sardinia.



Exquisite, lustrous, gem quality ruby crystals in matrix, measuring up to 2 cm, together with small, blue crystals of kyanite. Found in Winza, Mpwapwa, Mpwapwa District, Dodoma region, Tanzania.

## 8. Ruby

There are many names for ruby in Sanskrit, which show it was clearly the stone Hindus valued the most. Some examples are: *ratnaraj* 'king of precious stones' and *ratnanayaka*, 'leader of precious stones'. Each of the Hindu castes was assigned a particular type of ruby that they could wear. The *padmarâga* 'red as the lotus' was the Brahmin ruby, and conferred safety upon the owner allowing him to 'dwell without fear in the midst of enemies'.

In Burma, source of the best rubies, the ruby amulet is not worn in a ring or pendant but must be inserted in the flesh, according to Taw Sein Ko's *Burmese Necromancy*. By becoming part of the wearer it will 'confer invulnerability' to sword, spear or gun.

The glow within the ruby seems like an inextinguishable flame, which may be why these stones are used to promote cheer and overcome depression, preserving the bodily and mental health of the wearer. There is more than enough medical evidence nowadays that good 'cheer' and a positive outlook can do wonders for the immune system, so ruby lovers were already onto a good thing. But this is the least that you can expect from the ruby because the ever-glowing fire spirit within 'removed evil thoughts, controlled amorous desires, dissipated pestilential vapours and reconciled disputes'. In other words the ruby contained a spiritual fire that quenched all those other striving desires, and cooled overheated minds and bodies. Thus they give the wearer a contented mind, wisdom of the spirit, and through meditation, the ability to focus the healing powers of the universe.

In terms of their more prosaic usage, Sanskrit medical texts from the 13<sup>th</sup> century CE advised rubies for flatulence and biliousness, although I'm not sure how the stones should be applied. The stone was also used to relieve pain and fever, blood ailments, and disorders of liver, spleen and heart – an understandable connection considering its colour. Like the emerald, it was also considered an antidote to poison.

There was a mysterious 'ruby elixir' of great potency that could be created by adept physicians who knew how to use gemstones in compounding medicine.

Through the ages the ruby has developed into a symbol of royalty, dignity, zeal, power, love, passion, beauty, and longevity (all qualities appropriate enough for Leo, the zodiacal sign attributed to the ruby).

The ancient astrologers actually assigned the yellow ruby as the stone for Leo, which, in truth, would be a sapphire – but back then they were calling lapis lazuli a sapphire. It's a good thing we have tidied up all the confusion and can say that while onyx is now considered the gemstone for Leo, the ruby is the modern birthstone for July. However, even this role was not consistent across most cultures –

only the Polish and Russian held to the idea that the ruby was the stone for July. But, let's stop here and rest with the currently held designations lest I confuse you more.

If you are thinking of acquiring a ruby, keep in mind that as a pendant it can be an amulet for combating depression and sorrow, while a ruby ring gives knowledge, health and wealth.

Rubies are 8 on the Mohs scale and so are excellent stones for clawset rings. However, many rubies are heavily included and this can make them prone to break or crack.

### And now for the geology:

Ruby is the mineral corundum composed of aluminium oxide, and is an accessory mineral (meaning it grows with or within) of igneous rock, under-saturated with silica, as well as metamorphic rocks, poor in silica and rich in aluminium.

Corundum is actually used industrially for emery papers and other grinding applications, so is quite a common mineral. However, the crystals of ruby grow when basic corundum has a different experience - a little more heat, a different time span, and other vital ingredients

that differentiate the gem from the dross. It is the chromium impurities in the corundum that in the right conditions, yield the pink or red tint of the ruby.

The largest and finest 'pigeon's blood' rubies come from the marbles of Mogok in Myanmar – these are the famous Burmese rubies. They are also found in alluvial deposit on the Malay Peninsula, and in Sri Lanka, as well as Tanzania and Brazil.



The Logan Sapphire is a flawless specimen, showing the rich deep blue color Sri Lankan sapphires are famed for. It is the second largest (blue) sapphire known, weighing 422.99 carats.

## 9. Sapphire

The sapphire is a cousin of the ruby, or perhaps a sibling since it's also a form of corundum. Sapphires come in multiple hues from orange and yellow, to green, purple and pink, with blue being the most prized colour. The particular tint of cerulean blue only found on the island of Sri Lanka is the most valuable of the sapphires.

