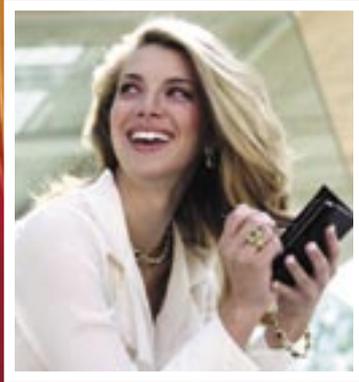


GEMSTONE ENHANCEMENTS

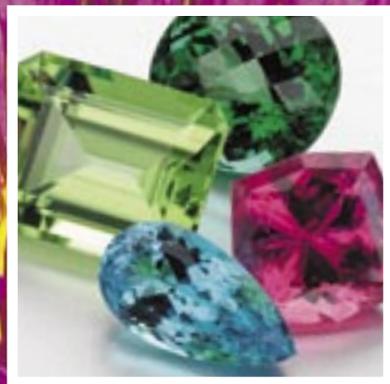
WHAT YOU SHOULD KNOW



Add More Color to Your Life

A M E R I C A N G E M T R A D E A S S O C I A T I O N

*A fine CUT GEMSTONE offers the FULL
ARRAY of NATURE'S INTRICATE
BEAUTY, HIGHLIGHTED by the SKILL
of the LAPIDARY'S ART.*



G E M S T O N E S

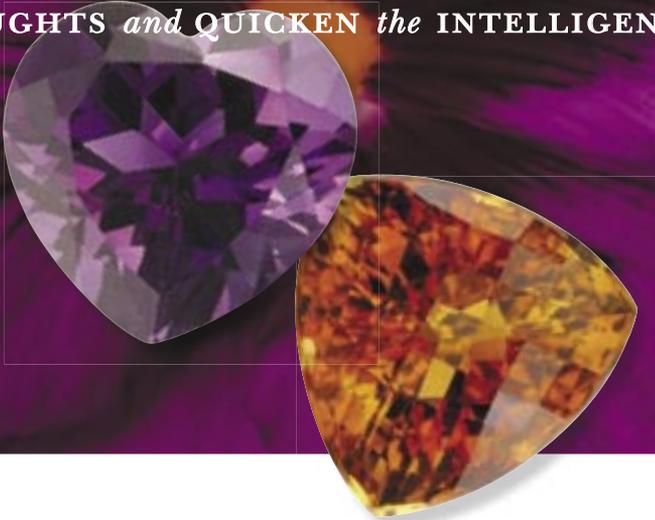
A crystal fragment from deep within the earth, a raw natural creation.... No other treasure of the earth has inspired man's desire to capture and possess its extraordinary beauty like a gemstone. The spell a gem casts over the imagination is so powerful, it has also inspired us to free its beauty from imperfection and to mold its shapes and colors for adornment and to express our individuality.

For thousands of years, man has fashioned uncut gem specimens into faceted and cabochon shapes. By experimenting with cutting techniques that enhance the play of light across their surfaces, we have coaxed brilliance and fire from deep within. A fine cut gemstone offers the full array of nature's intricate beauty, highlighted by the skill of the lapidary's art. Pearls, formed by crystals of organic origin, are complete in form as they are harvested from sea and river animals. Luminous, these pearls evoke awe and wonder.

In addition to gemstone cutting, over the centuries we have developed countless other methods to improve upon the natural properties of gemstones and pearls. These techniques are known as enhancements. They derive from our desire to draw from nature's bounty the truest and purest color and brilliance.

A basic understanding of these enhancement techniques will add to your appreciation of the beauty, durability, and value of gemstone jewelry.

GREAT THINKERS *like* LEONARDO DA VINCI
BELIEVED *that* AMETHYST *could* DISSIPATE EVIL
THOUGHTS *and* QUICKEN *the* INTELLIGENCE.



AMETHYST / CITRINE

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Amethyst and citrine are gemstone varieties of quartz. Purple has long been considered a royal color, so it is not surprising that amethyst has been so much in demand throughout history. Fine amethysts are featured in the British Crown Jewels and were also a favorite of Catherine the Great and Egyptian royalty. Great thinkers like Leonardo da Vinci believed that amethyst could dissipate evil thoughts and quicken the intelligence.

