

Opal Entrepreneurship: Indigenous Integration of Sustainable Luxury in Coober Pedy

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Abstract In a world of diminishing resources, the opal has become a sign of mineral exclusivity for the consumer luxury market and its value as a luxury object comes from gemstone cognoscenti. According to one Australian Aboriginal legend, rainbow-hued opals are believed by some to stir emotions of loyalty and connection to the earth. Regarding the integral indigenous connection of Australia's national gemstone, rarely has one looked at the spaces where opal veins were once quarried in remote regions in terms of sustainable luxury. More importantly, the revival of South Australia's opal mining industry in Coober Pedy by female Aboriginal entrepreneur Tottie Bryant in 1946; its development into a multi-million dollar industry into a modern hub in the 1970s; and the spread of the town's construction of subterranean spaces a decade later, enticed immigrants to mine for opals. And when seeking an inexpensive and cool environment, the place enticed immigrants to live underground, providing an unusual form of sustainable luxury in Australia. In 1968, for instance, former Coober Pedy opal entrepreneur John Andrea planned for a unique international underground hotel, the luxurious Desert Cave, but it was not until 1981 when Umberto Coro realised the subterranean spaces' potentiality and created Andrea's dream. Another opal entrepreneur Dennis Ingram designed a golf course with 'scrapes,' which emerged above ground made with opal quarry dust and waste oil. In popular culture too, the town had attracted filmmakers, such as George Miller, to produce his post-apocalyptic epic *Mad Max*, and Wim Wenders, to document his wandering scenes not because of opal scarcity but due to the harsh desert-landscape littered with spoil heaps. Turning to adaptive reuse and indigenous culture in Coober Pedy, this chapter addresses the existing underground passages as the recyclable-integration of a former mining site. In tracking the way in which the community and its rural groundwork served as a site for an innovation in sustainable luxury, the remote underground passages has revealed an unusual Australian lifestyle. Concentrating on the underground spaces, the chapter tracks the manner in which the abandoned sites serve as poignant opal connections within Coober Pedy's integration of remnant spaces and their adaptive

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M. A. Gardetti and S. S. Muthu (eds.), *Sustainable Luxury, Entrepreneurship, and Innovation*, Environmental Footprints and Eco-design of Products and Processes, https://doi.org/10.1007/978-981-10-6716-7_7

131

reuse into museums. Opal museums of the future will become magnetic as tourist destinations and their conversion of remnant spaces also into educational facilities foresees the uniqueness of sustainable luxury through its existing empty quarries.

1 Introduction

Today luxury cannot exist without sustainability. ‘Sustainability and luxury go hand-in-hand, and will only continue to forge a stronger relationship’ (Maisonrouge 2013: 124), that is, with entrepreneurship. In terms of ‘luxury as sustainability’ by way of constructing a new way of thinking, in considering human interfaces with thoughtful public spaces more critically, adaptive reuse of buildings can be transformed with ease of adaptability to changing needs (Condello and Lehmann 2016). This is the case with Australia’s underground spaces where some of them have been converted from mining spaces for opals to sustainable chambers to sell the opals as luxury objects. Opal entrepreneurship and the sustainable luxury industry are interconnected with the Australian Indigenous community.

According to Miguel Angel Gardetti and Ana Laura Torres there is a close connection between the concept of sustainable luxury and entrepreneurship. For these authors, ‘sustainable luxury’ comprises of ‘craftsmanship, preserving the cultural heritage of different nations’ (2013: 55). And for ‘helping others to express their deepest values’ (Gardetti and Torres 2013: 58). ‘Sustainable luxury is the return to the essence of luxury with its ancestral meaning, to the thoughtful purchase, to the artisan manufacturing, to the beauty of materials in its broadest sense and to the respect for social and environmental issues’ (Gardetti and Torres 2013: 58). This respect for the ‘ancestral’ involves the indigenous Australian community and how we might associate sustainable luxury with opal entrepreneurship. Gardetti and Torres’ definition of ‘sustainable luxury’ and its essences for different cultural communities are therefore relevant for preserving the cultural heritage of nations and for offering foresight into the connection of the luxury gemstones with their preceding bonding with the ground.

