Toni Warburton

coal clay water wood

IN 18th-century Europe, a village with supplies of coal, clay, water and wood was a perfect place for pottery production. Ceramic practices today continue both to depend upon and to disrupt relationships between these 'resources'. As anthropologist Claude Lévi-Strauss has noted:

> the art of pottery narrows in the most radical way the gap between matter and form, its results are uncertain and subject to many risks, and this does not fail to effect the minds of those who practice it.[1]

By dint of their experience of the irreversible changes wrought by ceramic processes on fired clay and minerals, ceramists can be acutely attuned to the irreversibility of interventions into the natural order. Many feel charged with a duty to make the very best of what they use from the earth and to take exception to circumstances in which they perceive precious materials being squandered. The ethical and sustainable uses of so-called 'natural resources' are daily considerations.

coal

What do Captain Cook, Count Dracula and Queen Victoria have in common? At the coastal Yorkshire town of Whitby, Cook launched the *Endeavor,* Dracula was shipwrecked in the *Demeter* and miners dug the Whitby jet that was made into the black jewelry and tiara that Queen Victoria wore, dressed in black, to mourn the death of Prince Albert. Jet, also known as *gagate,* is fossilised coal formed in the Jurassic period from the petrified wood of monkey puzzle trees that grew in abundance when England was closer to the equator over 150 million years ago.

The Queen's grief habit sparked a Victorian craze for ornamental mourning that led to over-mining and depletion of the rare Whitby jet seams. As supplies could not keep up with demand, jet was imitated in materials such as glass, rubber, and coal dust with glue. It now seems worthwhile to use imitation materials to create new mourning apparel to adorn and protest our grief for the damage and death to towns, communities and natural environments wrecked by contemporary coal-mining scourges.

Coal was formed from plant matter as part of a cycle of intense seismic pressure that began in the carboniferous period 300 million years ago. Wood became peat became lignite became coal became anthracite (pure graphite, of the kind used in nuclear fuel rods). Coal is concentrated carbon, naturally sequestered, often safely layered (here in Australia) between clay and sandstone. For a coal seam to form the pressure and depth of water and sediment must be undisturbed for aeons.

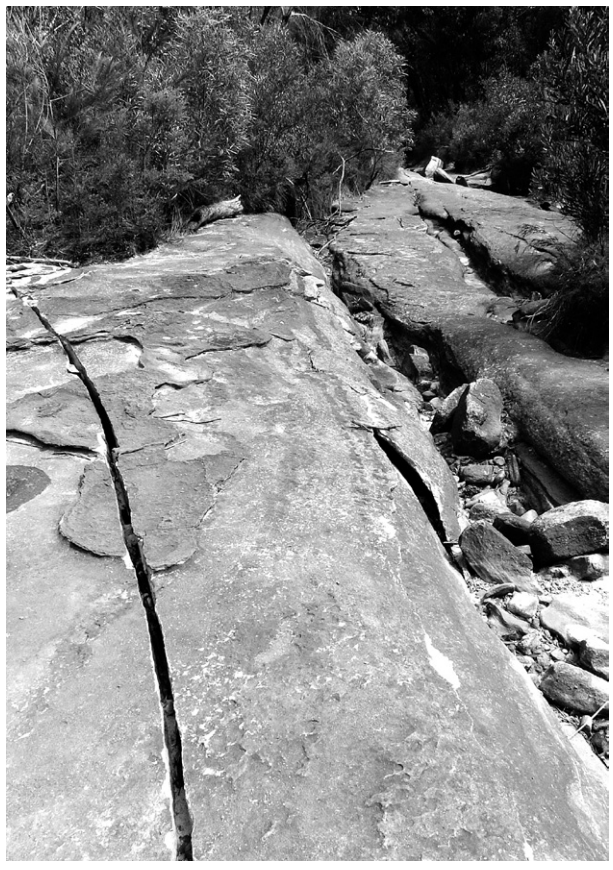
As an aquifer coal can contain water, as an *aquitard,* coal can repel it, as a washed, mined material, coal contaminates it. Lévi-Strauss discusses the mythological import of the merger of aquatic/chthonic zones in terms of synthesis, balance, confluence. Coal in situ contains fresh and salt water like the estuarine filtering peat swamps that mediate between river and sea.