Many medieval European physicians used sapphire for curing eye diseases. Charles V of France had a ring of Oriental sapphire specifically for touching the eyes. Sapphire was also recommended for rubbing gently and slowly around plague boils in order to cure them. The cure was effected by the stone's ability to continue absorbing and purifying the contagion even after the physician (and sapphire) had left. It seems that the sapphire worked what's known as contagious magic (no connection to the actual plague just to the idea of contagion) – once it had been in proximity to the boils it continued to exert an influence over them, and thus continued the process of the cure.

The virtues of the sapphire may have been called upon here as it symbolised all that was true and good, and helped to develop 'celestial contemplation', while also protecting against harm. The apotropaic nature of the sapphire extended to protecting the wearer from both venomous creatures and venomous thoughts.

Interestingly enough, the sapphire talisman continues to 'exercise its good influence over the wearer even when it has passed into other hands', which may have been the source of the idea of how the stone continued to cure plague boils from a distance.

It was highly valued by those practicing the occult arts because it 'enabled them to hear and understand the most obscure of oracles.'

The asteria or star sapphire (which has a 6-pointed star that moves

across its curved surface) was considered particularly effective. It protected against witchcraft, and the evil eye, and brought luck even to those who simply looked upon its curious effect. The three lines that cross in the centre to form the star came to represent the three virtues of faith, hope and destiny (not sure what happened to charity though).

As well as protecting from harm, the stone's ability to drive off 'wicked and improper thoughts' made it a perfect amulet for chaste love – one reason they have been popular for engagement rings. If worn by an unfaithful spouse their shine and lustre is said to dim.

Their different colours relate to different chakras, with the most popular blue connecting to the third-eye and throat chakra, thus exerting a good influence over the pineal, pituitary and thyroid glands. They were also recommended to stop nosebleeds, and cure ulcers, as well as heart and eye diseases.

There is a long tradition from Hebrew, Roman and Arabic times that considers the sapphire as a gem for Taurus, while the ancient Chaldeans, the originators of astrology as we know it, set sapphire as the stone for Aquarius.

However in modern times its has become the gemstone for September and Virgo.

A very hard stone, sapphires measure 8 on the Mohs scale and is an excellent stones for claw-set rings.

#### The scientific stuff:

Sapphires, like rubies, are a type of corundum composed from aluminium oxide. Trace amounts of other elements such as iron, titanium, chromium, copper or magnesium can give corundum the blue, yellow, purple, orange, or greenish colour we see in sapphire varieties.

Because of their hardness (9 on the Mohs scale) sapphires have many

industrial applications including in scientific instruments, wristwatch crystals and movement bearings. Also, they are now used as very thin electronic wafers for insulating substrates of special-purpose solidstate electronics, such as transistors, microprocessor chips and RAM (most of which are integrated circuits). Solid-state means that the electrons are confined within the solid material rather than operating like electro-mechanical devices such as relays and switches. The building material for solid-sate electronics is most often a crystalline semiconductor.



Rare, uncut green tourmaline crystal from Pakistan.

## 10. Tourmaline

Tourmalines are perhaps the most fascination of gems. Not only do they have an interesting history, they also have some rather curious qualities. The etymology of the name is said to come from the Sinhalese word *turamali*, meaning 'stone with mixed colours' but other sources attribute it to *turmali* which means 'stone attracting ash' – referring to its piezoelectric properties.

The Europeans thought they didn't know about the tourmaline until the early18<sup>th</sup> century when the Dutch East India Company brought them over to Holland from Sri Lanka.

For this reason there's no mention of the stone we now know as tourmaline or of any folklore or traditions attached to the stone, in the various classical, medieval and Renaissance treatises on gemstones where most of our gem lore is sourced. However Dr Augustus Choate Hamlin speculates that tourmalines may well have come into Rome, along with the aquamarines, from the Urals in Siberia, since the stones are known to occur together. Because of their variety of colours they could well have been mistaken for other gems during this era. Theophrastus in the 3<sup>rd</sup> century BCE mentions a stone found in Cyprus that was emerald green at one end and jasper red at the other. This sounds a lot like the tourmaline, particularly as no other gem has this colour combination. Similar crystals of tourmaline have since been found in the iron mines of Elba in Italy, which gives the name elbaite to the variety found there.

