

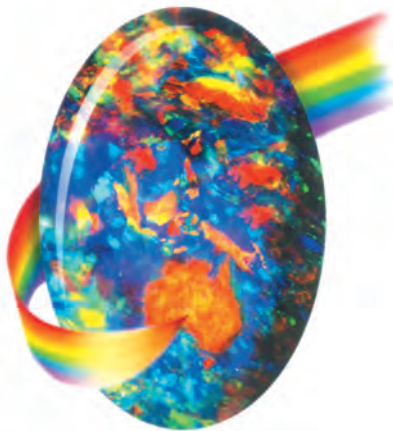
BOULDER OPAL



OPAL - AUSTRALIA'S NATIONAL GEMSTONE

OPAL PRESS PUBLISHING

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Natures Art

AUSTRALIA

Published by

OPAL PRESS PUBLISHING

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Queensland Australia

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www.ratliffopal.com

ISBN 978 0 9941652 1 3

First Published 2014

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This book is dedicated to all opal lovers

Cataloguing-in-publication details are available
from the National Library of Australia.

Photography by

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Vicki and Wendy have a passion for photography
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for this publication.

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Aerial view of Cairns City & Trinity Inlet photograph by Ric Steininger

Made up of the glories of the most precious gems, to describe them is a matter of inexpressible difficulty, for there is amongst them the gentler fire of the ruby, there is the rich purple of the amethyst, there is the sea green of the emerald and all shining together in an indescribable union.

(Pliny The Elder 1st Century AD)

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- * How to care for your opal





Boulder Opal Split Pair showing the opal as it came out of the mine

WHAT IS OPAL

Opal is a hydrated amorphous silica. The chemical formula for opal is $\text{SiO}_2 \cdot n\text{H}_2\text{O}$.

The hardness of opal on Moh's scale of hardness is from 5.5 to 6.5.

Boulder opal tends to be at the top end of hardness and is considered to be very durable and stable.

Opal was formed approximately 100 million years ago in the Cretaceous Period.

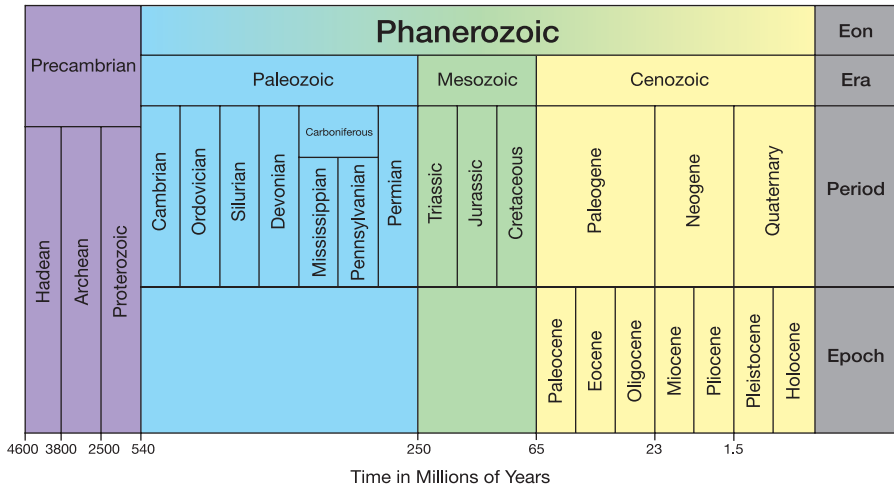
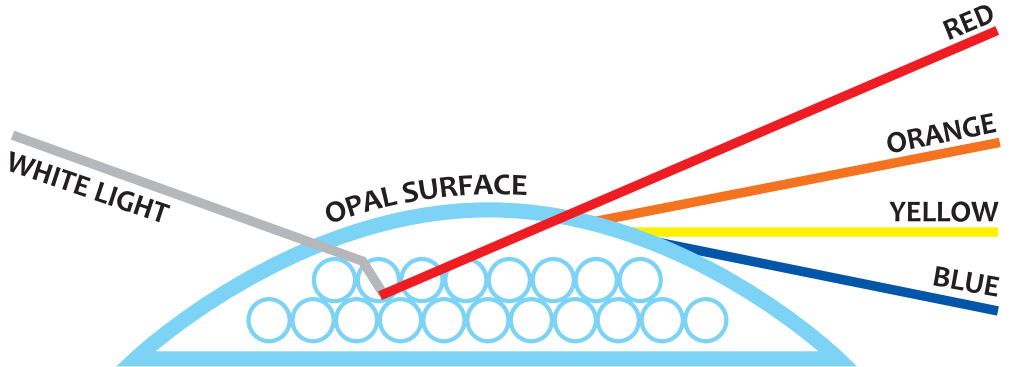


