

## MASQUERADER OF JEWELS

*“Masks reveal. They don’t conceal. Masks reveal your cravings, your passion, your deepest most secret desires.”*

– *Chloe Thurlo*

*The Great Impostor, Janna Semenova, 2020, Multicolour.com*

Although early attempts at gemstone classification may have begun with Roman author Pliny the Elder (AD 23/24 – 79), a test to differentiate spinel and ruby was not developed until the late 1700s. The stones known in modern gemology as ruby, spinel and garnet were simply sold as red stones for most of human history.

Of course, they crystalize differently, vary in hardness, and emerged from different pockets at various localities worldwide, but there was initially no standardized way to categorize them.

The Burmese were the first to recognize differences. In Mogok where the stones occur together, they could compare and contrast them and would have seen that corundum, spinel and garnet are dissimilar and don’t crystalize the same. In all likelihood, these miners knew much more than the concurrent western experts because they had all the samples and access to the stones in a geological context.

In the west, no one really suspected a difference and these stones were just red stones until 1783, when the French mineralogist Jean-Baptiste Louis Romé de l’Isle developed a test that showed spinel is not ruby. It isn’t clear when the earliest mineralogists connected crystal habits with gemstone varieties, but it took centuries.

Before mineralogy and chemistry, color, appearance and origin were the traditional ways to describe and identify gemstones. Thus, the famous Balas rubies, which we now classify as spinels, were probably referred to only as “red stones from Badakhshan.” If the overall appearance weren’t enough, hardness would have been the obvious way to differentiate the gems.

The Mohs scale of mineral hardness is a qualitative scale characterizing various minerals’ scratch resistance to each other. A harder material can always scratch anything softer. Created in 1812 by German geologist and mineralogist Friedrich Mohs, it is one of several definitions of hardness in material science. Diamond is the hardest natural material with a hardness

of 10, and corundum is second with a hardness of 9. Spinel has a hardness of 8. However, Moh’s scale is not linear, and differences of merely one degree in hardness can be exponential. Rubies and sapphires with a hardness of 9 will easily scratch spinels with a hardness of 8.

Yet to assume that gemstone traders waited for Mr. Moh to complete his chart comparing and acknowledging differences in hardness would be unrealistic. Comparing hardness by observing which minerals can scratch others is age-old, and even prehistoric hunters used their knowledge of hardness to sharpen their tools.

While greatly facilitating the identification of minerals in the field, the Mohs scale isn’t useful for gemologists simply because they can’t go around scratching people’s stones to see how hard they are.

In Badakhshan(Tajikistan) the spinels occur without rubies. The Burmese knew much more about differentiation because they had been mining rubies and spinels together for centuries. They developed their own system for differentiation as early as 1600 but it was apparently unknown in the west. Burmese red spinels crystalize in distinctive octahedral shapes while rubies crystalize hexagonally. When the crystalization is evident, the distinction is unquestionable. The colors also vary and the subtleties are notable in most of the stones.

So the buyers didn’t know and spinels were sold as rubies. When the gemology advanced, the truth was uncovered. These impressive stones in crown jewels throughout the world were now known as the “Great Impostors.” Some considered spinels to be the gemological world’s tricksters as they had been mistakenly labeled in numerous instances. Since spinel forms in a plausible range of corundum colors – including deep red and blue, it can and did easily pass as ruby or sapphire for centuries. Whether there was trickery or not is hard to speculate, but how could there be blame for designations yet to exist?

## “EVERYONE HAD BEEN FOOLED. EVEN ROYALS.”

The crown jewels of England in the Tower of London are the most extravagant because they hold the 530.40 carats Cullinan Diamond – the largest in the world. Among the other magnificent jewels, there are two huge spinels, both of which were once thought to be rubies.

The Black Prince’s Ruby is perhaps the most prominent and one of the worst infamous in history.



Queen Elizabeth II in 2016 wearing the Imperial State Crown. A large uncut red spinel, called Black Prince’s Ruby, is set into the front.