Concentrated solar energy, coal is a fuel 'cooked' in furnaces to generate heat, smelt metals, power steam engines – and generate electricity. The methane and CO_2 formed from these processes outline our carbon footprints.

Longwall coal mining – a relatively new practice, which deploys massive coal-cutting machines underground – inflicts collateral damage upon a scale seen only in disaster movies or ravaged war zones, to animals, plants and landforms in above- and below-ground situations. Its vast, quickly exhausted underground caverns disregard basic principles of engineering and architecture: a post and lintel 'technique' leaves large columns of coal which are subsequently re-mined to 'maximise the resource'. When the mining machine retreats it leaves an unsupported tunnel ceiling (often of permeable sandstone, a layer once-supported by the coal seam) which is prone to collapse. The removal of the natural geological architecture similarly destroys aquifers, rivers and streams. Urban water supply catchments such as Cataract Dam are not exempt.[2]

Although science recommends 'the precautionary principle', these days mining ignores it. With the blessing of governments, state and federal, mining corporations speak still in the pre-Marxist resource-boom language of the 19th century. It has a simple syntax and little nuance. It looks like this: $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Legislation must be passed to protect freshwater catchments in farmland and bushland from wasteful exploitation and contamination by the coal mining and coal seam gas fracking industries.



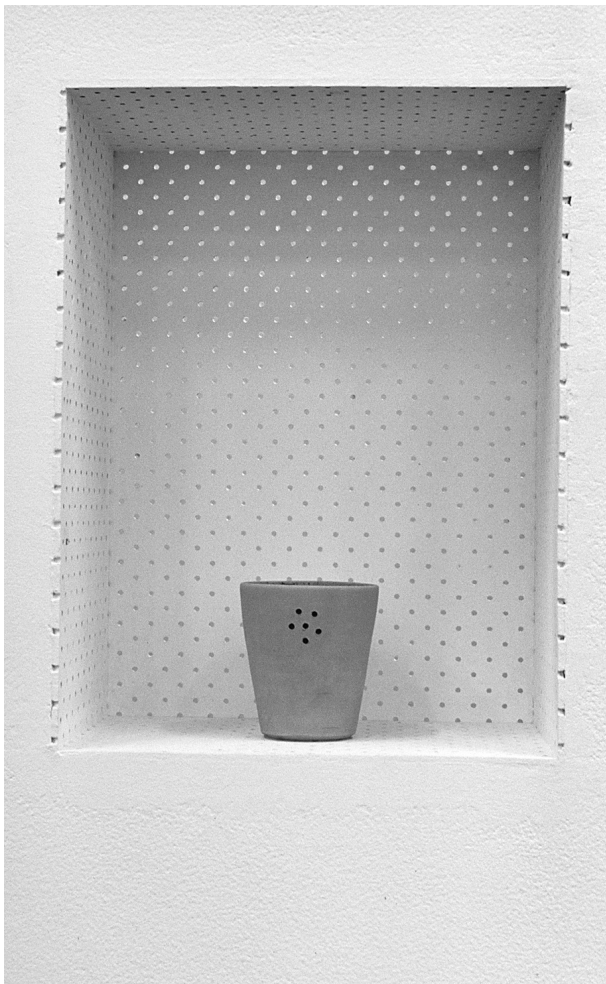
The 'collateral' damage of longwall coal mining: environmentalist Julie Sheppard captured dramatic images of Waratah Rivulet, part of the catchment for the Woronora Dam (just south of Sydney) in 2006. Because special catchments such these are off-limits to the general public, such damage is often hidden from view. Sheppard's alarming images show vanished rivers and creeks, poisoned water and barren ground. The short film *Rivers of Shame* (2006) further highlights the devastating affect of coal mining upon our river systems.