Opals are a naturally-formed luxury. They are bonded with the landscape’s lineaments. Over time, they fracture the rock and show colourful seams in situ. Renowned by some for their inspiring colourful seams, opals are themselves luxury objects and their unique qualities are believed to be used to treat sadness, offer protection and impart good luck. Each colour seam is controlled by the size of the silica content and by the opal’s refraction surfaces, of individual light waves passing through the transparent cavities. For others, such as the diamond traders of Africa or India, opals conveyed to the gemstone cognoscenti that purchasing an opal to protect themselves was associated with ill luck. Diamond traders had decided to campaign against them by associating opals with a malevolent reputation, which still continues today. White opal, an achromatic colour without a hue, is mined mostly in Coober Pedy and is a sought-after Australian luxury gemstone.

Solid opals have a shelf-life, whereas opal veneers forged with lesser-value stones, often encased with different metals, and tend to fade with time.

First, this chapter looks at the opal's unusual refracting qualities and historical influences. Then, it reveals how Aboriginal opal mythology was considered a natural phenomenon for the purpose of sustenance, indicating the importance of the landscape. The desert and the deserted landscape has informed indigenous entrepreneurship. Following this, it discusses the origins of opal entrepreneurship, the case of Coober Pedy and its underground remnant spaces. Optimistically, these spaces have unleashed the potential to engage further for creating innovative adaptive reuse of diverse indigenous cultures.

2 The Opal's Complicated Facades

In her account of the colour opal as a conceptual substitute icon of wealth, American artist and writer Emily Royson believes the changeable colour gemstone is 'colourless.' Opals acquire a series of complicated façades, which are useful for uncovering the creative facets of entrepreneurship, particularly its cultural innovation and integration of indigenous luxury.

Opal is a water-jelly mineral that slips through the cracks of stones....

It's slippery and always looks different. It accumulates in the right conditions, and is valued for its purity....

How does the imperfect jelly harden into the myth of meritocracy and upward mobility? (Roysdon 2008: 18–20)

The opal is somewhat capricious. As Royson suggests, 'the rainbow sheen and colour potpourri—consists of impurities in the silica content' due to the 'bent-ray/refracted light-ness of visibility' (Roysdon 2008: 18). After witnessing someone selling a cache of milky opals at a jewellery re-sale shop on 14th Street, New York, for less than she expected, it prompted Royson to rethink about the excess and exploitation of white or 'milky' opals. Pointing towards unsustainability, and struck by its imperfect water-jelly properties, she questions why its association with wealth has become perilous and valued as a rainbow-hued stone to collect and protect. Yet in some parts of Australia, souvenir-tourist shops have cheapened common opals into flaky trinkets where one can buy opal veneers in the form of singlets, doublets or triplets. Nonetheless, Coober Pedy in South Australia is recognised by many as the world's largest producer of precious opals, specifically the 'milk' (or white) opal which was 'traditionally the finest' (Dunstan 1954: 7). Opals are unpredictable aesthetic-looking stones and they most certainly embody indigenous connections, imbued with 'Australian' luxury.

Conventionally, the opal as a valuable luxury object started a craze in eighteenth-century Europe. Towards the end of that century, the opal craze fell out of fashion because its folklore was associated with contagion and scarcity. These 'stones have life, they can suffer illness, old age and death (Baltrusaitis 1989: 83).

Despite the stone's tainted reputation, once again the opal became a fashionable stone to wear as jewellery up until the 1930s and 1940s when Australia was able to offer an abundant supply to the European market. But this was far less the case in the 1960s and 1990s since other gemstones, specifically diamonds and emeralds, quarried from the Americas and Africa proved to be most popular. Consumers decided to invest in purchasing solid high-quality opals, which are judged by their background, vibrancy of the colour and pattern. In Australia black opals are by far the most highly prized luxury objects because of their association with status and rarity, often found in Queensland, New South Wales and Victoria.

In Australia rainbow-hued opals are iconic and symbolic. Their veins are judged by their bioluminescence or brilliance and some opals are considered as enriched pictographic stones. The *koriot* opal, for instance, from outback Queensland is recognized as an Aboriginal art opal because their colourful content resembles Indigenous Australian paintings. As pictographic gemstones, they consist of 'accumulations in their depths. Broken, sliced, their brilliant, smooth surfaces reveal perfected ordered veins and pigmentations, signs of some secret writing, bizarre shapes' (Baltrusaitis 1989: 99). Ultimately, the imperfect veins is what makes them unique and unpredictable, unleashing new opal-vein strata in fractionated directions.

