

Opal - The Outback gem

Opals have been one of the world's prized gemstones since at least the time of the Romans.

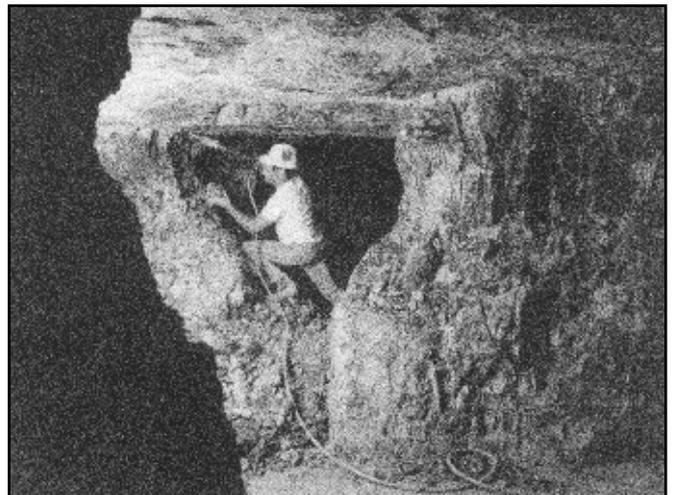
Thought to possess mysterious and magical qualities, the stones were then mostly won from mines in Eastern Europe, and that area remained the world's main source of opal for many hundreds of years.

By 1932, the Eastern European mines were unable to compete with the high quality stone being produced in Australia and ceased production, allowing NSW to assume the mantle of premier opal producer of the world, the State becoming famous for its colourful and rare black and crystal stone.

The two main fields where opals occur in NSW are Lightning Ridge in the far north and White Cliffs in the far west.

Opal was discovered at Lightning Ridge in the late 1880s, with the first shaft being put down around 1901 or 1902 by Jack Murray, a boundary rider who lived on a property nearby.

Some time later, a miner from Bathurst named Charlie Nettleton arrived and began sinking shafts. It was he who in 1903 sold the first parcel of gems from the field, receiving only \$30, not even a fiftieth of the price that could have been obtained only five years later.



Underground at a Lightning Ridge opal mine

So began the romance of "The Ridge". Miners and rushes came and went, fortunes were made and lost, and the spell still remains today.

At White Cliffs, opal was first produced in 1890, following the discovery of stones in the area by a party of kangaroo hunters in 1889. Activity was only short-lived though. The decline of the field had already begun in 1902 and since 1915 very little work has been carried out.

Formation of opal

In NSW the most important seams of opal are found in sedimentary rock, with the opal lying

at shallow depths, usually less than 30 metres. Its formation occurs this way.

Silica weathered from overlying rock percolates down through the rock mass to a cavity or fault where it is deposited as a gel.

Gradual loss of water from the gel results in hardening of the material and the formation of opal, the whole process taking hundreds of thousands of years.

Play of colours

The range and play of colours found in opal makes it unique among gemstones.

No two opals are ever exactly the same. Each stone has an individual pattern and play of colour.

Opals are made up of minute spheres of silica which have grown around a central nucleus. Precious opal consists of larger silica spheres arranged in a regular pattern.

The orderly arrangement of the spheres creates a regular three dimensional array of spaces and voids between the spheres.

The brilliant play of colours of precious opal is produced by diffraction and interference of light waves travelling through the transparent spheres and voids.

Precious opal

Precious opal is usually classified on the basis of the background colour of the stone and the type of colour pattern.

Black opal shows a play of colours in a dark background, accentuating the colour flashes. Lightning Ridge is the world's major producer of black opal.

Light opal has a background colour ranging from clear to milky. The clear varieties are known as crystal or jelly opal. Beautiful light opal is found at White Cliffs.

Fire opal is a transparent to translucent stone with a red to honey-yellow background, and usually with a bright play of colours in red and green.

The different colour patterns found in precious opal are observed as the stone is turned, or viewed from different angles.

A **harlequin** pattern is made up of a patchwork of irregular-sized squares of colour.

A **pinfire** pattern consists of closely spaced pinpoints or specks of colour.

A **flash** pattern shows broad irregular flashes which change or disappear as the stone is rotated.

Solids, doublets, triplets

Precious opal is usually presented as solids, doublets and triplets, depending on the nature and thickness of the colour band.

Solid opals are the most valuable but must be cut from stone having a thick colour band with a bright or regular colour pattern.

Doublets are made by gluing slices of precious opal to a common opal backing. The dark backing enhances the colours.

Triplets are made by adding a clear protective cap of quartz, perspex or glass to a doublet.

As the slices of precious opal used are thinner than for doublets, triplets are usually less expensive.