Three centuries after Theophrastus, Pliny speaks vaguely of violet and brown stones that acquired the property of attracting lightweight particles when heated by the rays of the sun, or even when warmed by friction of the fingers. This sounds a lot like the tourmaline, even though the sapphire exhibits a similar static electric property to a lesser degree. If Pliny were referring to sapphires he would have mentioned the stone by name. Tourmalines of this shade are still found in Sri Lanka, and these same districts have been producing precious stones for two millennia.

The gem was used as a ceremonial device in India, to bring insight into that which is good, and shine light on who or what was the cause of troubles or evil deeds. The ancient Africans used tourmaline to awaken one from 'the dream of illusion', and even today South African children apparently play with the crystals for its static electric effects. In modern times, the stone is used by tribes in Africa, Native Americans, and aboriginal groups in Australia as amulets that protect against all dangers.

In the 18<sup>th</sup> century when tourmaline was 'discovered' by the Dutch it became the centre of scientific experiments around the curious new phenomena of electricity. Not that electricity was new of course, no more than tourmaline, or the electrical planet Uranus seen for the first time not long after Benjamin Franklin harnessed electricity in his famous experiment. Franklin also experimented with the electrical powers of the tourmaline, just as physicians and doctors were doing across the seas in Europe.

Reportedly the gem was highly valued by alchemists, perhaps again for its electrical powers, although there wouldn't have been many alchemists left in Europe when tourmaline was officially discovered. However, they may have been using schorl, which was found in tin mines in Germany from the 15<sup>th</sup> century onwards. Black schorl is the most commonly occurring form of tourmaline, but it was not identified as part of the tourmaline family until the 1800s. The iron bearing silicates in black tourmaline mean that in addition to its electrical properties it can be magnetised to a certain degree, and the characteristics that made it so appealing to alchemists now make it an excellent crystal for protection against electromagnetic radiation from computers and other devices.

Around 1818, the mineral lithium was first identified due to its discovery in a particular type of tourmaline. The stone is strongly piezoelectric (producing electricity under pressure) and pyroelectric (producing electricity when heated or cooled). In 1986, Japanese researchers confirmed that tourmaline carries a faint but constant electric charge of 0.06mA.

Their research also showed that even the finest ground particles of tourmaline are still able to transmit an electric current, and that a positive and a negative electrode existed on both ends of the crystal. These electrodes did not disappear unless tourmaline was boiled to near 1000°C. The electrical charge of the tourmaline crystals produce far infrared photon energy, negative ions and alpha waves.

In the 18<sup>th</sup> century, a Dutch scientist advised that a tourmaline wrapped in silk be placed against the cheek of a feverish child to induce sleep. This seems like sensible advice, as the stone's relaxing alpha waves and negative ions would have eased the child's restlessness.

Considering the impact of EMF fields on the endocrine system and on the quality of our sleep, the stone's ability to both combat negative EMF influences, and emit calming alpha waves makes it a clear choice for restful sleep, and balancing the endocrine system.

Black tourmaline relates to the root chakra, and is a grounding and anchoring support for those who are sensitive to inharmonious energy. If you are troubled by energy vampires – those who leech or drain your energy – wear one around the neck. It also repels other's bad intentions or attitudes towards you, in other words excellent against the Evil Eye.

Green tourmaline helps with rejuvenating and balancing emotional exhaustion, having a regenerative effect on cells, tissues and organs, specifically for pituitary and nervous system. It encourages acceptance, hope, and tranquillity.

The colour relates to both the heart and the solar plexus chakras.

Indigo Blue coloured crystals assist with the focus of personal power, enhancing imagination and clairvoyance, while cutting through illusion, and fear, much like the special gems from Indian ceremonies, mentioned earlier. It relates specifically to the crown chakra, and benefits the pineal and pituitary, the nervous system, thyroid and lungs.

The red/green crystals known as watermelon tourmalines relate to the root and the heart chakra. As such they balance extremes, and harmonise conflicts, bringing an understanding of the middle path. They also protect by helping to deepen our understanding of love.

Rubelite (bright red to pink) stones, enhance cheerfulness, release grief, and promote empathy and compassion so that we meet challenges with courage and optimism. With all of these qualities its clear why the stone would benefit the immune system, the heart, circulation and nerves, in addition to the endocrine system.

If you were born in October, you can choose either opal or tourmaline as your birthstone.

Tourmaline measures 7 on the Mohs scale, making it appropriate for claw settings in rings and other jewellery.