More recently, opals have been given a new virtuous reputation and fortune as some people determined they obtained magical properties. Cartier and Tiffany of New York, for example, have created jewellery lines to become a high-market luxury item again. These companies have elevated and re-introduced Australian opals to be on par with other stones, such as emeralds, but they have neglected the cultural significance or the deeper value of their actual physical derivation. In 1993, the opal was proclaimed by politician, and Governor-General at the time, 'Bill Hayden as Australia's national gemstone' (<https://www.dpmc.gov.au/government/australian-national-symbols/australian-national-gemstone>. Accessed 15.03.2017), promoting its cultural significance.

As an Australian gemstone, however, when exposed to sunlight the opal is an unsustainable natural material because with time the colour eventually fades. This is especially the case when ones sees visible cracks and crazing within the actual opal. It becomes breakable and yet remains exclusive because of its precious mineral content.

Currently, Australia produces ninety percent of the world's supply of precious opal from the sedimentary rocks within the Great Artesian Basin (Milanez et al. 2013: 430; Merdith 2013: 23). The mining community, however, 'has been struggling over the past 20 years' and 'is largely a cottage industry' (Merdith 2013: 23). That is, carried out by 'individuals rather than large mining companies,' which is not 'subject to the same regulations regarding environmental rehabilitation as for other mining or exploration activities in that state (South Australian Opal Mining Act, 1995),' (quoted in Pedler 2010: 37). Other than Lightning Ridge and White Cliffs in New South Wales, Coober Pedy, Mintabie and Andammoka in South Australia are the major producing opal mining areas.

Irrespective of the opal veneers and unpredictable facets and their fading cracks, instead solid opals are considered ‘non-renewable resources’ (Milanez et al. 2013: 433). In terms of entrepreneurship, which ‘refers to risk taking and is considered as a function’ (Uzundid et al. 2014), the harsh environment of the opal mining industry opened up the luxury market since there was a demand for the gem overseas, particular in Europe, America and eventually in Asia. This was especially the case in the 1980s with the Japanese demand for them and in the process increasing Australia’s tourism industry in South Australia. Rather than market the thin opal veneers into cheap jewellery lines as an alternative option to sell sustainably luxury, it is the natural Australian landscape and its preservation of quarried spaces in Coober Pedy that has made opal entrepreneurship a ‘sustainable’ luxury.

3 Aboriginal Opal Mythology and Indigenous Entrepreneurship

Before discussing the origins of opal mining in South Australia, its indigenous discovery and entrepreneurship, it is important to reveal how spiritually-significant opals were, and still are, to the Aborigines as revealed in their dreamtime stories. For instance, when the Creator visited earth to bring harmony the foot touched the ground and the opals sparkled into jelly-colours. Supposedly, according to Aboriginal indigenous lore, ‘the opal imprisoned the rainbow in the earth’ (Weale 1977: 546). For the Wangkumara people from the Coober Pedy Creek region opals brought the gift of fire:

The tribe sent a pelican away from their camp to find out about the country up north. The pelican felt ill and landed on a hill. The pelican discovered beautiful opal and started chipping it away to bring back to the people. A spark from the chipping caused the nearby dry grass to catch on fire, which spread slowly back to the camp. The fire captured by the people to cook their meat (Connolly 2012).

This particular Aboriginal lore points towards the physical luxury of the opal delivered to the ground as a natural element, for the purpose of sustenance. Similar to Aboriginal opal mythology, ancient Arab cultures believed opal had fallen from the sky and that the play of colour was ‘trapped lightning,’ as in the case of the Alhambra’s artificial/stalactital cave. Another Aboriginal myth tells us about the opal being ‘half serpent and half devil, and that brightly coloured fire within the stone was an attempt to lure them into the devil’s lair’ (<http://crystal-cure.com/article-opal-history-properties.html>. Accessed 30 December 2016). Aboriginal rainbow-hued opals are thus believed to stir emotions of loyalty and connection, that is, the connection to the ground as the fire of the desert of Australia’s arid interior. Through Aboriginal culture, opal mythology’s the link to the ground was, and still is, environmentally and spiritually important.