The 170 carat stone initially thought to be a ruby was gifted to Edward of Woodstock, known as the Black Prince, back in the fourteenth century by the Spanish King to England as payment for his military support in the civil war in 1366. Later, in 1415, the stone was said to have saved King Henry V of England’s life at Agincourt’s battle. Henry, who had placed the large red orb on his helmet, was struck by the battle-axe of the French Duke of Alençon. A sword hit the stone, and both the ruby (spinel) and Henry survived. According to Ken Scarratt, author of a book on the British Crown Jewels, the Black Prince’s Ruby appears red in the Imperial State Crown mainly because the jewelers painted a red color on the metal behind the stone. In reality, the Black Prince’s Ruby is more like the well-known classic cherry color typical of most of Tajikistan spinels.

The Timur Ruby is another case where the centerpiece is red spinel. This 352.5 carat stone was owned by the Asian conqueror Timur in the fourteenth century. It was later given to Queen Victoria in 1851 by the East India Company and is now also part of the British Crown Jewels.

The Great Imperial Crown of the Russian Empire was made for the coronation of Catherine II in 1762 by the jewelers Georg-Friedrich, who designed it, and Jeremy Posier (Jeremiah Petrovich in Russian), who selected the stones. The crown’s commissioner – Catherine II – gave the jewelers only one condition: The crown was to weigh no more than 5 pounds (2 kilograms).

Beginning with Peter the Great, the Tsar most famous for industrializing the Russian empire, there was always an interest in gemstones and precious metals. Peter was the first to encourage developments in precious metal mining and jewelry.

In 1719, he founded the earliest version of what is now known as the Russian Federation’s State Diamond Fund. The treasury was set up to support a collection of jewels that belonged not to the Royal family but the Russian State.

Peter placed all of the regalia in this fund and declared that the holdings could not be altered, sold, or given away. He also decreed that subsequent Tsars should leave certain pieces acquired during their reign to the State for the Russian Empire’s permanent glory.

Russia’s Great Imperial Crown features a large red spinel weighing 398.72 carats. It is believed to be the second-largest spinel in the world. The stone was brought to Russia by Nicholas Spafary, the Russian envoy to China, from 1675 to 1678.



The large red gemstone that tops the Imperial Crown of Russia commissioned by Catherine the Great in 1763 turned out to be a spinel.

The Samarian Spinel is said to be the world’s largest spinel. It is 5.5 cm (2.17 in.) wide, weighs 500 carats, and is a part of the Iranian crown jewels. The Persian King Nadir Shah captured it during his 18th-century conquest of India. The Samarian Spinel has a hole in it. According to an entry in the court physician’s diary to the Iranian Shah Nasser al-Din Shah Qajar, the King told the physician that the stone once adorned the neck of the biblical golden calf, which the Israelites are said to have made while Moses was receiving the Ten Commandments. A diamond was added later to conceal the hole.

## WHERE DO THE BEST SPINELS COME FROM?

The earliest spinels are thought to have come from the Badakhshan mines in the Hindu Kush near the Pyanj river, forming the border of present-day Afghanistan and Tajikistan. At the time, the area was considered to be a part of Northern India, and these historical spinels were known as ‘Balas rubies,’ a name most probably derived from the North Indian region of Balaschia or Badakshan. The spinels from this area are exceptional in both size and clarity.

Even Marco Polo wrote of this famed ruby (spinel) mine as early as 1300 AD, reporting, “The stones are dug on the king’s account, and no one else dares dig in that mountain on pain of forfeiture of life as well as goods; nor may anyone carry the stones out of the kingdom.” From early on, it was clear these famous red spinel gemstones were reserved for royalty.

Kuh-i-Lal, is the traditional source for these spinels. Said to have been discovered following a 7th-century earthquake, the Kuh-i-Lal mines are suspected of having been the principal sources for large spinels for centuries.



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The literature opines that these mines probably produced the Black Prince's Ruby, the Timur Ruby, and all the large spinels from the Persian, Russian, Mughal and European treasuries. During most of the 20th century, little was known about these mines due to their remote locality in the then-Soviet Union's closed area.