#### Other science stuff:

Tourmaline are one of the most complicated groups of crystals as they are made from complex borosilicates. There are six members of the tourmaline family:

- elbaite (sodium lithium aluminium rich),
- schorl and
- buergerite (both sodium iron rich) and varying from black to bluish black, to brown
- dravite (sodium magnesium rich),
- uvite (calcium magnesium rich)
- liddicoatite (calcium lithium aluminium rich)

The magnesium rich crystals are brown to yellow, while the lithium rich crystals can occur in almost any colour – blue, green, red, yellow, pink.

Bi-coloured and multicoloured crystals are common, and they reflect variations of fluid chemistry during the crystallisation process. Some forms are dichroic, meaning they change colour when viewed from different angles.

The pink colour in tourmalines result from prolonged natural gamma radiation while they are being formed. They can also be altered by irradiation when they are cut and polished, and it is close to impossible to know if a tourmaline has been artificially irradiated.

Tourmalines are still mined in Elba (Italy), Minas Gerais (Brazil), the Urals (Siberia), Sri Lanka, Namibia, Mozambique, Pakistan, Afghanistan, and USA. Rare forms of dravite tourmalines were found in Australia, although the mine at Yinnietharra is now exhausted.

Because of its strong piezoelectric and pyroelectric properties tourmaline has many industrial applications such as measuring the intensity of radiation emissions. During World War II it was used in the production of pressure sensitive gauges for submarine instrumentation and it was the only substance that could measure the pressure developed by the explosion of nuclear bombs.



A collection of faceted topaz showing the colour varieties. The mystic topaz on the bottom left has been artificially treated to create the multi-coloured effect.

## 11. Topaz

The name topaz comes from the Sanskrit *topas* meaning 'fire', so we know that it was found from the earliest of times in Sri Lanka which is so rich with gemstones. Ancient legends also say topaz was found on the island of Topazas in the Red Sea, and this may be how the island got its name. Nowadays it's generally thought these stones were peridots not topaz.

Like many precious gems its qualities and properties have been called upon to cure diseases of the body, mind and spirit. It has symbolised divine goodness, faithfulness, friendship, love, sagacity, and the sun.

As an amulet it was worn to increase intelligence, protect against violent death and depression, and to bring wealth and influence. A topaz pendant bestows honour, happiness and inner peace, while worn as a ring it confers financial success and advancement. It is also one of the gemstones ancients recommended to protect the sleeper and safeguard against the Evil Eye.

The Greeks called it 'the stone of strength' and used it on a practical level for diseases of the liver and kidneys, such as gout, circulatory problems and other internal distress. Even in the present day, topaz is recommended to support liver and gallbladder, spleen, and digestive organs.

The Romans, on the other hand emphasised its powers of psychic protection against insanity, intoxication and demonic possession. Topaz was also renowned for curing ailments that afflicted women, but I'm not sure if this was because connections were drawn between hysteria and insanity or possession.

Through the ages it has been used to improve sight both in the physical and the psychic sense. In the Middle East mediums and soothsayers used topaz to contact astral beings. Back in Europe, St Hildegard of Bingen recommended it for improving dimness of vision. For Mediaeval metaphysicians it promoted psychic sensitivity and helped to control one's destiny.

Calling on the topaz's reputation to help with tissue regeneration, a 15<sup>th</sup> Century Roman physician reportedly cured many people of the plague by touching them with topaz that had belonged to two popes Clement VI & Gregory II. Unlike some popes, Clement VI was not inclined to promote and enrich his relatives, which added somewhat to his reputation for goodliness and no doubt increased the efficacy of his curing stones, following the placebo effect as I discussed earlier.

The stone can be clear, pink, light greenish yellow, with blue being the most popular of the colours. Because of its colour variations topaz is associated with heart, throat and third eye chakras.

In connection with the heart it balances emotions, aids circulation, and supports liver, kidney and lung.

For the throat chakra it develops creativity and self-expression. It also enhances metabolism from this chakra's association with the thyroid gland.

When used to support the third-eye chakra, topaz enhances psychic perception and communication with spirit guides – much as it was traditionally used by metaphysicians and mediums.

If you are feeling uninspired try a sunny yellow topaz as it inspires limitless possibilities and kick-starts motivation.

Ancient astrologers considered reddish topaz as the gem for Scorpio, although in recent times topaz has become the stone for November, and for Sagittarius.