Named from the French word for lemon, citron, many citrines have a juicy lemon color. Sunny and affordable, citrine can brighten almost any jewelry style, blending especially well with the yellow gleam of polished gold. In ancient times, citrine was carried as a protection against snake venom and evil thoughts.

Darker hues of amethyst are rarely enhanced to perfect their color, although some varieties do respond well to heat enhancement. Brownish varieties are commonly heated and magically turn into the bright yellow or orange colors known as citrine. This enhancement method is permanent and will last for the life of the gemstones.

AQUAMARINE

The very name aquamarine brings to mind the limpid, clear blue tint of the sea. Legend says that it is the treasure of mermaids, with the power to keep sailors safe at sea. Aquamarine was long thought to have a soothing influence on married couples, making it a good anniversary gift.

Many aquamarines are greenish when mined and cut. For those who prefer a purer blue, these stones are heated to enhance their blue color permanently. Some aquamarine fanciers prefer the greenish hues, saying the greener tones remind them more of the sea. The color tones of aquamarine are subtle and varied. Their soft luster is a wonderful addition to any natural colored gemstone jewelry collection.

A close-up photograph of a single water droplet falling into a pool of blue water, creating concentric ripples. The droplet is captured mid-fall, with a small crown-like shape at its base. The water is a deep, vibrant blue.

LEGEND *says* **AQUAMARINE** *is the*
TREASURE *of* **MERMAIDS**, *with the*
POWER *to* **KEEP SAILORS SAFE** *at* **SEA.**

ACCORDING *to* ANCIENT CHINESE LEGEND,
the MOON HOLDS *the* POWER *to* CREATE
PEARLS, INSTILLING THEM *with its* CELESTIAL
GLOW *and* MYSTERY.



CULTURED PEARLS

According to ancient Chinese legend, the moon holds the power to create pearls, instilling them with its celestial glow and mystery. Pearls have been treasured for their lustrous, creamy texture and subtle iridescent reflections since the dawn of humankind.

Because natural pearls are so rare and difficult to recover from the ocean's depths, man invented the technique of culturing salt and freshwater pearls from mollusks carefully seeded with irritants similar to those produced by nature. The painstaking effort of culturing is one of the most dramatic examples of man's quest to coax beauty from nature.

Due to demand for perfectly matched white pearl strands, cultured fresh and saltwater pearls are often bleached to achieve a uniform color. They may also be polished in tumblers to clean and improve their luster.

Pearls are most commonly thought of as white, but they are actually produced in many colors, including gold, yellow, champagne, pink, peach, lavender, gray, and black.

Dyes, heat treatment, and irradiation are sometimes applied to produce a wide range of hues such as yellow, green, blue, purple, gray, and black in freshwater and Akoya cultured pearls. Some South Sea cultured pearls are bleached to lighten their hue, but most South Sea and Tahitian cultured pearls are not subjected to enhancements to create or improve their color.

Produced by a living organism, pearls require special care because they contain calcareous crystals that are sensitive to chemicals and acids. To care for your cultured pearls, avoid using perfume, hairspray, abrasives, solvents, and nail polish removers while wearing them. Like your skin, cultured pearls contain water and may dehydrate and crack if exposed continuously to arid conditions. Your jeweler will tell you how to best care for your cultured pearls.



AN ORGANIC GEM *from the SEA*, CORAL *was*
BELIEVED *to* BESTOW WISDOM, PROTECT
from EVIL, HEAL WOUNDS, *and* CALM THE SOUL.



CORAL

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Coral is among the most ancient of gem materials, used for adornment since prehistoric times. Coral inlays and ornaments have been found in Celtic tombs from the Iron Age.

An organic gem from the sea, coral was believed to bestow wisdom, protect from evil, heal wounds, and calm the soul. A semi-translucent to opaque gem, coral is formed from a colony of marine invertebrates and primarily made of calcium carbonate.

White is the most common color in coral, but a variety of other shades can be found, including pink, orange, red, and black. The rarest color is a deep red.

Coral is commonly enhanced to improve its color and durability. White coral is bleached. Pink coral is permeated with a colorless wax and orange coral is stabilized with plastic. Black coral is sometimes bleached to create gold coral. Occasionally, red coral is dyed to deepen or uniform its color. All commonly used forms of coral enhancement are stable.