Indigenous Aboriginal entrepreneurship played a part in forming Australian historical trade links. Since the seventeenth century, ‘Aboriginal enterprises and entrepreneurial activity have a long tradition... and “are known as some of the world’s oldest recorded business undertakings”’ (quoted in Brueckner et al. 2014: 1823). There, Aboriginals traded with Indonesia. By the early twentieth century, restrictions were put in place by the South Australian Government that restricted them from their entrepreneurial and enterprising activities. Such activities ‘were suppressed by their colonisers who only in recent decades have been trying to revitalise and stimulate Indigenous economic pursuits’ (quoted in Brueckner et al. 2014: 1823). This situation included the suppression of South Australia’s Indigenous opal entrepreneurship. Yet for some indigenous people, ‘digging deep into the ground is considered dangerous, since it would disturb spirits residing under the ground and bring imbalance’ (Naessan 2010: 228). Through time, opal mining changed Indigenous perceptions as a way to celebrate its uniqueness as Australia’s luxury gemstone.

From the twentieth century onward, indigenous entrepreneurship has been understood and aligned with promoting the foregrounding of social, community-focused aspects. This is important for considering the socio-cultural value of Australia’s valuable gemstone to the integration of sustainable luxury of the natural landscape.

Other than admiring their beauty and folklore/mythology and its link to the landscape, Aborigines had little use of opals. In 1925, the new Colorado prospecting syndicate, consisting of gold prospectors Jim Hutchinson and his son were searching for water and instead found pieces of opal lying on the ground. Originally, the place was recognised as the Stuart Range Opal field which later became Coober Pedy, an Aboriginal word ‘*kupa piti*’ which is thought to mean ‘white man in a hole.’ During the Great Depression, opal prices plummeted and the production almost stalled (<http://australian-creation.weebly.com/-rocks.html>. Accessed 25/01/2017). Since opals are formed within the ground there was no need to worship opals as luxury objects as in other cultures since Aborigines treat and respect the sacred landscape as it is—in its natural state—to allow for natural luxury to sustain itself.

4 The Origins of Opal Entrepreneurship in Coober Pedy

Internationally recognised as an opal mining and tourist town, Coober Pedy is an arid region and is considered ‘one of the weirdest corners in the world’ (Hill 1932: 2). As a unique remote area, this sacred land is rich in minerals and deemed as Australia’s most valuable prehistorical fossil sites. Located near the Stuart Range, the town of Coober Pedy lies within the Arckaringa Basin and close to the border of the Great Victoria Desert (Naessan 2010: 217). ‘Over millions of years, when most of South Australia was covered by an inland sea, it presented the right conditions for opal formation underground’ (https://www.samuseum.sa.gov.au/Upload/OPAL_ProgramsFlyerDL_W.pdf. Accessed 25/01/2017).

For Harman

The only reason for Coober Pedy's existence is opals. It is at the centre of the world's largest opal field. Almost a century of opal mining has given the landscape a lunar look for miles around the town. Piles of excavated sandstone dot the surface as far as the eye can see. It is said that there are some two million holes up to 100 feet deep – and mostly three feet across (1999: 26).

Predominantly situated underground, the town is subjected to frequent dust storms and comprises subterranean hotels, houses and opal shops. Tourism is popular in the area too, with its sustainable leisure ground—an aboveground golf course with its scrapes, which arose above ground created with opal quarry dust and waste oil. Golf is played only at night time because of the extreme hot temperatures, existing as a sustainable luxury pastime. In addition, the place has become an iconic cinematic backdrop with its exposure of the town in films such as *Mad Max* and *Priscilla, Queen of the Desert* of the 1980s and 1990s. More importantly, indigenous entrepreneurship of the opal mining industry did not take place in Coober Pedy until the late 1940s. What is problematic, geologically, is the hollowed-out topography, especially the abandoned spaces or ones on the verge of collapse today.

According to Australian literature,

Much of the economic activity in the region (as well as initial settlement of Euro-Australian invaders) is directly related to the geology, namely quite large deposits of opal. The area was only settled by non-Indigenous people after 1915 when opal was uncovered but traditionally the Indigenous population was western Arabana (*Midaliri*), (Naessan 2010: 217).