#### Gemmology notes:

Most blue topaz we see today, particularly if it is a strong blue colour has been heat-treated. Burnt topaz (deep yellow to brown) can be confused with smoky quartz and citrine, so be sure to check which stone it is. Topaz is a hard stone, measuring 8 on the Mohs scale. This makes it generally a good stone for claw settings.

#### Science stuff:

Composed of hydrous aluminium silicate, topaz is naturally colourless but picks up its range of colours from different impurities in the mix. It can also be coloured artificially to imitate the processes it would go through in the earth.

The largest and finest crystals, some the size of boulders, come from Minas Gerais (Brazil). Deep-yellow coloured stones are found in Sri Lanka, and light blue in the Urals.

As well as Sri Lanka, Japan, Brazil and Siberia.



Turquoise mosaic mask of Xiuhtecuhtli, the god of fire. Aztec or Mixtec (AD 1400-1521), now in the British Museum.

## 12. Turquoise

One of the oldest known pieces of jewellery was a turquoise amulet carved in the shape of an ibex, which was recovered from an Egyptian tomb. The piece is estimated to be about 5500 years old. Turquoise occurs almost exclusively in desert areas, and so we see that it became a very important amulet for people who inhabited these areas. It was the national gem of Persia, and for many Arabic-speaking people it was considered 'the lucky stone'.

Moslems carried amulets engraved with passages from the Koran, and in many cultures we see it associated with journeys. Over time it has come to symbolise courage, fulfilment, and success, as well as having apotropaic effects (protection against evil or harm). Certainly all these qualities would have been desirable when undertaking journeys – the courage to commence in the first place when the road would not have been easy, and the success and fulfilment of the mission when you arrived safely.

For this reason it was often used to decorate horses to ensure safe travels for horse and rider. It had a reputation as an amulet to protect the wearer from injury by falling especially from horseback, and also from things falling on him (like walls). Falls and things falling upon you would have been serious hazards for riders, as they still are in parts of the world where great distances are travelled on horseback.

In fact this power may have some connection to practical applications as the Turks used turquoise amulets on their horses to protect the animal from the ill effects of drinking cold water when they were overheated from hard riding. We can imagine that an overheated and stressed horse is far less steady and sure-footed; therefore taking care of the horse is also taking care of the rider.

We actually get our name for the stone via the French who called it 'turkey stone' as they sourced it from Turkey. However, it was also

sacred to Buddhists, because the legend goes that when the Buddha was attacked by a monster he was able to kill the beast with the magical powers of the turquoise he wore.

It is also a sacred stone for the Pueblo Indians of Arizona and New Mexico, who were using it from at least 400 CE. The possession of a turquoise was indispensable for medicine men and women, who without a piece of this sacred stone would not achieve recognition for their skills.

Amongst the Native Americans it was ascribed the power of accuracy and was tied to bows or guns to speed the projectile to its mark. Perhaps it is similar qualities that make the turquoise an excellent detection pendulum.

While in Nepal the turquoise forms an extensive part of women's dowries, amongst the Europeans it was very much a man's gem, and women rarely wore it until after the 17<sup>th</sup> century.

The stone, like the opal, is very sensitive to 'the action of certain emanations', and anecdotes show that it may at times be influenced by the wearer's state of health. A poem by Donne talks of a turquoise that warns the wearer of impending sickness by turning pale.

It is interesting that the turquoise and the opal share this sensitivity as both are found almost exclusively in desert areas, and much like the opal, turquoise is not a crystal as such but a hydrated 'mineraloid'. It may well be the loss of the water embedded in the stone that causes it to fade over time, like the opal. In the 1800's, a woman in London was reputed to have the ability to restore paled turquoise to its natural blue, and many brought their jewels to her for restoration.

Over the millennia turquoise was prescribed against the Evil Eye – a natural extension of its protection of travellers against illness, injury and violent death. It was also taken to cure eye diseases, headaches, fever, as well as chest and leg pains.

The soft rich blue of turquoise makes it an excellent stone for the throat chakra, aiding creative expression, communication, friendship, and loyalty. It is also good for aligning all chakras, enhancing meditation, and peace of mind. Interestingly, it was also considered a lucky token for rekindling old love affairs.

Recommended for people struggling with alcoholism, it vitalises blood, and helps circulation, lungs and the respiratory system. This makes it appropriate for supporting smokers as well.