Special care is required for coral regardless of whether or not it is enhanced. A soft and porous gem, coral scratches and abrades easily and chlorine, alcohol, ammonia, nail polish remover, and other chemicals can damage it. Remove coral rings when washing and moisturizing your hands. Avoid exposing your coral to extreme temperatures. Your jeweler will tell you how to best care for coral.

DIAMOND

UNIQUE *in the* WORLD OF GEMSTONES, DIAMOND *is the*
HARDEST *of all* SUBSTANCES. PERHAPS *it is*
BECAUSE *of this* DURABILITY *that* DIAMOND *is* TREASURED
as a SYMBOL *of* LASTING DEVOTION.

Diamond is celebrated for the purity of its brilliance. Yet within the structure of diamond, we often find impurities, or inclusions, that deflect light, distracting our eye from the radiance we so value. Many of these tiny imperfections are removed when the diamond is shaped. Today, cutters also have the option of using an enhancement technique that focuses tiny beams of laser light at imperfections and vaporizes them. The minute passageways created by the laser may then be filled with clear resins or glass-hard substances, rendering them nearly invisible to the naked eye. This method can also be used to fill fissures that reach the stone's surface, rendering them less visible to the naked eye. This treatment is permanent: only extreme heat or specifically formulated chemicals will remove the filling from the laser passageways or fissures.

Diamonds may also be colored in a variety of hues. Extreme heat and irradiation permanently enhance certain innate color properties, allowing them to display their hues in more brilliant array. Black diamonds, for example, are usually enhanced in this way.

A new high-pressure high-temperature treatment, known as HPHT, can improve the color of certain types of diamonds. HPHT treatment can remove tints from some diamonds, making them more colorless, or intensify the pink, blue, green, and yellow colors in others. Because HPHT diamonds sell for less than naturally colored diamonds, industry rules require HPHT-treated stones to be identified with an inscription on the girdle of the diamond to prevent misrepresentation.

Whether color enhanced, lasered, or cut from the most perfect raw state, your jeweler will inform you of the magical journey your diamond has followed, from deep within the earth's mantle to the fine, finished gemstone you see before you.



R U B Y

Gem of passion, of smoldering desire, ruby has been treasured for thousands of years. Because the ancients thought its glowing red color was due to an inextinguishable inner fire, ruby was also always associated with courage and power.

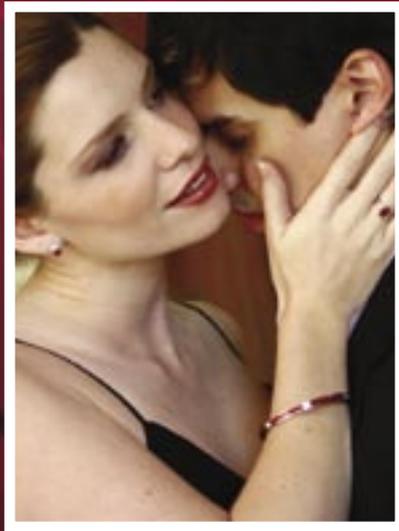
Throughout most of recorded history, ruby has been the most valuable of gems. It was believed wearing a fine red ruby bestowed good fortune on its owner — although the owner must have already had good fortune enough to possess such a rare and beautiful gem!

Despite all the best efforts of gem merchants to use technology to enrich color, fine ruby is still exceptionally rare. After being extracted from the earth, rubies today are commonly heated to high temperatures to maximize the purity and intensity of their red hue. Impurities may also dissolve or become less noticeable after heating. However, heating will only improve the color if the gem already contains the chemistry required. Occasionally rubies with small imperfections are permeated with a silicate byproduct of the heating process, which helps to make small fissures less visible. This enhancement, like heating, is permanent and rubies, whether enhanced or not, remain among the most durable of gems.

Today a new method of artificially coloring the surface of paler rubies or dark purple sapphires through the diffusion of beryllium, or a similar element, has made the red of ruby more affordable. Although this method is not yet common, in the future beryllium-diffused rubies may offer an affordable alternative to either untreated or heat-enhanced rubies, which are both much more rare. However, recutting or repolishing may affect the color of some beryllium-diffusion treated stones.



GEM *of* PASSION, *of* SMOLDERING
DESIRE, RUBY *has been*
TREASURED *for* THOUSANDS *of* YEARS.



