

Subterra: Interior Economies of Underground Space

Conversations with Photographer Wayne Barrar : Julieanna Preston : Massey University, New Zealand

There is perhaps no more extreme an interior space than those located underground. While relieved of the cost and labour to construct an exterior envelope, subterranean space demands that all infrastructure (ventilation, plumbing, electricity and circulation) and all accessories and comforts for human inhabitation (food, water, furnishings) are piped or hauled inside, down into the ground. Except for space stations and some medical facilities, these interiors are some of the most highly technological and artificial realms in the world and yet, ironically enough, they are immersed in the most organic, prehistoric and seemingly 'natural' matter at hand.

According to Rosalind Williams, author of *Notes on the Underground* (2008), altering the Earth's surface with technological tools for the purpose of making it more plentiful, safe, and pleasant is an ancient human impulse that has recently accelerated to such a pace and degree that 'our technologies less and less resemble tools, discrete objects that can be considered separately from their surroundings – and more and more resemble systems that are intertwined with natural systems, sometimes on a global scale'.¹ Underground space exemplifies a contemporary hybrid interior where conventional processes of assembling material are replaced with an excavator's calculation of cut and fill (a subtractive rather than additive method of space-making); where the environmental attributes of interior space are solely driven by technological systems and apparatus (there is no view of the horizon or window to crack open); and where conventional modes of organising and occupying space prevail against a dominating geological matrix. In the underground, context is everywhere and everything; its ubiquitous condition is its value as well as its limitation. Conjuring relations to Mary Shelley's *Frankenstein* (1818)² and Donna Haraway's *Cyborg Manifesto* (1991)³, Williams' text raises questions about what might be at stake in the human and technological relationship; underground interiors yield evidence of the blurring of the boundary between what is organic and that which is not. In this way, subterranean interiors may represent the colonisation of a final frontier of uncharted physical space; the penultimate challenge to nature and culture binaries.

The underground is far more than a dense substrate of material susceptible to the entrepreneurial vision of real estate developers. David Pike, author of *Metropolis on the Styx, The Underworlds of Modern Urban Culture, 1800-2001* (2007) draws our attention to the underground as a culture-informing environmental metaphor and critique of modernity, where imagined or real subterranean spaces 'present a unique combination of the utterly alien with the completely familiar; of mythic timelessness with the lived experience of the present.'⁴ Pike's analysis of the underground renders it as neither contrary nor compatible to the world above, neither a space apart nor a space belonging to 'its open-air counterpart' and yet, the very site where problems of modern urban life are the most visibly and viscerally present.⁵ As such, the underground is conceptualised as a



Above
Figure 1: Vehicle storage, Brady's Bend, Pennsylvania, USA 2006.
Photo: Wayne Barrar



repository for actual and virtual darkness generated by light-filled life on the surface; images of hell, death, and moral decrepitude are cast below out of sight.

These thoughts introduce a series of conversations I carried out with photographer Wayne Barrar on his *Subterra* project, which was first exhibited in 2010 at the Dunedin Public Art Gallery, New Zealand, and accompanied by his book *An Expanding Subterra*. The touring exhibition consists of 58 large format photographic prints (of variable scale, up to 90 x 130cm), depicting various underground mining sites that Barrar visited between 2002 and 2009. This long term creative project explores the physical and psychological attributes of each underground site united by Barrar's overarching concern for human proclivity to intervene, to commodify, and to master the Earth, which signals the social, political and cultural undertones of the *Subterra* project. For Barrar, all land is contestable space, especially so in New Zealand where the landscape is caught between extremes of (sometimes deadly) climatic and geographical wilderness and the effects of wars, agriculture and industry on cultural and physical ecologies. For him to find landscapes underground is to locate environments where space and its material surface are even more contestable and reflective of the issues at hand. It is here that one finds interior economies extending from the efficient and frugal use of money, space and resources to the distribution of industrial commodities deployed in practical and yet bizarre ways. These are places that carry all the signifiers of being normal, but on closer inspection, are far from it.

I had the occasion to speak at length with Wayne Barrar. Our conversation was framed by the topic of interior economies and the question: How do the interiors revealed in *Subterra* expand in another dimension to inform various forms and concepts of economy?

JP: Good afternoon, Wayne. I note that David Pike contributed an introductory chapter to your book and in it he called the work unsettling or having a sense of 'un-hominess'. How do you respond to that reading? Does this work relate to science fiction?