Some writings suggest that the German immigrant Johannes Menge was the one who discovered opals in South Australia. Menge 'was a promoter of mineral exploration and development in Australia' (Cooper 2011: 194; O'Neil 2011: 1). Within the first two decades of European settlement, the eccentric visionary of mineral exploration 'discovered opal near Angaston in 1839' (O'Neil 2011: 2). He also named many places in the state, such as Carrara Hill. 'It was near this hill that he found 'common' opal (O'Neil 2011: 3).

Following on from Menge, opals were documented as discovered by gold prospector Willie Hutchinson in 1915, as noted earlier, and Coober Pedy's first opal rush was in 1919. At that time, people began to live underground in 'dugouts,' or crude chambers. Coober Pedy's 'opal mining has been carried out since the early 1920s with major booms in activity during the 1960s and 1970s' (Pedler 2010: 37). One could purchase opals in cafes—meaning they were not treated wholly as an exclusive luxury product but as souvenir trinkets—sliced thrice—and made into cheaper jewellery as affordable objects.

As far as opal entrepreneurship is concerned, one Aboriginal woman, Tottie Bryant, predicted success in Coober Pedy in the 1940s. For Aboriginal writer Jessie Lennon who documented Coober Pedy's oral history, recites that on the Mount Clarence Station road Tottie Bryant 'was shepherding her few sheep with her dog when she kicked over a stone and revealed an opal [in 1946]. This discovery at what became the Eight Mile Field started a rush which opened up an extremely

lucrative opal field' (2000: 48). Since no water existed in Coober Pedy, Lennon recounted that 'Aboriginal people needed all their knowledge of any available soaks, rock holes, crab holes, water root trees, water bearing plants...to travel to a region such as this in their traditional manner, living off the land' (Lennon 2000: 62). As a survival strategy where the fields attracted a new opal boom, specifically in the Eighth Mile Field, twenty years later opal mining was established on the edge of the town of an Aboriginal Reserve. Deposits of unearthed dirt transformed the material conditions of the natural landscape in the form of its unusual hollowed-out holes. In comparison to other mining towns, such as Lightning Ridge in New South Wales, Coober Pedy's remnant opal mining spaces present us with hewn-out stony surfaces from the tunnelled passages. Consequently, these hollowed-out tunnels later became innovative spaces for tourists in the form of exhibition spaces and the like.

A decade after Tottie Bryant's magnetic discovery, the 'Olympic Australia' opal was found at Coober Pedy, which at the time was regarded as the world's largest valuable gem. This is important as it placed Australia on the luxury-products map. Opal entrepreneurship was therefore significant for the Coober Pedy's mining industry. Tottie Bryant and her tracking team, including husband Charlie Bryant, were clearly innovative for opal mining. Five decades later, her entrepreneurial experience offered potential employment for the Indigenous Aboriginal community as a whole.

To detect the origins of opal veins through its above ground tracking and direction below ground, the entrepreneurship as instigated by Tottie Bryant aided in promoting Australia's luxury gemstone abroad. Where opals were once found, the remainder excavated spaces have garnered new spaces for living-in. these spaces have permitted the potentiality to create an upsurge in the indigenous integration of sustainable luxury, which is culturally and socially important for the local community. That is, from the conversion and extension of existing excavated tunnels into innovative underground spaces.

5 Indigenous Integration of Sustainable Luxury

However, two decades after Bryant's opal discovery, the underground chambers were simply dugouts inhabited by opal miners. At that time, 'the settlement at Coober Pedy housed about 100 miners' families in crudely dug shelters' (Wells 1968, 164). The houses comprise 'of both above-ground and below-ground components and is a response to the great daytime temperatures in the long summer season' (Noble 2007: 133). To locate the opal seams within the underground rock, water had to be recycled because it was scarce.

Today, many of Coober Pedy's citizens live in underground homes. And like any other town in arid conditions the town comprises a petrol station, supermarket, liquor shops, restaurants, religious facilities and underground luxury hotels to cater for the locals and the tourists. 'Hotels are constructed underground in disused opal

mines to provide year-round comfort, escaping the searing summer temperatures in these remote communities' (https://www.cooberpedy.sa.gov.au/webdata/resources/files/Gems_of_Coober_Pedy.pdf. Accessed 25/01/2017).