Turquoise is now considered the birthstone for December. The ancient astrologers assigned turquoise to Sagittarius, as blue stones where sacred to Jupiter.

### Science and gemmology:

Turquoise is composed of hydrated copper aluminium phosphate. It's a secondary mineral that results when aluminium-bearing rocks, which are rich in the minerals apatite, chalcopyrite, chalcedony and limonite, are altered in arid regions.

For this reason, almost all turquoise is found in desert regions of the world: Iran, Egypt (Sinai), Turkestan (Samarkand), Los Cerillos in New Mexico and Nevada. The stone mined in southern USA is more of a greenish blue.

When choosing turquoise you need to be aware that most of the inexpensive pieces, especially beads, are often artificially coloured using oil or waxes and the fractures are filled with plastics.

Turquoise is a medium-hard stone, being 5 to 6 on the Mohs scale. It is suitable for beads and bezel settings in rings.

# **Birthstones and zodiac stones**

#### January

Modern birthstone: garnet Zodiac gemstone for Capricorn: ruby Ancient astrological stone for Capricorn: black onyx Traditional birthstones: Hebrew: garnet Roman: garnet Arabic: garnet Polish: garnet Russian: garnet

#### February

Modern birthstone: amethyst Zodiac gemstone for Aquarius: garnet Ancient astrological stone for Aquarius: dark sapphire Traditional birthstones: Hebrew: amethyst Roman: amethyst Arabic: amethyst Polish: amethyst Russian: amethyst

#### March

Modern birthstone: aquamarine Zodiac gemstone for Pisces: amethyst Ancient astrological stone for Pisces: Blue Chrysolite Traditional birthstones: Hebrew: bloodstone Roman: bloodstone Arabic: bloodstone Polish: bloodstone Russian: jasper
# April

Modern birthstone: diamond Zodiac gemstone for Aries: bloodstone Ancient astrological stone for Aries: Amethyst traditional birthstones: Hebrew: sapphire Roman: sapphire Arabic: sapphire Hindu: diamond Polish: diamond Russian: sapphire

# May

Modern birthstone: emerald Zodiac gemstone for Taurus: sapphire Ancient astrological stone for Taurus: Agate Traditional birthstones: Hebrew: agate Roman: agate Arabic: emerald Hindu: emerald Polish: emerald Russian: emerald

#### June

Modern birthstone: moonstone or alexandrite Zodiac gemstone for Gemini: agate Ancient astrological stone for Gemini: beryl traditional birthstones: Hebrew: emerald Roman: emerald Arabic: agate Hindu: pearl Polish: agate Russian: agate

# July

Modern birthstone: ruby Zodiac gemstone for Cancer: emerald Ancient astrological stone for Cancer: blue emerald (this may be aquamarine) traditional birthstones: Hebrew: onyx Roman: onyx Arabic: carnelian Hindu: sapphire Polish: ruby Russian: ruby

# August

Modern birthstone: peridot Zodiac gemstone for Leo: onyx Ancient astrological stone for Leo: yellow ruby traditional birthstones: Hebrew: carnelian Roman: carnelian Arabic: sardonyx Hindu: ruby Polish: sardonyx Russian: alexandrite

### September

Modern birthstone: sapphire Zodiac gemstone for Virgo: carnelian Ancient astrological stone for Virgo: grey jasper traditional birthstones: Hebrew: peridot Roman: peridot Arabic: peridot Hindu: zircon Polish: peridot Russian: peridot

### October

Modern birthstone: opal or tourmaline Zodiac gemstone for Libra: peridot Ancient astrological stone for Libra: green emerald traditional birthstones: Hebrew: aquamarine Roman: aquamarine Arabic: aquamarine Hindu: coral Polish: aquamarine Russian: beryl

### November

Modern birthstone: topaz or citrine Zodiac gemstone for Scorpio: beryl Ancient astrological stone for Scorpio: reddish topaz traditional birthstones: Hebrew: topaz Roman: topaz Arabic: topaz Hindu: catseye Polish: topaz Russian: topaz Guardian angel: bariel His talismanic stone: amethyst

### December

Modern birthstone: turquoise or blue topaz or tanzanite Zodiac gemstone for Sagittarius: topaz Ancient astrological stone for Sagittarius: blue turquoise traditional birthstones: Hebrew: ruby Roman: ruby Arabic: ruby Hindu: topaz Polish: turquoise Russian: turquoise



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