WB: Good afternoon, Julieanna. The qualities of unsettled, 'un-homey' and 'sci-fi' are all related and I admit there is an element of all three going on in the project. Science fiction is attracted to the underground, and early writings by authors such as Jules Verne, H.G. Wells and Tarde have been followed by an endless quantity of films exploiting its powerful imagery and symbolism. Many of the spaces depicted in the *Subterra* project have, intentionally or not, become film sets. For example, the guide assisting me at the Manapouri site was very proud to tell me that a 'B' grade Japanese film was shot there. Coober Pedy is plastered with film history; underground sites there featured in Wim Wenders' *Until the End of the World* and in one of the *Mad Max* films. *Day of the Dead*, a cult zombie film by George Romero, was shot in part of an underground storage facility in Pennsylvania which was specifically re-constructed as a film set.

Yes, I do see links between sci-fi and the underground, related to going into outer space, out of bounded space, into dark space such as in the theatre or movies, in a suspended reality. David Pike writes on this topic extensively. This also links to the exotic quality of the underground as a relatively

Opposite
Figure 2: Machine room floor (generators), Rangipo Underground Power Station, New Zealand 2005.
Photo: Wayne Barrar

unreal 'abbreviated' space lacking everyday signifiers. Science fiction film and literature are often situated under the sea, in outer space, or underground, but these literal locations quickly defer to the secluded artificial complex interiors of an urban fabric (like *Blade Runner*). The psychology of the underground is equally transferred to these alternative interior sites. When people go to the movies they are expecting to suspend reality. When they experience or view the underground, their senses bounce around; people are stimulated by what appears normal but isn't.

The unsettling aspect of the underground stems from its bipolar character; it exists at two extremes. The first is the sense of protection it can provide, such as in a trench or a bunker, or the cave that Bin Laden hid in at Tora Bora, a place of refuge. The other end of the spectrum is associated with entrapment, being buried alive, of the underground collapsing on top of you, or, as New Zealand has recently witnessed at the Pike River Mine site, the terrible reality of an underground explosion.

JP: Pike also describes your photographs as non-judgemental. How does your practice reflect that characteristic?

WB: I usually counter this position by stressing that imaging any landscape (including any space) is imaging a contested space in some way – all photography of land is essentially political! Critiquing land and space essentially critiques land use politics and economies. My work is often discussed in terms of the 1976 Eastman House exhibition called *New Topographics*, which brought together a group of landscape photographers working on the topic of humanised landscape. It was not a show that glorified the landscape, say, like the work of Ansel Adams, but instead a show that repositioned how we look at land and space; it worked against the nature/culture split. While positioning the humanised aspect of landscape as the key issue, it also critiqued the idea of 'objectivity' when photographically documenting such spaces. I was quite affected by the *New Topographics* exhibition in the years following it, but equally by other things such as Rachel Carson's book *Silent Spring* or the teenage experience of car-less days in Christchurch, in terms of thinking about landscapes and ecologies. Now, as it is constantly reconsidered in art history, the *New Topographics* exhibition stirs up issues of post-industrial awareness. It asks where do the artist's values and attitudes fit into the work of art and what they are photographing? Why does one do these projects?

Simply representing the real is an impossible thing to do. Photographing is never just documenting or recording. Not making my ecological or political position explicit in *Subterra* does not mean I do not have one. Take, for example, the images of the Manapouri power station. The site is under a national park where there is a narrative around industrial intrusion and its potential effects. When you go into the underground power station, there is a sense of leaving all the pristine landscape above and entering into its underbelly which is producing supposedly renewable energy. The site is impressive in that the alteration is hidden and really quite concise. Above the cavity, though, is a lake rich in a controversial ecological history, having been the centre of New Zealand's largest environmental campaign in the 1970s. Accessing any viewing of the underground here reminds us of what could have been lost.



Above
Figure 3: Curved underground bedroom, Coober Pedy, Australia 2003.
Photo: Wayne Barrar



JP: What are the notions of 'ground' at play in the Subterra project?

WB: My first reaction to a sense of ground in the project is that of the idea of *tabula rasa*, as a blank slate and a bit of 'going to ground', 'groundwork'; I think the notion of ground is tested in the underground, and, hence, in Subterra. In researching for this project, I came across a book that talked about underground space as 'negative building'. Instead of serving as the foundation, a starting point in conventional above-ground construction, the underground starts and ends with the act of digging downward. In above-ground construction, the more you put into the process of construction, the greater the building. In constructing underground space we remove materials to 'grow' the built cavity. It is a reversal of methodology.