In August 2013 a Fairfax Media investigation revealed that 180 tonnes of concrete piped in to 'grout' cracked cliff rocks caused by longwall mining beneath the Mt Sugarloaf state conservation area, near Newcastle, flowed underground then out via waterfalls to solidify like a lava flow along over 400 metres of a tributary of Cockle Creek. It is apparent that the full extent of the underground subsidence caused by longwall mining was not properly evaluated or understood by the mining company Glencore Xstrata or their contractors. Due to the cover up of this negligent and ill-informed 'grouting' attempt, valuable time was lost and it will be impossible to remove all the hardened concrete and restore this creek bed without causing further destruction. Photo Darren Pateman/Fairfax Syndication

clay

In *Clay Objects and the Articulation of Place,* ceramist Patsy Hely discusses the complex implications of the brick hut that Bennelong asked Captain Phillip to build for him on Bennelong Point (the site now occupied by the Sydney Opera House).[3] Hely connects her revelatory discussion of this transaction to the Brickfields sited near today's Haymarket and to the 'overburden' removed in the process of extracting clay to 'turn country into object, space into place'.

Clay is formed from the erosion of weathered sedimentary rock layers. Compressed to mudstone, it contains fossils. When dry it is an *aquifer,* like coal, absorbing moving water. When clay has absorbed its equilibrium of water content, its plasticity resists water and, like coal, can also become an *aquitard.* Made plastic or liquid by



Toni Warburton, *Wingecarribee Swamp*, clay, peat moss and perforated masonite, 1999

mixing with water and particulate matter, it carries other materials, responds to gestures, can be imprinted and poured into moulds. Clay mediates the melt of glazes. By firing a mixture of clay and grass fibres, porous water filters can be made. Lévi-Strauss tells us that in the myths of South American Indians, clay is the child of the rainbow snake. It lies under and over coal seams. Eastern Australian Indigenous knowledge tells us that the Rainbow Serpent goes underground in the season of July, August.[4]

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John Cole puts a long handled shovel and a rake into the back of my station wagon with my buckets plastic bags and hardened plastic trowel. In the Gulgong district, not far from Ulan and the gigantic Moolarben[5] open-cut coal mines, the way to the Cudgegong clay mine is a mirage of two tire tracks bruised into the soft wire grass that quivers in the breeze. Kangaroos travel across the paddock. It is a little after four in the afternoon, Sunday summertime. John opens various gates and closes them behind us. The track winds through paddocks and we cross a watercourse, not running fast but rather seeping across a low area of the field. I see the white mounds of China clay glisten like Sydney Opera House sails in the distance. Sheep take off in a flock; they eat the same native grasses as the roos.

This clay is weathered granite, formed from the volcanic steam heating it through fissures, so the soil around here is acid. The good clay fires to

1500°C and BHP use it to make bricks for their blast furnaces. It is industrial grade. The clay particles are electrolytic and stay in suspension. Puddles of soft fine clay: white ponds with milk waves. The clay mining machinery is kept in town. High around the edge of the clay pit, one can see the work of a claw excavator, grooves that form the runnels that erode the sides. The clay I dug was from the sides of the clay pit pond.

water

The hydrological cycle constitutes the flows of water between underground, land surface, ocean and sky through coal, peat, porous stone, soil and plants consumed by living creatures. Water flows through living creatures, is excreted by living creatures, is mutable and can change state from solid to liquid to gas.

Water is a vehicle for solids, impurities and contaminates. It can wash and purify and remove contaminates, it can be purified from contaminates. Water can be poisoned. Water can generate and conduct electricity. Water is a force of nature, a spring, a river, a lake, a rock hole, a soak, a dam, a flood, a habitat, and a biosphere, essential to life and to the potter's craft.

For
travelling lightly, a
traditional Aboriginal woman's
kit contains a hand-sized wooden water
scoop used to dig and draw water (once a
recurrent resource) from the sandy ground of
soaks. An elliptical shape, hand carved from a
hardwood boll, its convex surface is engraved with a
scatter of emu's tracks. A visual analogue, it resonates
with conceptual and practical ingenuity. Implicit
gestures of access and restraint tell us that water is
sourced from ground laced with subterranean
aquifers that connect to creeks, rivers,
springs, clay pans, rock holes, lakes:
all of which imbricate into
song lines.