Maybe the literature is wrong, or perhaps these new spinels are from a different part of that mining area or another locality altogether – we don't know. Historians are divided on the point, and some think these massive stones were from Mogok in Burma. Nowadays, both localities are remote, but imagine how isolated they were back then in the 13th century?

#### MYANMAR

Myanmar, formerly known as Burma, is the home to many unusual and impressive gemstones – chiefly Burmese rubies. Some of the red spinels are also exceptional in terms of color. Spinel is found in both the famous Mogok locality and in Namya, a small village near the Hpakan jade mines in Burma's Kachin state. Production at Namya is irregular, and the swampy mining area is difficult to work due to flooding and malaria. Even though hundreds were involved in mining around the millennium turn, fine stones of over ten carats were rarely seen.

Mogok's spinels are rarely large, but well known for their deep red colors that command the highest prices. The Shan originally migrated from China and settled the Mogok area in the 6th century A.D. Their descendants still live there, now joined by a variety of other ethnic groups. In 1597 the King of Burma took over the mines from the Shan. He laid claim to all rubies above a specific size and value, which were to be turned over to him, on pain of death. As a result, enterprising miners would either break up the larger stones into smaller pieces or find ways to smuggle them out.

#### VIETNAM

In Vietnam, near Luc Yen, the mining of rubies and spinels started seriously after 1990 near the Truc Lau and An Phu villages. The scenic landscapes are reminiscent of old Chinese paintings. Spinel is found under the rice fields and in the marbles of the karst cliffs. Most of the Vietnamese production is composed of lovely and bright pastel-pink to pastel-purple gems. Some red spinels are reported, but the most valuable stones are the cobalt blues, which command the highest prices.

#### TANZANIA

In Tanzania, spinels were found during the 1980s in marbles near Matombo and Mahenge, in Morogoro province. There was little market for the sleepy pinkish stones at that time, and rubies were a more significant attraction. When more promising deposits in Songea and Tunduru were discovered, most of the miners moved on. In 2000, when farmers found some fine spinels at Ipanko near Mahenge, work began anew, and the region soon had more people mining spinel rather than ruby.

In August 2007, the discovery of an enormous fifty-two-kilo crystal rocked the gem world. Found in a farmer's field, it may have been the largest red spinel ever unearthed. The giant spinel was mostly opaque, but gem-quality transparent material was found near the surface.

Perhaps sparked by the discovery of spinel deposits in Tanzania or by the continuous quest of jewelry houses to offer something different, spinels have enjoyed a comeback. Their inglorious past only adds to the story.

Fashion, collector, or connoisseur stone, spinel is in strong demand, and its days of being called the "great impostor" are gone forever.

It would have been a super crystal in any museum, but it was far too valuable not to cut up, so it was. The buyers were so excited about cutting it that we're lucky even to have a picture of it. Although most of the crystal was included, it was evident that significant chunks of clean material could be cobbled out. Although the yield was low, the sheer size of the rough still translated to several thousand carats of exceptional gemstones. In the end, the color, sizes and quality of the jewels were amazing, and several stones of up to 50 carats were recovered.

Other smaller spinel deposits have been discovered at Malipo in China's Yunnan Province at the end of the 1990s and in the Tsavo region of southwestern Kenya during the 1980s. Pastel-colored spinels are also found in the mountains near Hunza in the north of Pakistan and from alluvial deposits in Sri Lanka, Madagascar (Ilakaka), and Tanzania (Tunduru). Sri Lanka is one of the oldest sources of spinel, but fine red stones are rare.

Without doubt, spinel has had a checkered past, and it acquired an impostor designation for a good reason. Although the Burmese new better, history suggests that spinels and rubies were believed by most to be the same stones for hundreds of years. Today, jewelers are armed with a better understanding of spinels, and in the last 40 years, prices have skyrocketed – perhaps more than any other colored gemstone.

