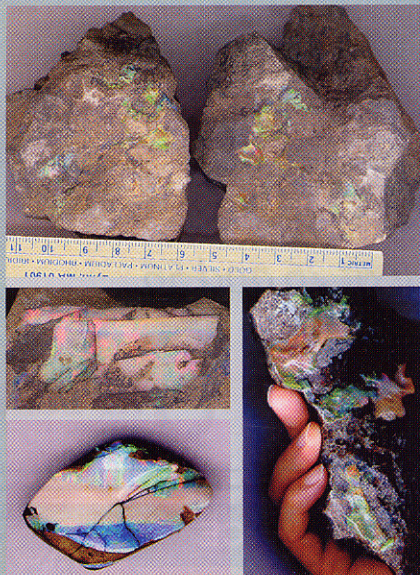


British Columbia Opals

TGS → Klinker

Precious opal, when viewed in sunlight or in most indirect artificial light sources, exhibits a "play of colour" unlike any other mineral. Precious opal is the name given to the gem form of the mineral "opal."



(top) A splitface boulder opal specimen valued at US\$350. (centre left) A boulder opal with polished face. (bottom left) An example of the multi-phase deposition of opal. (bottom right) An opal-bearing boulder specimen. All photos courtesy Okanagan Opal Inc.

Opal ($\text{SiO}_2 \cdot n\text{H}_2\text{O}$) is an amorphous (having no crystal structure) hydrated silica mineral comprised of pure silica and water – generally containing 3% to 10% water. Opal forms as a result of the precipitation of hydrated silica spheres from silica rich water solutions and is found as fracture, vesicle and void fillings (as veins, nodules and layers), in a variety of rocks. Opal in its most common, non-gem grade form (called "common opal") is found world-wide. Precious or gem-quality opal comes mainly from Australia and Mexico with lesser amounts found in Honduras, Guatemala, Slovakia, the United States, and now Canada. Historically, the original gem-quality opal came from Slovakia in central Europe and was prized by Roman Emperors as the "Gem of Hope."

Opal can be transparent, translucent or opaque and can occur in almost any base colour – colours which are caused by various impurities. The base colour of opal can range from white, through various shades of yellow, green and brown, to black; but also occurs as blue and pink at some locations. In Mexico, translucent to transparent opals that range in colour from yellow to orange to red are often referred to as *fire opal* and which may also have a play of colour. As if to add confusion, the play of color exhibited by precious opal is often referred to as *fire*.

However, these base colours are not what give opal its value as a gemstone. The gemstone grade of opal is called *precious opal* and this name is reserved for opal displaying a play of colour which is an optical property caused by diffraction of light passing through and between the micro-spheres of precipitated hydrated silica. Only when the micro-spheres are uniform in size and arranged in an orderly fashion does the incident light passing through and between the spheres get diffracted (as by raindrops) generating a rainbow of colours. Being an optical property, the play of colours is not dependent on the gemstone being cut or faceted to bend the light refracting it into its prismatic components. When exhibiting a play of colour having a high level of brightness and consistency against a naturally dark base colour, a precious opal can be worth thousands of dollars per carat. Top grade precious opals can be worth as much as good diamonds and are much more rare.

The first commercially viable precious opal discovery in Canada was made in 1991 in the mountains west of Vernon, in the upper Okanagan Valley of southern British Columbia by Robert Yorke-Hardy and Glen Grywacheski. The opals at the Okanagan Opal Inc. mine have formed in interlayered volcanic debris flows and lapilli tuff/ash

beds. Due to post-volcanic activity era tectonic events and subsequent weathering over thousands of years, cracks and voids occurring in the host rock were filled with silica-rich water. As the silica rich water evaporated, the silica precipitated in the form of agate, common opal and precious opal – suggesting that opal is a low temperature secondary mineral deposit rather than being formed at high temperature during the volcanic rock forming process. See the multi-phase deposition of opal exhibited in the accompanying photo.

Robert, wife Alana and three sons Chris, Mike and Matt, operate the mine for Okanagan Opal Inc., a small private company. Since incorporation in 1993, the company has explored, developed and has begun small-scale mining of precious opal that is then processed and marketed through the company's retail shop.

Exploration and development work to date has shown that there is an ample supply of precious opal on the company's extensive mineral property to support its planned expansion of marketing activities.

The company also offers tourists the chance to discover their own opals. A designated area at the mine site is set aside for fee digging on Fridays, Saturdays, Sundays and statutory holidays from June until late September or early October (weather permitting). Reservations are required. The fee is \$40 per person per day. Bring a rock pick, vehicle and daily necessities. Company personnel will be available to provide guidance, as opal can sometimes be difficult to find.



A crystal opal pendant.

The Okanagan Opal shop is located at 7879 Highway 97 about four miles north of Vernon and one mile south of the junction of Highways 97 and 97A. Take the Pleasant Valley Road exit and look for the signs. To make reservations, call 250-542-1103 or visit www.opalscanada.com. ♦