In the late 1940s, according to Lennon, Coober Pedy 'was not a centralised entity; it was scattered over several hectares and had only a few basic facilities: the store, the water tank, and the dugout post office/bank agency. Miners lived where they worked, at the various fields, some of which were located many kilometres distant' (Lennon 2000: 76). In regard to the Umoona Reserve in this field, it was 'exclusively set aside for local Aboriginal people because they had been dispossessed of their traditional lands' (Lennon 2000: 118). Lennon continues:

The Umoona Reserve (approximately 2025 hectares) was established in 1959, with Pastor Fred Traeger appointed by the State Welfare Department and the Lutheran Church as administrator. His main duty as set out by the Government was to act as opal buyer and shopkeeper for the Aborigines. In 1975 the Aboriginal community adopted the name Umoona, which means Red Mulga tree, common in the area (2000: 118).

In the 1960s the modernisation of opal mining led to a boom. At that time 'a high proportion of European immigrants saw this as a chance to get rich on their own initiative. Population growth forced development and a new hospital, school and another church appeared in the town' (Lennon 2000: 130).

6 Opal Entrepreneurship and Its Underground Remnant Spaces

Since it was Bryant who initially made the rich opal find and revived its industry, two decades later the Umoona site developed into an underground location, which was considered the largest opal showplace in Australia. And in 1976, the Umoona Council bought the site and was converted into the Umoona Opal Mine and Museum (see Figs. 1 and 2).

By the 1980s, Japanese entrepreneur Takeshi Oyama constructed the opal trading corporation Bentine. At its peak, the Bentine Company employed over 200 people and produced a huge profit annually, above one hundred million. He was instrumental in marketing opal to the Asian market and in the development of Japanese tourism in Australia increased. Oyama also had a deep appreciation and great respect for the indigenous culture of Australia but not in the sense of Aboriginal entrepreneurship or what Bryant had initially discovered or the future of sustainable luxury of the town's underground spaces.

Cinematic imagery and settings made Coober Pedy popular as the place as a desert sustainable luxury destination. German film director Werner Herzog chose the town as the backdrop to *Where the Green Ants Dream* (1983), which recounts Indigenous tribal mysteries. 'The Aborigines resist the incursions of a mining company, which wants to churn up one of their dream sites. In court they establish their title to the terrain by producing a *tjuringa* [a sacred totem] they have exhumed



Fig. 1 Coober Pedy (Phil Whitehouse, 20 August 2003). Accessed 3 July 2017, https://commons.wikimedia.org/wiki/File:Coober_Pedy,_Umoona_Opal_Mine_-_panoramio.jpg

—a home-made sceptre, the repository of their ancestral claim’ (Conrad 1999: 34) The film opens and closes with ‘unAustralian’ scenes: a preview of nature’s revenge, provoked when the green ants are dislodged from the site of their dreaming’ (Conrad 1999: 34). Portraying rather a bleak view, what the film demonstrated was how the town was considered, socially and culturally unsustainable.

When in reality, the town of Coober Pedy’s mineshafts clutter approximately the 5000 km² mine fields, which vary in depth (<http://11geomegangreensmith.weebly.com/sustainability.html> Opal mining Coober Pedy, Geography internal 2015).

The environmental impacts of opal mining on the area are very significant. There are large piles of dirt and dust scattering the landscape and there is a constant danger of running into an uncovered mine. This poses threats to the wildlife living in that area and if no actions are taken, the safety of these animals is at risk (<http://11geomegangreensmith.weebly.com/sustainability.html> Opal mining Coober Pedy, Geography internal 2015).

The destruction of flora and fauna in the area has thus led to the prevalence of unsustainable pot-holes together with the impacts of water pollution as well, affecting the natural landscape. With regard to the town’s underground remnant spaces, ‘about half the population lives underground, with homes carved into the side of the hills and rooms cut out of the sandstone. The underground house were



Fig. 2 Coober Pedy, Umoona Opal Mine (Frans-Banja Mulder, 4 October 2002). Accessed 3 July 2017, https://commons.wikimedia.org/wiki/File:Coober_Pedy,_Umoona_Opal_Mine_-_panoramio.jpg

first built by returning soldiers after World War I and who helped found the town after the first opal was discovered in 1915’ (Harman 1999: 26).