Diagram showing geological time scale

WHY DO THE COLOURS CHANGE IN OPAL

Opal is comprised of microscopic spheres that make up the structure of the gem. The play of colour seen in opal is caused by diffraction grating. The microscopic spheres within opal are in an ordered array structure. Larger spheres produce red colours and the smallest sized spheres produce purple colours.

The spheres need to be orderly arranged touching each other with equal distances between the spheres. As the white light that we normally see is absorbed into the structure of the opal, it is split by a process called diffraction grating. This acts as a prism breaking the white light into its component colours.

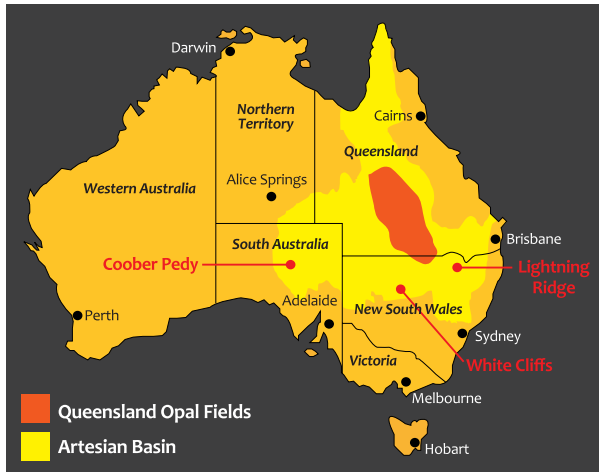


THE LIGHT DIFFRACTION THROUGH SILICA SPHERES

Diagram showing diffraction grating which causes play of colour in opal

WHERE IS OPAL FOUND

Australia is the main source of precious opal and accounts for over 90% of world production. Boulder Opal is a unique type of natural opal that forms within sandstone and ironstone boulders. Boulder Opal is found only in Queensland Australia. The two main fields for Boulder Opal are the areas around the towns of Quilpie & Winton. Other important deposits of opal occur in the areas surrounding the townships of Yowah & Koriot near Cunnamulla. The Queensland Boulder Opal fields cover an area of thousands of square kilometers.



Map of Australia showing Queensland Opal Fields

HOW IS BOULDER OPAL FOUND

Opal bearing locations cover a vast area of inland Australia that was once an inland sea approximately 100 million years ago. Opal floaters are found on the surface of the ground that indicate that an opal deposit is nearby. Opal floaters are pieces of opal that have weathered out of a primary deposit of opal and have been moved by wind and water away from the original opal deposit. By following the floaters you can usually find the primary deposit which often will be in a mesa type hill.



Opal bearing country showing a typical mesa type hill

HOW IS BOULDER OPAL MINED

Boulder Opal is generally mined using the open cut mining method of mining. Large excavators and bulldozers are used to remove the sandstone overburden to reach the opal level. Once the overburden is removed you reach the opal level, which is a white clay like material directly below the sandstone. There is often multiple opal levels within an opal deposit. Each opal level produces a slightly different type of opal. Each Boulder Opal mine is unique in the particular characteristics of opal that it produces. Expert opal dealers can identify which particular opal mine an opal came from because of the unique characteristics that the opal possesses.