EMERALD

Emerald, to many, symbolizes rebirth and the abundance of the life force. The rich green hue brings to mind the regeneration of life in spring and hope of new possibilities.

Spring can also be seen in the network of inclusions in the depth of the emerald that the French call the *jardin*, or garden, because it resembles foliage. The inclusions are like a fingerprint, giving each emerald a distinct personality and distinguishing them as truly natural gemstones.

Early gem merchants sought to purify the transparency of their emeralds by immersing them in clear oils or paraffin. They found that clear oils and waxes rendered surface fissures less visible to the eye. Today, we have many sophisticated technologies with which to clarity-enhance emeralds. In addition to the oils and waxes of ancient methods, we now use clear resins to penetrate the open fissures surfacing in the stones. Hardeners are often added to solidify these liquids. This step prevents the resin from evaporating, thus making the clarity enhancement more permanent than oiling or waxing the gem.

Although emerald itself is quite durable, the garden of inclusions may make individual gems vulnerable to damage if handled roughly. Ask your jeweler for information regarding your emerald selection and care. To understand the journey your emerald has traveled from the earth to you is to gain special insight into its magic.



*The ANCIENTS believed EMERALDS
EMPOWERED their OWNER
with FORESIGHT into the FUTURE.*

OPAL

Revered as a symbol of hope, fidelity, and purity, opal was dubbed the Queen of Gems by the ancient Romans because it encompassed the colors of all other gems. Opal is prized for its unique play of color, the ability to diffract light into flashes of rainbow color.

Opal occurs in different colors, ranging from semi-transparent to opaque. The most common is white opal. Crystal or water opal has a colorless body. The most valued variety, black opal, has a dark blue, gray, or black body color. Boulder opal combines precious opal with the ironstone in which it forms. Bright yellow, orange, or red fire opal are quite different from the other varieties of opal. Their day-glo tones, which are translucent to transparent, are beautiful with or without play of color.

Although opal is rarely enhanced by methods other than cutting and polishing, opals can be treated to bring out their play of color. One technique is to immerse white, gray, or black opal in a sugar solution and then in strong sulfuric acid, which carbonizes with the sugar and leaves microscopic carbon specks that blacken the body color, making its flashes of color more visible. Opals can also be permeated with colorless oil, wax, resin, plastic, and hardeners to improve their appearance and durability. Occasionally, some thinner or translucent opal may be painted with a black epoxy on the backside of the gemstone to darken the body color and improve the play of color. Fire opal is not commonly enhanced.

Opal, with or without enhancement, should be treated with some care. Opal is softer than many other gems and should be stored carefully to avoid being scratched by other jewelry. It should also be protected from blows, as exposed corners can chip. Opal should not be exposed to heat or acid.



IN ANCIENT TIMES, *a GIFT of a SAPPHIRE was a PLEDGE of TRUST and LOYALTY. It is FROM this TRADITION that SAPPHIRE has long BEEN A POPULAR CHOICE for ENGAGEMENT RINGS.*



SAPPHIRE

Velvety blue. Liquid blue. Evening-sky blue. Cornflower blue.

Because sapphire embodies an infinite palette of blue hues, ancients believed that the earth rested on a giant sapphire and its reflection colored the sky.

But like the endless colors that appear in the sky, sapphire is also found in many, many other shades besides blue, from the gold of a sunrise, to the fiery reddish-orange of sunset, to the delicate violet of twilight. Sapphire may even resemble the pale white gloaming of an overcast day.

In ancient times, a gift of a sapphire was a pledge of trust and loyalty. It is from this tradition that sapphire has long been a popular choice for engagement rings.

Yet the perfect sapphire is as rare as the finest work of art. Thus, over the centuries, we have developed methods to enhance the purest hues of sapphire. This is now commonly achieved by controlled heating of these gems, a technique that not only improves color but also improves clarity. But heating will only improve the color if the gem already contains the chemistry required. Heating sapphires is a permanent enhancement, as lasting as the gemstones themselves.

A new method of artificially changing the natural color of a sapphire is diffusion, whereby beryllium or a similar element is diffused into the surface of the gem, producing a richer color. Sapphire treated by diffusion is far less costly and much more available than rare fine untreated gems or those successfully heat-treated. Diffused sapphire is available in shades of orange, pinkish orange, yellow, and sometimes even blue. Information about diffusion should be provided on the invoice for your jewelry. Recutting or repolishing may affect the color of some diffusion-treated stones. Your jeweler can help you decide whether a natural, heated, or diffused sapphire is right for you.