Despite the destruction of the landscape as an unsustainable practice what is a popular attraction for tourists is its numerous mounds of ‘discarded rubble from the mines... [and some might someday] find opal missed by the miners.... Opal mining is banned inside Coober Pedy’s town limit, but it does go on. People regularly “extend” their homes, digging out new rooms...’ (Harman 1999: 26), which suggests the opportunity of discovering more opal veins within the luxury spaces beyond, underground. Extending the dugout to form more luxury spaces, however, might be perceived as innovative but it is ultimately an unsustainable practice.

Coober Pedy’s abandoned mine shafts are not hazardous to human safety but also hazardous for the local fauna. Pedler, for instance, has discussed the detrimental impact of fauna entrapment, especially lizards and snakes, in the town’s opal prospecting open shafts and uncapped drill holes. ‘Pitted with many thousands of uncapped, abandoned shafts; the legacy of exploratory drilling in search of opal trace by hundreds of opal miners throughout the last thirty years. There is no legislative obligation for prospecting shafts to be filled, covered or rehabilitated following exploration or mining activities (South Australian Opal Mining Act, 1995),’ (Pedler 2010: 37). Another problem is the unstable flanks of opal

prospecting shafts, which are ‘naturally filled by debris that falls from the sides or is deposited by wind or water flow from the surface’ (Pedler 2010: 41). Dust also presents a massive problem. In using the opal prospecting method in Australia, it does pose a ‘significant threat to local reptile fauna’ (Pedler 2010: 42) and is likely to repeat patterns in other Australian opal mining areas.

Indigenous people were involved as labourers mining for opals for but not for their own personal use as such. One crucial problem with opals is

the issue of the relationship between Indigenous rights and the mining industry activities became more central to understanding industry-community relationships, especially as mining expanded in the 1960s and 1970s into central and northern Australia, areas where there were still large populations of Indigenous people. This sparked ongoing debate about not only questions of title but also questions of community development, workforce training, and royalty flows. In many parts of Australia, Indigenous people constitute the largest single community group impacted by major mining projects’ (Eklund 2015: 181).

To preserve opal mining quarries into more of a sustainable luxury practice, ‘recent accounts by indigenous scholars and leaders such as Marcia Langton and Noel Pearson, for example, have identified mining as the single most important site for local economic development in many rural and remote communities’ (quoted in Eklund 2015: 181). This is particularly the situation when referring to sustainable luxury practice in the sense that the sites offer innovation to the Indigenous community. The conversion of remnant spaces into educational facilities, such as the Umoona Mine and Museum, show how quarries have therefore succeeded as a sustainable luxury venture.

One way or another, opal mining in Coober Pedy has ‘lost some of its lustre’ (Chester 2012). However, approximately 1000 m belowground, ‘some of these cool, multi-room residences areas a spacious and luxurious as any in a big city... The landscape is of upmost importance—the Painted Desert and Lake Eyre’ (<http://www.australiangeographic.com.au/travel/destinations/2012/10/coober-pedy-outpost-in-the-outback>. 25/01/2017).

Imitating the landscape’s surface and the opal lamination of jewellery lines, as a whole, Coober Pedy offers a case study of Indigenous integration of sustainable luxury, which has been inspirational for the imagination of the renewal (see Fig. 3) and design of new architectural spaces (see Figs. 4 and 5). This is especially the case for displaying fossilised opals as with Glenn Murcutt and Wendy Lewin’s current Australian Opal Centre architectural project at Lightning Ridge, New South Wales. Their design appears to integrate the aesthetics of Coober Pedy’s opal mining, as well as White Cliffs’, underground dugouts into sustainable architecture. This centre will house *fossilised* opals. Ultimately, the building’s underground architectural form encapsulates the Coober Pedy’s subterranean dugouts.

One drawback is the remoteness of the town of Coober Pedy. And the innovative entrepreneur’s future vision, which might impinge upon the delay in a person accomplishing specific goals, because of the distance in travelling to and from the place to other cities. In addition, there is the exposure of people to extreme weather conditions that might delay some in securing future business ventures.