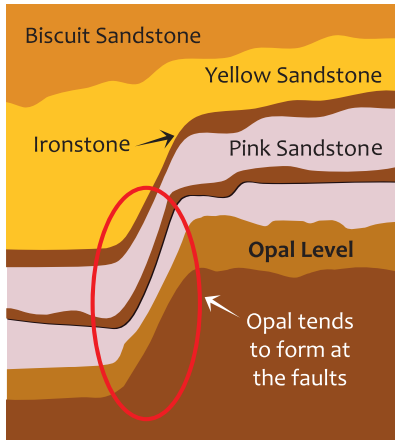


Diagram showing Opal level



Open Cut Mining Technique

HOW IS BOULDER OPAL CUT AND POLISHED

After the boulders are removed from the mine they are cut into slabs using a large diamond saw. Opal is found inside the sandstone or ironstone boulders in cavities, vugs and veins. When precious opal is encountered it is trimmed all around to expose the area that contains the opal. Once this is completed the opal is faced down. This involves grinding the rock down until the opal face is exposed. The opal face is then sanded using progressively finer grits of sandpaper until a pre-polish surface on the opal is obtained. The opal face is then polished using a leather pad impregnated with a mixture of cerium or tin oxide mixed with water to form a paste.



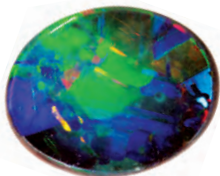
Cut Boulder Opal



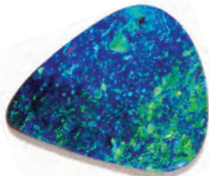
Opal being cut and polished

HOW TO VALUE OPAL

Valuing opal is a very complex matter and beyond the scope of this book. Opal is valued by opal dealers who are experts in this field with many years of experience. At a very basic level the more beautiful and bright the colours of the opal are the more valuable the opal is. Black opal is more valuable than light opal. When viewing an opal that you are considering purchasing you will usually have a large number of opals to choose from and compare. You will be able to determine which opal appeals to you most. When the opal speaks to you, it is the one to buy. Red is the most valuable colour followed by orange, green, blue and then purple.