I often recall a Lewis Mumford quote (I paraphrase hugely): 'The mine is the first fully inorganic environment constructed and lived in...' Rosalind Williams also talks about the concept of deep time via the excavation of the earth. Strata represent histories, narratives etc. I sense this in the deep mines (such as Mt Isa), while Coober Pedy in its domestic scale speaks of carving or crafting the surface. The shallow spaces still exist in the realm of standard construction (foundations and so on), but deep mines move into the world of strata disconnected from organic reference points.

Going into the ground, going underground. The sheer physical act that requires bringing everything with you. It also seems that people bring their sense of organising space using grids and orthogonal way-finding and building methods with them. This may be a means of making the underground normal. While it may make more sense to work with curved space, and it may be more aesthetically appealing or intriguing, people work very hard to make these underground spaces feel familiar. So, you will find corners in the underground. As one of the images depicts, someone will carve out rectangular wardrobe spaces out of the substrate, line it with straight and level shelves, and trim it with standard architraves. It is an effort to normalise everything.

JP: I want to ask you about a notion of ground that stems from mythology - that of believing the earth is one's mother, or at least 'a' mother. When considered against the extractive and carving aspects of mining and inhabiting underground, this is an alarming image. What do you think?

WB: Yes, that is a narrative that I think Carolyn Merchant follows in her discussion of deep time where mining is seen as the rape of the earth, the sacrifice of one's mother. This attitude still holds. However, the prevailing metaphor now is based on the idea of shared commodities, where we are merely moving matter around. Here, the earth is commodified.

So who owns the underground? This was a question posed at a discussion panel I was part of last year. David Pike spoke up and said: 'They do!' I like the idea that we don't know who. I wonder just how far you can dig? How far down do I own under my house in Ngāio? There must be rules and regulations for managing and determining ownership of the underground. In Subtropolis, the gentleman who owned that territory of underground also owned the space which happens to be above it, encompassing the football stadium for the Kansas City Chiefs. So he owned real estate

Opposite

Figure 4: Male underground bathroom, Carlsbad Caverns, USA 2006.
Photo: Wayne Barrar

on a number of levels. But did he own the ground all the way down to China? This raises spatial questions of ownership and guardianship.

JP: These images reveal the trace of geometry's power to shape interior space and surface in the mines. Is there some kind of economy at play here equated to efficient and structural form?

WB: In these photographs we find juxtapositions between the organic and the industrial. There are geometrical components to building underground. As I mentioned earlier, we find that spaces are constructed to look and work like those above ground; for example, there are many instances where rooms are carved out using ninety-degree angles. Throughout these underground spaces, though, one can find lingering traces, tongues, whispers of the substrate left as a reminder of the underground.

Geometry is one of the key factors driving layout. In an environment like Subtropolis, one of the biggest commodified spaces made from a still-operating mine, the space exists as a two-dimensional grid, all at one level, as opposed to the bigger deep mines which are designed as a 3D grid structure. In all these mines, extraction is carried out to the point before collapse; columns are formed in regular intervals. Rooms occur between columns; when re-used they are enclosed by block walls. This is a classic grid structure which produces a specific kind of interior space.

The Subtropolis site photographs demonstrate how the process and mode of extraction is informed by the girth of the trucks coming in and out of the mine as well as engineering principles. Form is derived from taking the most out in order to maximise space and material extraction. Those columns are the minimal profile needed to keep the space from collapsing. In most places the substrate is left raw. In places where people frequent often, especially the general public, the columns have been shaved and tidied and then given a skim coat to reduce the dust factor and keep the surface from flaking; you could consider it decoration as well. This can generate a corporate look, somehow more pleasant, reassuring, more twenty-first century 'industrial'.

Did you see the photograph of the board room with the three-dimensional digital drawing on the wall? The highlighted section is the small part they are currently working on. This is a way that geometry impacts the interior economy of these underground spaces. Sometimes companies will visualise their space and location using cut-away section drawings. This one uses three-dimensional modelling techniques to map the mining extraction process, which is essentially space-generative.

This mapping gives a very different picture than that of being in the mine, in a Toyota Landcruiser where you cannot see the scope of the project, where lifts travel at up to 70 kilometres per hour, and you experience spatial disorientation. The further down you go, the more ubiquitous it becomes... all the same... all the same solid substance. The deeper you go, the hotter it gets too – some mines are well over 50 degrees centigrade which is why there are crib rooms with full cool air conditioning. Yes, and the larger places can be laid out like a mini city; there are new 'suburbs' and old historic sectors. In Mt Isa mine there are literally thousands of miners working twelve hour shifts a small – city.