TANZANITE

Tanzanite, the ultimate prize of a gem safari, has a mesmerizing blend of rich purples and blues with a velvety deepness of color unlike any other gem. Mined only in Tanzania at the feet of the majestic Mount Kilimanjaro, virtually every tanzanite is heated to permanently change its color from orange-brown to the spectacular violet-blue color for which this precious gemstone variety is known.

Legend has it that the effect of heat was first discovered when some brown gem crystals lying on the dry earth were caught in a fire set by lightning that swept through the grass-covered hills. The Masai herders driving cattle in the area noticed the beautiful blue color and picked the crystals up, becoming the first tanzanite collectors.



LEGEND HAS IT *that the* EFFECT OF HEAT *was*
first DISCOVERED WHEN *some* BROWN GEM CRYSTALS
LYING *on the* DRY EARTH WERE CAUGHT *in a*
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TOPAZ

The Egyptians said that topaz was colored with the golden glow of the sun god. Legend has it that topaz dispels all enchantment and helps to improve eyesight. The ancient Greeks believed that it had the power to increase strength and make its wearer invisible in times of emergency.

Topaz sometimes has the amber gold of fine cognac or the blush of a peach, and all the beautiful warm browns and oranges in between. Some rare and exceptional examples are pale pink to a sherry red. Sometimes peach-colored topaz can be “pinked” by gentle heating. This color change is permanent.

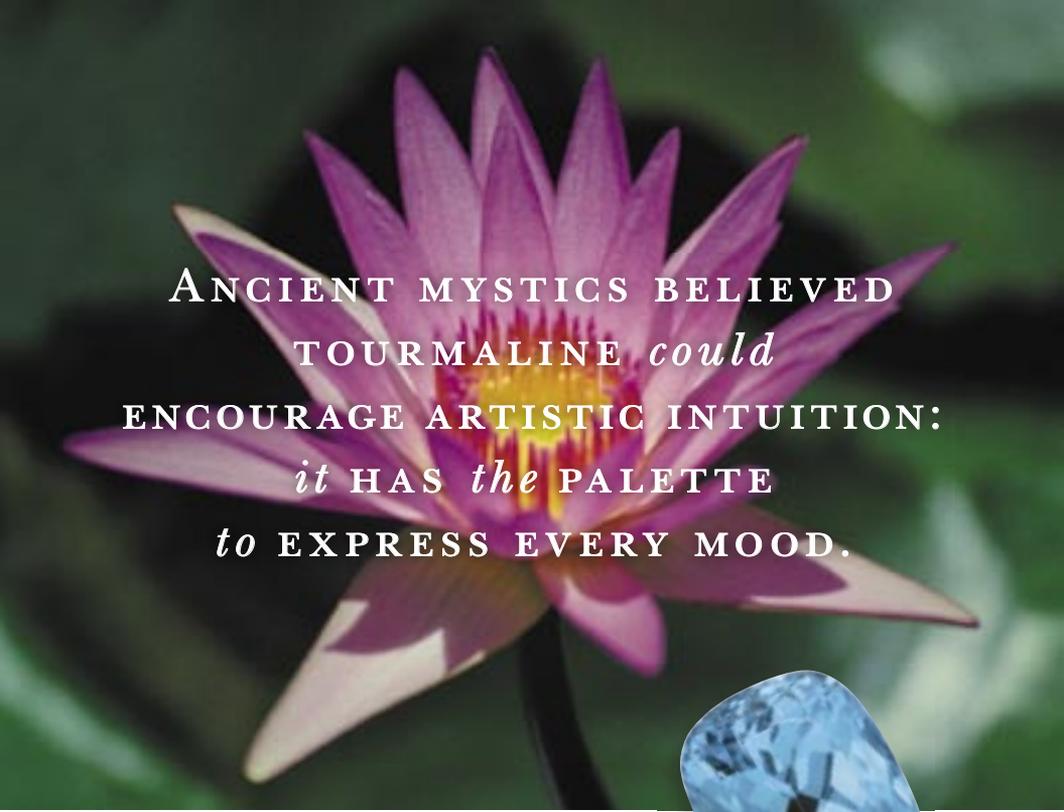


Blue, once the most rare color of topaz, is today the most common, thanks to a stable enhancement process that turns colorless topaz blue. After the raw topaz is extracted from the earth and cut, it is irradiated to brown and then heated to sky blue. This enhancement process is permanent.

