

Background Paper

The State of the Australian Precious Opal Mining Industry

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Abstract

Australia's National Gemstone is the opal. Ironically, few Australians actually buy opal products; most opal is sold either within Australia to tourists or is exported overseas. The principal nations that purchase Australian opal are Germany, Japan, USA and China.

Australia currently produces about 95 per cent of the world's precious opal from widely scattered fields throughout central Australia. Geologists believe that the volume of gems that have been produced over the past 150 years in Australia is but a minute fraction of the amount yet to be discovered.

Worldwide, opal product sales amount to approximately AUS\$1 Billion p.a. Despite this, opal mining is a major anomaly within the broader Australian mining industry in that it has not progressed beyond being essentially a cottage industry. There are three reasons for this. Firstly, it is uniquely Australian and there is no serious international competition. Secondly, until recent times there has been little research into opal genesis and into the development of techniques to explore for opal on a major scale. Lastly, there is little international marketing of the product.

Opal is very valuable (up to AUS\$10,000 per carat uncut), highly portable and much of the trade is in cash. There is a great deal of secrecy in the industry and buyers exploit this secrecy driving prices down. Most of the value adding of opal products occurs outside Australia.

The Australian opal industry is currently in a state of decline and is not performing anywhere near its full potential. There is currently a shortage of supply and despite this, opal is being sold at prices far below its potential. There is currently a real danger that the key mining areas will fall below the critical mass levels of production required to sustain the market.

The opal mining industry has finally recognised its deficiencies and has recently begun working at a federal level to resolve them. Most observers recognise that, to survive, the industry must evolve and become corporatised. This situation does not sit well with many opal miners for whom individualism, secrecy and non-cooperation are a way of life.

Exploration methodologies are being developed to explore for major opal centres by companies like Opal Horizon Limited utilising new academic research into opal genesis. Once major new discoveries are made, the face of the Australian opal mining industry is expected to change dramatically. Major changes will occur with the way opal is mined, with attendant security regimes (similar to that for diamond industry), and with marketing. It is quite conceivable that one company could again dominate the industry (as happened 100 years ago) to become the de Beers of the opal industry.

History

The Australian opal mining industry, which ultimately has become a major export earner for the Australian economy, had a slow start. Precious opal was first found in Australia on Listowel Downs Station, south of Blackall in western Queensland in 1868. In 1890, the pioneering opal dealer, Tullie Wollaston took samples of Queensland boulder opal to London and Germany to initiate and establish the Australian opal industry. Until about 1915, his company effectively controlled the opal industry.

Australia's first commercial opal centre was discovered at White Cliffs in northwestern New South Wales in 1894. Further commercial discoveries followed in 1903 at Lightning Ridge, famous for its black opal, and then in South Australia at Coober Pedy (1915), Mintabie (1921) and Andamooka (1930). Despite the incredibly vast expanse of potential opal-bearing rocks in central Australia, very few new fields have been discovered in the last 70 years. Notwithstanding this, Australia still produces about 95 per cent of the world's precious opal.

Geology

The sedimentary opal deposits of central Australia occur along flat-lying horizontal layers within 30 metres of the surface. They are a product of a unique set of geological events which lasted about 100 million years. These events can be summarised as follows:

1. The Early Cretaceous sedimentary host rocks were deposited in a large organic-rich shallow marine to freshwater epicontinental sea.
2. Following surface exposure through lowering of the sea level, these host rocks were subject to a prolonged tropical weathering regime from the Late Cretaceous to the mid-Eocene – similar to the Amazon Basin today.
3. The climate became more arid during the Late Eocene and Oligocene and mild tectonism during the Late Oligocene-Early Miocene gave rise to subtle extremely long wavelength surface folds. Opaline silica (potch and precious opal) deposited in the weathered profiles mainly beneath the crests of the surface anticlines. The opal deposits were preserved as groundwater levels fell in these apical regions. Siliceous cap rocks discouraged erosion.
4. Late Miocene to Pleistocene dissection and scarp erosion exposed the weathering profiles containing the opal.

Mining

The central Australian opal deposits, being close to the surface, are highly amenable to open cut mining. However, with a long tradition of opal mining on a small scale at many existing opal centres such as Lightning Ridge, the allowable leases and claims are too small to permit open cutting and almost all mines are underground.

An opal centre can contain 50 or more fields or “runs” varying in size from a few hundred square metres to several square kilometres. The largest opal centres, ie Coober Pedy and Lightning Ridge, are each expected to produce in excess of AUS\$5 Billion dollars in uncut gems over their mining life.