Black Opal



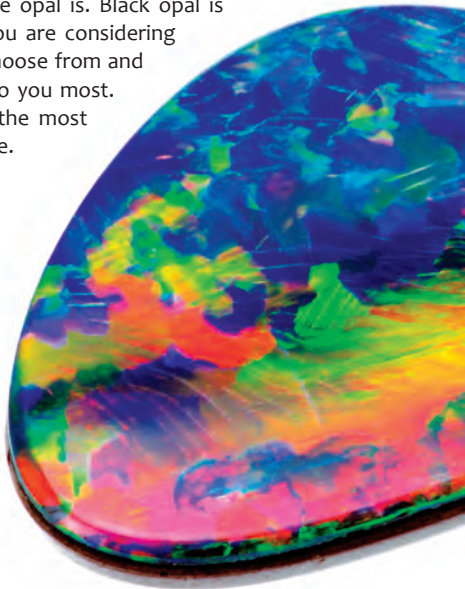
Boulder Opal



Light Opal



Fire Opal

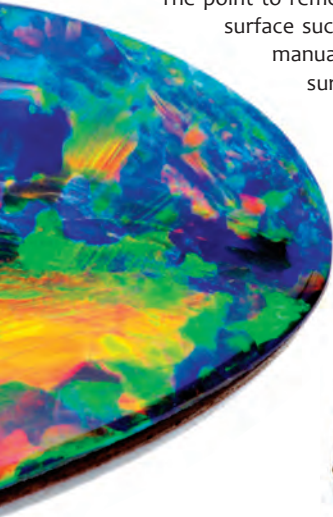


HOW TO CARE FOR YOUR OPAL

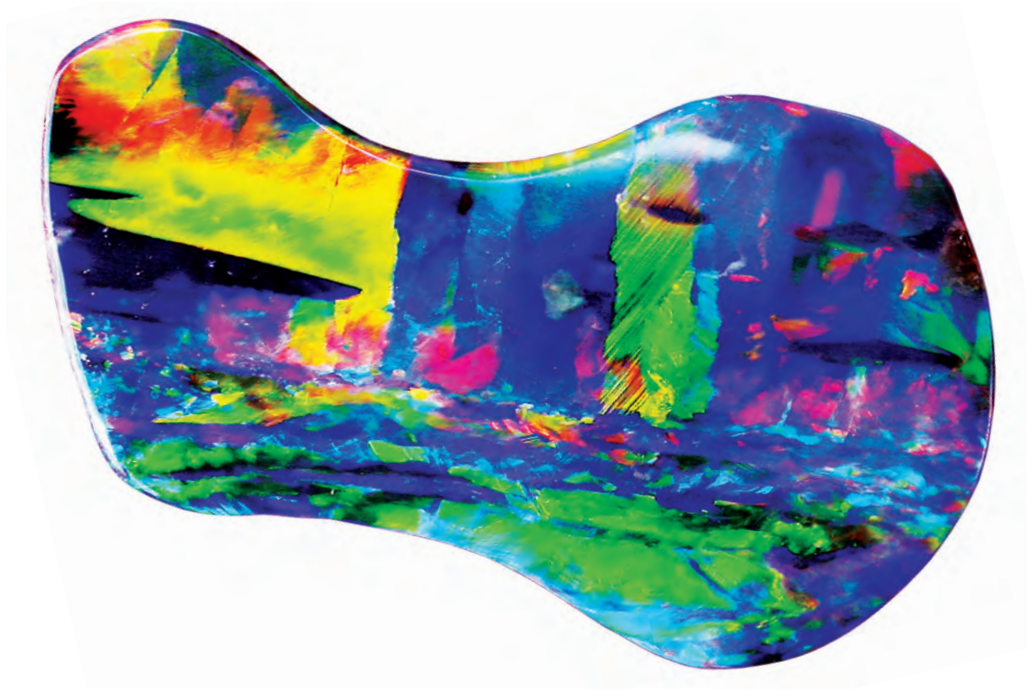
Many misconceptions and myths exist about how to care for opal. Opal requires no special attention or care.

Water or other liquids have no effect on opal and it is quite safe to wear or expose your opal to water.

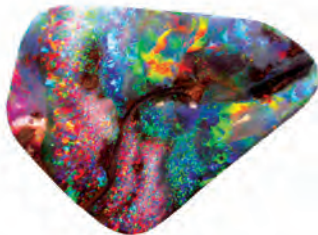
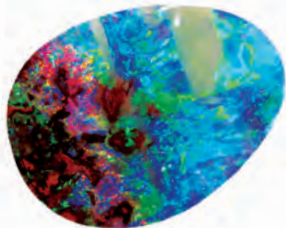
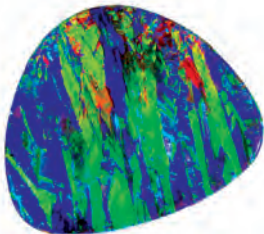
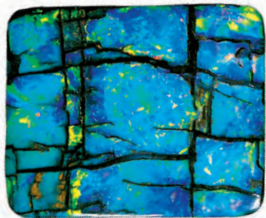
The point to remember about opal is that it can be broken or chipped if dropped on a hard surface such as a concrete floor. Opal jewellery should not be worn while doing hard manual labour where there is a possibility of knocking your opal against a hard surface. By being reasonably careful you should enjoy a lifetime of joy and pleasure wearing this wonderfully rare and beautiful gem.



Hand Made Boulder Opal Pendants in Sterling Silver



Boulder Opal from Queensland



Boulder Opals from Queensland







Mother Elephant and Baby Carving in Boulder Opal by Mr Kevin Ma



Boulder Opal Frog Carving by Mr Kevin Ma



Saltwater Crocodile Head Carving in Boulder Opal by Mr Kevin Ma



Tasmanian Devil Carving by Mr Kevin Ma



Sterling Silver Opal Ring - Black & Gold Touches



Sterling Silver Boulder Opal Bangle - Black & Gold Touches



Sterling Silver Triplet Opal Pendant with Garnet & Sapphires



Boulder Opal Necklace in Sterling Silver Black Rhodium
Gold Touches - Natural Freshwater Pearls & Sapphires



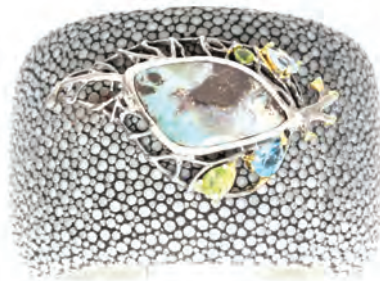
Light Opal Ring in Sterling Silver
Black Rhodium Gold Touches