Due to the popularity of blue topaz, a new treatment process called vapor deposition has been developed to create additional colors of topaz. In this treatment process, similar to those used by opticians and camera makers to make lens coatings, a thin colored film is bonded on the surface of topaz to create dark blue, red, pink, and green colors or rainbow iridescence. These vapor deposition-enhanced topaz colors must be handled with special care, as the coating can be scratched or abraded.

Topaz is a very hard gemstone, with a Mohs hardness of 8, but it can be split with a single sharp blow, a trait it shares with diamond. As a result it should be protected from hard knocks. Clean with mild dish soap; use a toothbrush to scrub behind the stone where dust can collect.





ANCIENT MYSTICS BELIEVED
TOURMALINE *could*
ENCOURAGE ARTISTIC INTUITION:
it HAS the PALETTE
to EXPRESS EVERY MOOD.



TOURMALINE

Tourmaline's name comes from the Sinhalese word *turmali*, which means "mixed." Occurring in more colors or combinations of colors than any other gemstone variety found in nature, this gem lives up to its name. Perhaps this is why ancient mystics believed tourmaline could encourage artistic intuition: it has the palette to express every mood.



Dark blue, blue-green, and green tourmalines are occasionally heated to lighten their color. Red tourmalines, also known as rubellites, and pink varieties are sometimes heated or irradiated to improve their colors. Heat and irradiation color enhancement of tourmalines is permanent.

Occasionally, some tourmalines may have surface-breaking fissures that are filled with resins, with or without hardeners. Care must be observed with these gems. Avoid exposing them to harsh abrasives and strong chemical solvents.

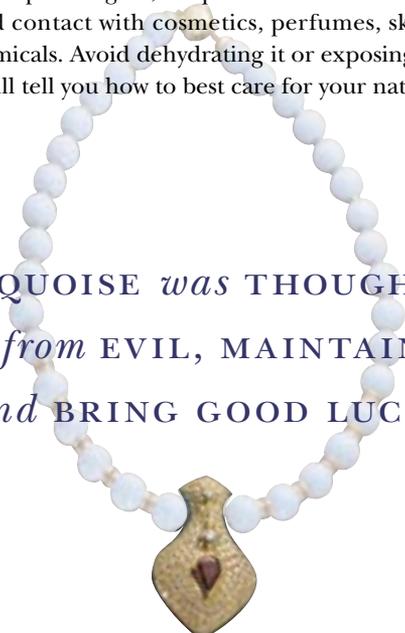
TURQUOISE

While turquoise is usually associated today with Native American culture, the ancient Egyptians were mining turquoise in 3,200 BC. Many ancient cultures regarded turquoise as a source of metaphysical power. Turquoise was thought to protect from evil, maintain virtue, and bring good luck.

Turquoise is an opaque, light to dark blue or blue-green gem. The finest color is an intense blue. Turquoise may contain narrow veins of other materials either isolated or as a network. They are usually black, brown, or yellowish-brown in color. Known as the matrix, these veins of color are sometimes in the form of an intricate pattern, called a spider web.

To improve its color and durability, turquoise is commonly permeated with plastic, a stable enhancement. It is also sometimes permeated with colorless oil or wax, which is considered not as stable as plastic. Some turquoise is dyed to improve its color, but rarely, as this is an unstable enhancement.

Special care is required for turquoise regardless of whether or not it is enhanced. A porous gem, turquoise can absorb anything it touches. Avoid contact with cosmetics, perfumes, skin oil, acids, and other chemicals. Avoid dehydrating it or exposing it to heat. Your jeweler will tell you how to best care for your natural gemstone.



TURQUOISE *was* THOUGHT *to*
PROTECT *from* EVIL, MAINTAIN VIRTUE,
and BRING GOOD LUCK.

THIS BRIEF DESCRIPTION
OF GEM ENHANCEMENTS DOES NOT
COVER ALL GEMSTONES
THAT ARE TREATED TODAY. FOR MORE
INFORMATION PLEASE CONTACT
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