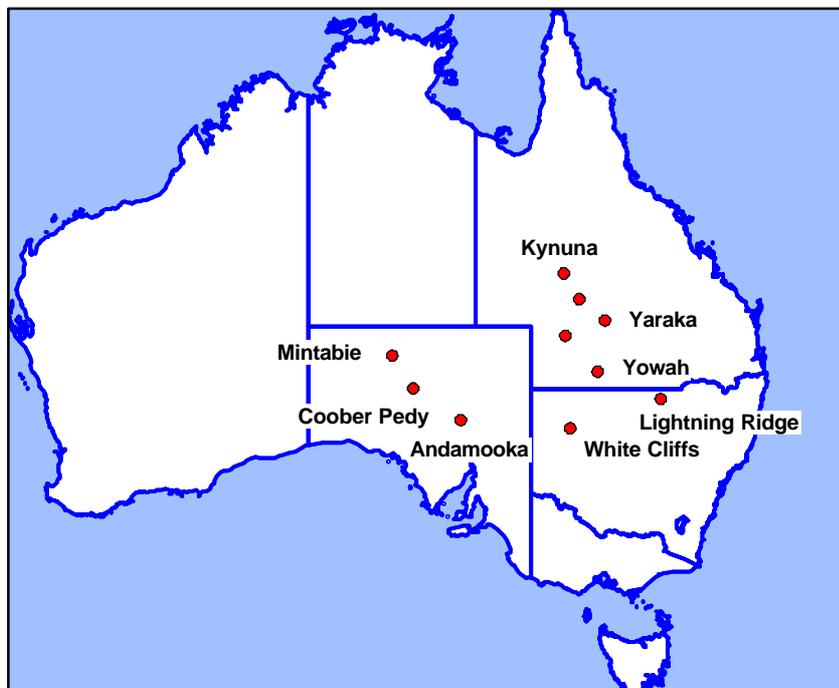
Both Lightning Ridge and Coober Pedy lay claim to being the opal capital of the world. In a sense, both claims are true. In terms of the value of stone produced, Lightning Ridge is the bigger producer whereas in terms of volume of stone, Coober Pedy produces far more. The widespread Queensland fields are the “quiet achievers”.



Underground mining on an opal claim at Yowah, western Queensland

Current Status

No one really knows the value of the industry to the Australian economy. Most opal is produced by individuals or small syndicates and many of these are European immigrants or first generation Australians. Like other similar gem industries, there is a strong “black” or cash economy operating. Government figures on the value of the industry are speculative at best or extremely conservative at worst. Consensus within the industry would suggest that several years ago the Australian opal mining industry was worth somewhere between AUD\$100 million to AUD\$200 million per annum in terms of raw gems produced and between 5 and 10 times these amounts for processed gems. These figures do not, of course, include the value of the tourism component to the industry except in the sale of gems.



Major centres of Australian opal mining

While Australia dominates the world supply of opals, it does not have a similar level of control over the world marketing of opal due to the highly fragmented nature of the industry and undisciplined selling practises.

In recent years production of opals has been decreasing in New South Wales and South Australia with production down by up to 30% in the last decade on some fields. Factors which have contributed to falling production include the mature nature of the southern fields and lack of new discoveries, the aging population of opal miners and the reluctance of the younger generation to accept mining as a career, and the increasing amount of government red tape.

In the last decade, there have been a number of regulatory impediments imposed on the opal mining industry by government. These include the Goods and Services Tax (GST), delays with land access through Native Title legislation and tougher environmental restrictions. While larger corporations have staff and procedures in place to handle these issues, the individual opal miner has a much tougher time of it. However, of interest is that 90 per cent of the wholesale industry but only 50% of opal miners are registered for GST.

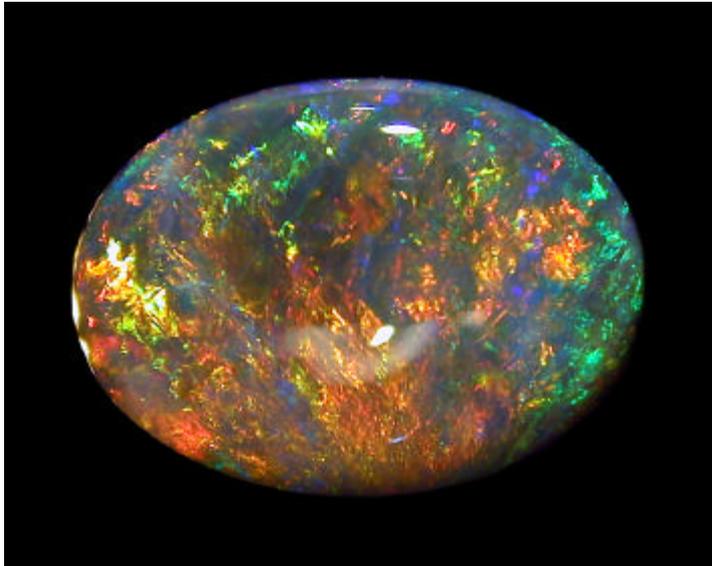
The price of opals is not dependent on normal supply / demand market factors. Perversely, the price of opal seems to be directly related to the volume of opal either produced or sold. Prices actually rose when the Coocoran fields to the west of Lightning Ridge and the Lambina fields in remote northern South Australia were discovered. Similarly, periods of peak tourism during major sporting events such as the Olympic or Commonwealth Games or when Australia was host to overseas troops also affected the price. Obviously the industry is a long, long way from market saturation.