Above
Figure 5: Underground academic library, Park University, Parkville, USA 2006.
Photo: Wayne Barrar



But despite this kind of scale, in the Western world very little of the underground is used for living. There is something about the psychology of living underground that westerners do not seem to be able to overcome. I recall a guy in the USA suggesting some former mine sites might be used to develop correctional facilities, but I would imagine that their underground location would cause some civil rights questions.

JP: What facets of economy do the Subterra photographs address?

WB: There are five ways that the Subterra project addresses economy:

- a. There is the large scale economy. If you are starting from scratch, the cost of building underground is prohibitively expensive and restrictive. You do not often find people constructing underground spaces except for mines. The power stations in this project are another example of purpose-constructed underground space.
- b. The images of Subterra include places that have been taken over after the mining has been completed; they are renovated or reclaimed space that already exists. The cost of reusing an existing underground space is comparatively cheap, being one-third to one-half less expensive than building above ground. The photographs measure a certain element of commodification at a business level, for example, the caves that have been renovated as male toilets for the sake of creating a space for tourists. Photographs also show mines converted to mushroom farms, film archives, underground dive training sites and paintball fields.
- c. There is a very direct relationship between the rate of extraction in the Kansas salt mines and the amount of salt distributed on the streets of New York City. They say you can tell what the winter was like in New York by the amount of new space made underground. This offers an economy that equates space and climate across a wide geographical distance.
- d. There is always a surplus of space underground; the number of people willing to work or live underground does not keep pace with the demand for limestone, or the demand for salt noted above.
- e. The real question of economy asks: What is sold? In Subterra we find that space, security, climate stability and the exotic are sold. Compared to above-ground buildings, the underground requires only one portal to secure. This reduces security measure costs and makes any facility significantly easier to protect. Such a reality is increasingly appealing, I imagine. Similarly, even though air conditioning is required, it is relatively easy to maintain a constant temperature underground. This is perfect for archival storage.

We should remember too that there are other underground (or underground-like) spaces that we take for granted in our day-to-day economic activity, including travel (tunnels and subways), and

Opposite
Figure 6: Underground company frontage (ATP), Space Center, Kansas City Missouri, USA 2004.
Photo: Wayne Barrar

commerce (malls). There are also cities such as Minneapolis-St Paul where one can traverse the entire central business district via tunnels and enclosed bridges without leaving the comfort of an interior environment. This matters a great deal in places that have extreme weather.

To be clear, the use of underground space is not prompted by the mythology of underground space or the allure of big, dark, isolated spaces; it is driven by the practicalities and economies of reuse.

JP: In the course of this conversation, you have itemised four different ways that this body of creative work has been shown and in various forms. When it finds its way into the IDEA Journal, it will take on another reading and audience. How do all these various formats impact the reading of the work?

WB: Yes, in the Dunedin exhibition, these images were presented as large, framed, glossy photographic prints hung in a horizontal sequence in a space that afforded an overall as well as a close up view. In the Subterra book, each colour image measures not more than 24 x 35cm, printed as borderless matt page in a fixed sequence. In their recent rendition in the Sightseeing series, they are represented again as 13 x 20cm postcards that can be shuffled irrespective of series, or exhibited as an accordion string of perforated cards. In an upcoming exhibition at (the) American University Museum in Washington DC, the gallery is hanging the photographs as a large grid of images in the main exhibition foyer of the venue where the symposium will take place. This will most certainly draw another possible reading.

The images do capture a lot of detail and for that reason the large format photographs draw one close. The mines are highly detailed environments and, despite their monotony, they reveal a lot in their surface. People tend to look closely; they may find a bit of graffiti, a bolt or a small trace of inhabitation – like looking for fossils. This adds a layer to the work. But the book allows for the reading audience to access the images in quantity; one can flick through the book and pick up nuances of pattern, subject matter, or spatial types. Each media offers a different dimension. Overall, I think these images are quite resilient.



Above
Figure 7: Interior underground office and rail access, Mount Isa, Australia 2005.
Photo: Wayne Barrar



NOTES

1. Rosalind Williams, *Notes on the Underground: an essay on technology, society and the imagination* (Cambridge, Mass : MIT Press, 2008), 1.
2. Mary Shelley, *Frankenstein; or the Modern Prometheus* (London: Harding, Mavor & Jones, 1918).
3. Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149-181.
4. David L. Pike, *Metropolis on the Styx, The Underworlds of Modern Urban Culture, 1800-2001* (Ithaca : Cornell University Press , 2007), 1.
5. David Pike, *Metropolis on the Styx, The Underworlds of Modern Urban Culture, 1800-2001*, 2.

Opposite
Figure 8: Machine hall (during refurbishment), Manapouri Underground Power Station, New Zealand 2005.
Photo: Wayne Barrar