In Maesai on the Thai-Burmese border, it was possible to buy a parcel of clean five-carat spinels for just \$15 per carat in 1982. Those stones would go for thousands now. Still, spinels are not as expensive as rubies or sapphires, and where a three-carat ruby might go for \$40,000 a carat, a spinel of a similar size and quality would fetch only \$2,000 to \$7,000 a carat.

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Gray and silver gray spinels continue to be among the top selling spinel colors in recent years, especially in North America and Europe. In terms of fashion, neutral colors are always convenient and the fact that these stones are untreated, affordable and available in relatively large sizes only adds to their appeal.

The Mogok area of Myanmar is one of the few localities that produce this particular shade. Vietnamese spinels are more expensive, and African stones tend to be more bluish. Consumers are always looking for something new and this is a trend that could remain for a while.

# THE GEM WITH 4 PERSONALITIES

Spinel is a favorite of gem dealers and collectors due to its brilliance, hardness, and wide range of spectacular colors. In Burma, where some of the most beautiful colors were and still are mined, it was recognized as a separate gem species since 1600, but in other countries, the masquerade continued for hundreds of years. Historically, fine red spinels were esteemed as much as ruby, and sometimes even more.

## RUBY IMPOSTOR

### RED SPINEL

Red spinels have been among the most popular gemstones for investment, and prices have been increasing at around 20% per year over the last decade. Some Tanzanian spinels highly saturated colors are considered to be top of the line and only the best Burmese stones can compare.



## LEGALLY BLONDE

### PINK SPINEL

Pink is indisputably one of the loveliest of all spinel colors but it is too rare to be considered for high-volume manufacturing. Top-quality pink spinels display superb bright and saturated neon pink-red colors that appear to fluoresce or glow, in natural light.



## SAPPHIRE PRETENDER

### BLUE SPINEL

Most blue spinel hues range from violet-blue to very slightly greenish-blue. Stones are generally less saturated and mixed with grayish components. The best and most highly valued stones are the cobalt blues from Vietnam.



## ROYAL MASQUERADER

### PURPLE SPINEL

Spinel can occur in nearly every color of the spectrum, but the most common colors are purple or reddish shades. Purple was always the color of royalty, and purple gemstones were considered equal in value to diamond, ruby or emerald, until the mid 19th century when vast deposits of were amethyst were discovered in Brazil.



# RELICS & RARITIES

In 1937, gemologists B.W. Anderson and C.J. Payne reported the existence of a zinc-rich type of gem spinel that was transitional between spinel and gahnite but was rich in zinc.

The name gahnospinel was then suggested for this species. It looks like spinel, is singly refractive like spinel and falls within an identical color range. From appearance, it's impossible to differentiate Gahnospinel from Spinel, but its specific gravity is somewhat higher.

Identification is even a problem for top labs because zinc proportions are the defining factor, and the labs don't seem to agree on what those percentages are.



5.27-carat green Gahnospine, Madagascar, Vanutsaporn Treemok, 2020, Multicolour.com

## PROSPECTOR'S CORNER

The 4-kilogram spinel specimen on a calcareous marble matrix is from Mahenge, Tanzania. The crystals are not gemmy enough to facet, but the large size and the bright colors will make it an impressive addition to any collection.

While many Mahenge spinels are of the pinkish, sleepy type, fine transparent reddish-pink or orangey stones are also regularly found in the Ipanko marbles and the nearby secondary deposits.



Spinel Specimen, Vanutsaporn Treemok, 2020, Multicolour.com



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The GEMVINE is an electronic monthly newsletter and a supplement to GEMVINE magazine that provides articles, news, photographs, and other information devoted to the study and trade of natural gemstones.

GEMVINE is published and distributed by Netcomposite Ltd, 16 High Holborn, London, WC1V 6BX, United Kingdom. Telephone: +44 0845 154 0249 E-mail: [publisher@netcomposite.com](mailto:publisher@netcomposite.com)

GEMVINE is published on behalf of David Wein Ltd. Kinwick Centre, 32 Hollywood Road, Central, Hong Kong. Telephone: +852 5808 1377 E-mail: [editor@davidwein.com](mailto:editor@davidwein.com)

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