Despite the extensive deposits present in Australia, the high monetary value placed on precious opal for jewellery (AUD\$30,000 per carat for cut top quality black opal), and Australia's position as one of the world's premier mining nations, it is perhaps surprising that opal mining in Australia is still essentially a cottage industry. Most authorities within the industry consider that there are three main factors preventing the industry from achieving its full potential – lack of international competition, lack of scientific research and lack of marketing.

The general lack of research into opal genesis has meant that, apart from the time-honoured methods of prospecting and pattern drilling, no other successful systematic exploration techniques have been developed. This is the main reason for the paucity of new fields discovered in recent decades and the lack of larger companies in the industry. Recognising this, several academic and government institutions including the Argon Geochronology Laboratory at the University of Queensland and the University Georgia Augusta at Göttingen in Germany, among others, are currently carrying out research into ancient weathering regimes and opal genesis. Opal in Australia is generally considered to be a product of weathering. Companies such as Opal Horizon Limited are taking advantage of this research and formulating new methods for opal exploration on a corporate scale.

Traditionally, the opal miners in Australia have not acted as a unified group; their interests have been divided along State and mining field lines. Until recently, this disunity has prevented the formation of a coherent national opal mining identity and thus, a strong voice within the mining industry as a whole. This is slowly changing. Two national symposia have now been held firstly at Lightning Ridge in 1999 and more recently at Coober Pedy in 2001 to address problems associated with the industry as a whole. As a direct outcome of the Coober Pedy symposium, the Australian Jewellery and Gemstone Industry Council, the peak body for the gemstone industry in Australia, over the last two years held three opal industry strategic planning meetings in Sydney specifically to address problems within the industry.

The State governments of the three opal mining States, South Australia, New South Wales, and Queensland have a curious love / hate relationship with the opal mining industry. While they recognise the value of the opal mining industry to their respective States and have each set up projects designed to attract opal exploration and mining, they each candidly admit that catering to the estimated 2,500 individual opal miners within Australia with their 8,300 mining leases and claims is an administrative nightmare.



A 5.5 carat opal from Lightning Ridge

The key players in the opal supply chain are miners, classers, cutters, buyers, exporters, jewellers and retailers. Commonly a gem can travel a very convoluted route from the opal fields to the end purchaser. Each of the players above add their profit margin to the stones but most of the value adding of opal products occurs outside Australia. A significant proportion of semi-processed and processed stone is purchased in Australia by foreign buyers who generally pay cash and export the stones overseas. While Customs keep a record of these exports, the value of this opal is almost always seriously underestimated.

There are two principal types of opal products - designer jewellery and commercial jewellery. High volumes of lower quality opal (eg from parts of South Australia) can be cut into commercial jewellery. However, the labour time involved makes it almost impossible to profitably process in Australia and this has created an industry in the China and Hong Kong from where it is marketed around the world. Higher grade material (eg from Lightning Ridge) can be processed in Australia and commands a much higher price.

Few Australians actually buy opal products; most opal is sold either within Australia to tourists or is exported overseas. The biggest international markets are currently Japan, USA, Germany and Hong Kong (China). There is a significant hobby market especially in the USA where it is growing at the rate of some 30 per cent per annum.

There are many myths associated with opals. The concept that opals are unlucky is believed to have been initiated by de Beers approximately a century ago when the then fast-growing opal industry seemed set to rival the diamond industry. Until recently, in some parts of Europe people considered that opals would lose their colour when their owner died. On the Internet today there are still "experts" who claim that opal is inherently unstable; that it must be kept in a moist environment otherwise it will dry out and that it will absorb any fluid it comes in contact with. Apart from a small percentage of stones that "craze" or crack over time when they are removed from the ground, opal is a stable and durable precious gemstone with a hardness similar to quartz.

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