Cloven hooves of colonising herds of driven cattle, feral camels and pigs and the tracks of four-wheel-drive vehicles continue to damage, pollute and leave soakage places uncovered.

wood

Trees create their wood from sunlight, photosynthesis, cellulose and water. Trees provide habitat. Harvested wood is a structural material, a renewable resource, a fuel. Melted wood ash forms a glaze on ceramics. As a renewable energy, wood is the fuel of choice for the kilns of many potters who have done their carbon sums.

Trees and plants are the elements of the terrestrial carbon cycle. Gravity of the planetary system causes pressure on the earth's crust and this breathing of the planet causes a sort of peristalsis that makes the dead plant matter into mulch, then peat, then coal.

In *Green Imperialism*, British environmental historian Richard Grove reveals that for centuries, Europe, and Britain in particular, undertook massive clear felling of land for agrarian use and to obtain timber for urban and military demands. Subsequent European colonial expansionism deployed slave labour to slash, burn and deforest the invaded land to produce commodities such as sugar and tobacco. This caused massive erosion and loss of natural water catchments. In Australia as early as 1860:

> the colonial environmentalists felt a steadily growing danger in which they argued the whole earth might be threatened by deforestation, famine, extinction and climate change.[6]

In the light of his recent research into the resources boom in Australia, Guy Pearce reminds us that, heeding the precautionary principle, we would do well to err on the side of caution rather than risk irreparable harm, not only to Australia, but to the entire planet:

> In truth we will not be dealing with climate change as a nation until we deal with the carbon liabilities we export to the world.[7]

Australian academic Glenn Albrecht created the word *solastalgia*[8] to describe the profound emotional trauma associated with the destruction of our connections to a total ecology of place. With respect to the notion of the jealous potter, Lévi-Strauss interprets '*jealousy*' as *the desire for something that you own that will be taken away or the desire for something that you don't have*. These desires underpin our *solastalgia* for wrecked and ruined country and places, and our determination to protect threatened eco-systems, habitats and communities, and sustain authentic ways of being within the world.

provenance

In my own work, the theme of potable water reflects and signifies psychosocial, aesthetic and biological continuities between people, place and country. My work seeks to create perturbations of emotional ambivalence around human interventions into natural systems.

There are now many places where inhabitants can no longer trust their knowledge of the local ecology to obtain potable water. What happens up stream matters.[9] What happens in the ground affects other ground. Knowing provenance may be one of the most effective activisms left, a form of ethical reassurance about actions of consumption. Knowing the sources may ensure survival: of authenticity, knowledge, narrative, pattern and relationship.

A rest has been called beside a stream. Beakers are filled with water and handed around for the walkers to share. The water they drink is not from the stream. They collect water from the stream to test. In the secular sense, a ritual has been called. Sustenance still has a connection to the sacred in the redemptive sense of working on what has been spoiled. Water from the stream is not tasted, but tested: a sacred function.

A shaft of sunlight beams a replica of the drip and breeze rippled surface of the pool onto the rock face.

1 Claude Lévi-Strauss, *The Jealous Potter* (Chicago and London: The University of Chicago Press, 1988), p.178.

2 Work by artists Stephen Harrison, Catherine Rogers, Julie Gough, John von Sturmer, Deborah Vaughan and activist curator Jo Holder influenced my thinking for this text. Thanks to Chris Ward for editing assistance.

3 Patsy Hely, *Clay Objects and the Articulation of Place*, unpublished PhD dissertation, ANU, Canberra, 2007.

4 Francis Bodkin, indigenous botanist at Mt Annan Botanical Gardens,

5 http://www.yancoal.com.au/page/key-assets/mines/moolarben/

6 Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism 1600-1860* (Cambridge: Cambridge University Press, 1996) p. 15.

7 Guy Pearse, 'Quarry Vision: Coal, Climate Change and the End of the Resources Boom', in *Quarterly Essay 33*, March 2009, p. 94.

8 For an informed and insightful exposition about *solastalgia* (with respect to the proposed damming of the Williams River at Tillegra), see Juliet Fowler Smith, 'A place called 'the farm'' in *The Stuttering Frog*, October 2010, p. 4.

9 Artist Suvan Geer says 'to treasure a river and work to preserve it is an act of global kinship when it values the culture of the land through which it flows'. Suvan Geer, 'Keepers of the Waters', *Artweek*, April 1997, p. 19.