Light Opal Ring in Sterling Silver
Black Rhodium



Stingray Cuff - Boulder Opal & Fancy Colour Sapphires in Sterling Silver



Stingray Cuff - Boulder Opal & Blue Topaz & Citrine in Sterling Silver



Sterling Silver Boulder Opal Pendant with Rose Gold Touches



Sterling Silver Boulder Opal Bangle - Black & Gold Touches



Sterling Silver Boulder Opal Pendant with Sapphire



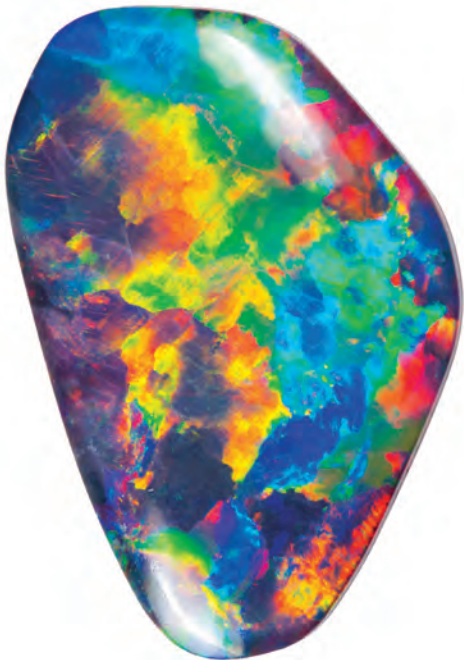
Handmade Sterling Silver Boulder Opal Pendants



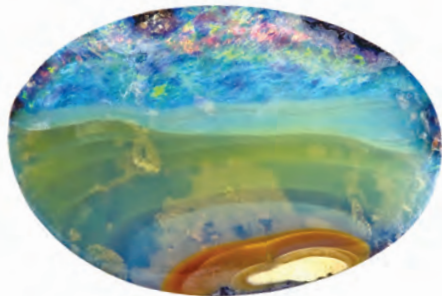
Sterling Silver Boulder Opal Bangle - Rose Gold Touches



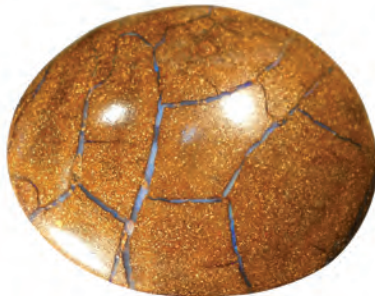
Sterling Silver Boulder Opal Pendant with Rose Gold Touches



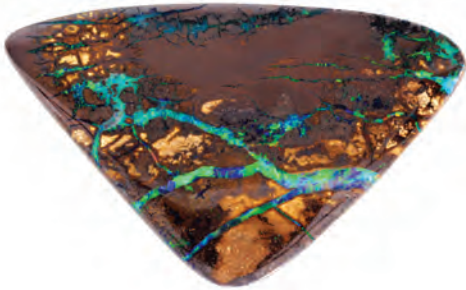
Gem Quality Boulder Opal



Polished Boulder Opal



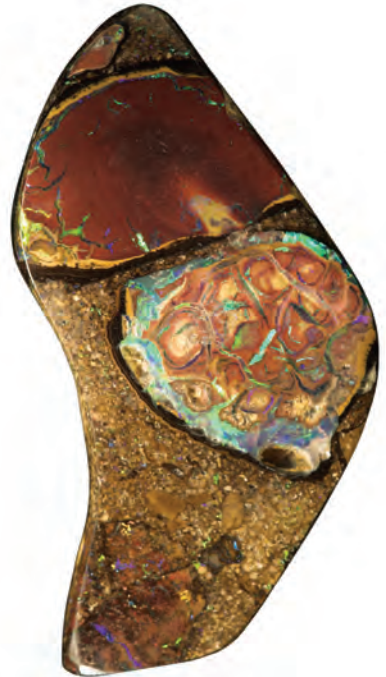
Natural Boulder Opal



Polished Boulder Opal Matrix from Winton Area



Polished Boulder Opal Specimen from Bull Creek Mine Quilpie Area



Unique Fancy Cut Boulder Opal from Yowah





Matched Pair of Polished Boulder Opal Picture Stones from Winton Area





Boulder Opal Picture Stone from Winton Area



Double Island and Palm Cove Cairns Photography by Ric Steining





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PO Box 8088 Cairns 4870
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ISBN 978-0-9941652-1-3



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