Fig. 3 An underground sustainable luxury house at Coober Pedy to be converted into a private opal museum, 2016 (Courtesy of Tamara Merino)



Fig. 4 The Australian Opal Centre building planned for construction at the Three Mile Opal Field, Lightning Ridge, NSW. Architects Glenn Murcutt + Wendy Lewin. Rendering by Candalepas Associates (Courtesy of Jenni Brammall from the Australian Opal Centre)

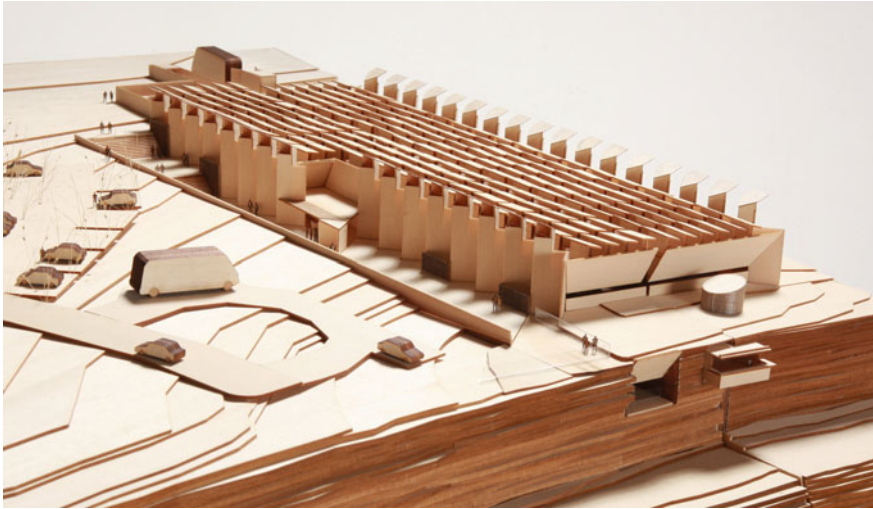


Fig. 5 1:200 scale model of the Australian Opal Centre building planned for construction at Lightning Ridge, NSW. Architects Glenn Murcutt + Wendy Lewin. Model by Scott Choi, Little Models. Photograph by Penelope Clay (Courtesy of Jenni Brammall from the Australian Opal Centre)

7 Opal Quarries as Seamless Spaces of Sustainable Luxury?

The natural properties of the gemstone with its silica spheres and diffracted rainbow hues exceed the crystal structure of diamonds and demonstrates a unique form of national sustainable luxury. Today the Indigenous Jewellery Project, for instance, an initiative that integrates sustainable luxury promotes leadership and craftsmanship. But what does opal mining say about leadership and inspiration?

In respecting indigenous culture and the sacred landscape by integrating and acknowledging the importance and significance of their opal mythology, what is necessary is to map potential areas for future adaptive reuse. That is, to focus on specific areas where opals are found to eliminate wastage.

In terms of the foresight and innovation of opal quarries, presumably we should allow opals to remain in the ground where they are and not treat the gemstones as isolated objects but permit the real opal seams to remain in situ. This is where the real sustainable luxury lies—to integrate the Indigenous historical culture of the place. Inevitably, mapping of the region's existing opal quarries will increase entrepreneurial opportunities in the region as well as for the start-up of alternative initiatives. This will enable the promotion of other sustainable practices associated with opal entrepreneurship to expose a 'seamless' sustainable luxury, naturally, to allow the stony veins to remain where they are.

In valuing Indigenous opal luxury into a more sustainable venture, perhaps the idea of an ‘adaptive reuse entrepreneur’ would be an apt marketing strategy to promote the futureproofing of the mines. This future outlook might also provide architects and landscape architects or creative environmentalists the opportunity to promote such an intriguing but sustainable underground practice to *innovate* the existing landscapes and to form new concentrated efforts to eliminate man-made wastage.

Above all, as waste, opal veneers are a sustainable option to sell sustainable luxury. And so the natural Australian landscape and its preservation of quarried spaces has enabled opal entrepreneurship to become a sustainable luxury. Natural forms of luxury in the landscape can sustain itself and has created innovative but austere spaces. Internationally, Tottie Bryant therefore promoted Australia’s luxury gem industry by creating an upsurge of the cultural and social importance of sustainable luxury through Coober Pedy’s underground spaces. Coober Pedy’s opal mining booms and wastage have thus transformed into diverse business ventures, which will become innovative for future generations.

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