

AKNOWLEDGEMENTS

Archival items integral to the research of this body of work include the following, and the artist wishes to acknowledge the assistance of these institutions and their hard working staff:

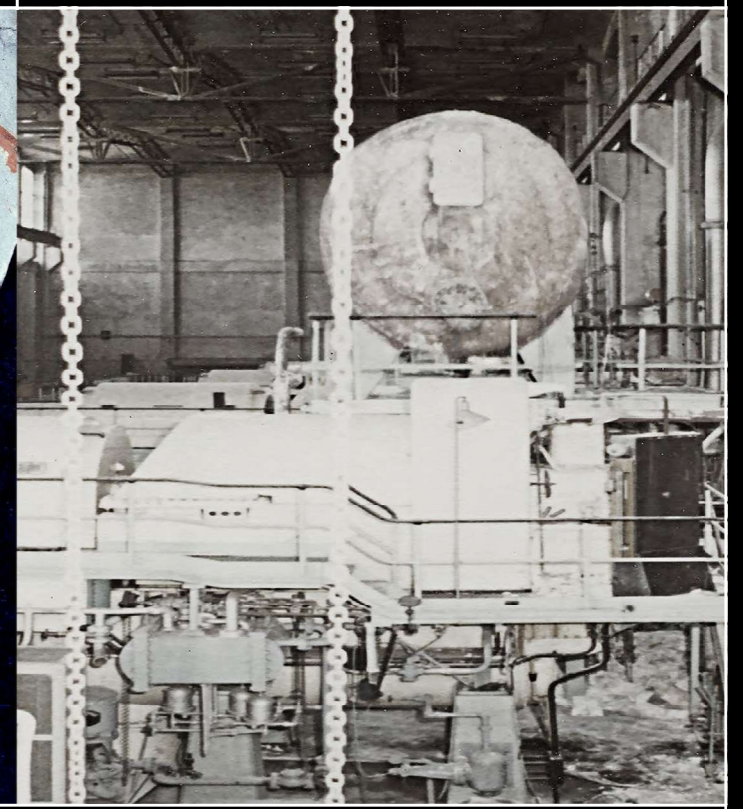
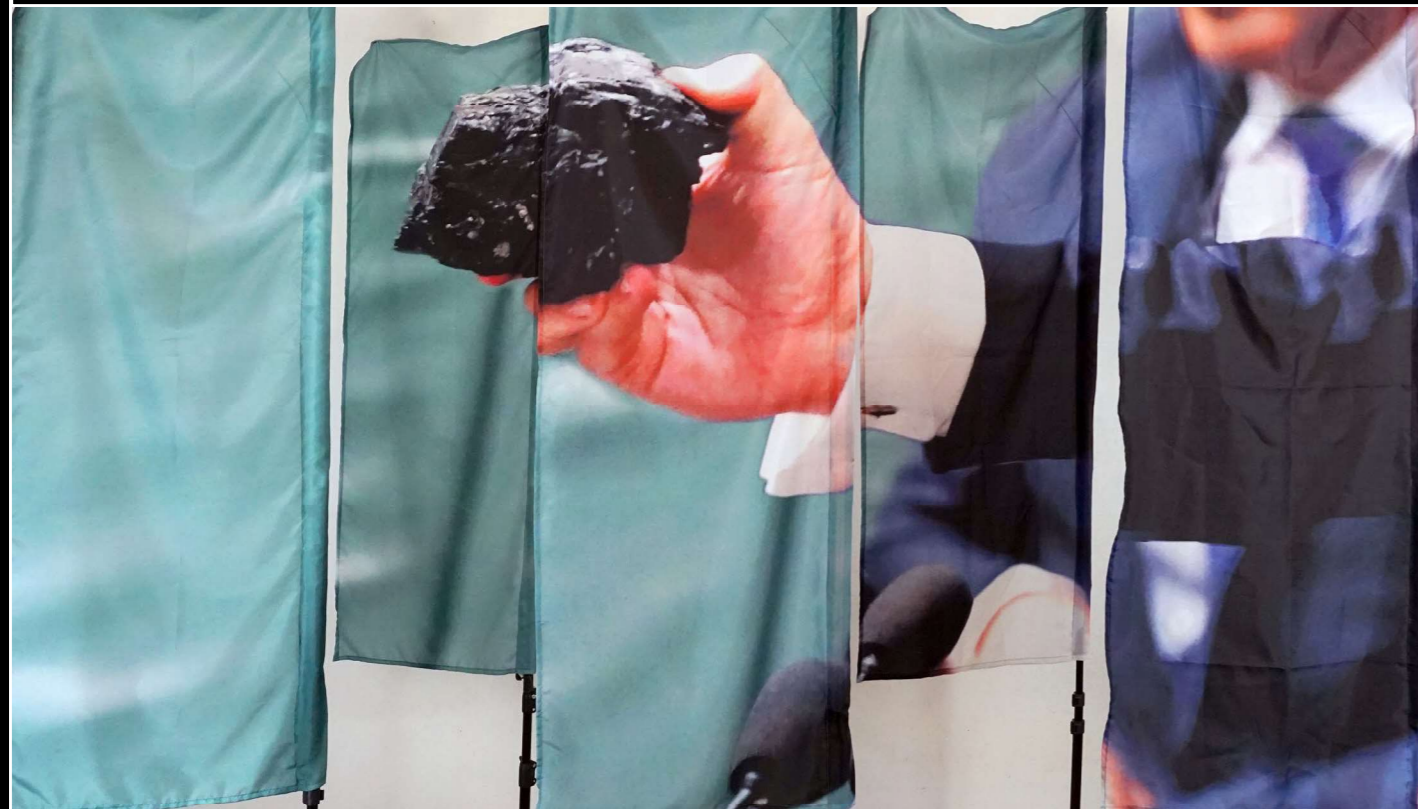
The paleobotany collection, the Australian Museum, Robert Scott Terra Nova collection at the British Natural History Museum, Ray Healey photography collection, Liverpool Library, Trove, National Library of Australia, and the Casula Power House Arts Centre.

Power used in this exhibition has been offset by the artist to carbon reduction programs via carbonfund.org

30.03 – 12.05

Casula Powerhouse
Arts Centre

“An interregnum is the period between rulers - a break in continuity as the rule of one sovereign ends and the next ascends— a gap between hierarchies, between sets of rules and systems of governance.”



Front:
PENELOPE CAIN
If there was a Conclusion to an Extinction Event (stardust), 2019
Courtesy of the image collection, Ray Hely Collection held by Liverpool City Library and The Australian Museum

Back:
PENELOPE CAIN
If History Was Written by the Victors (detail), 2019
Image courtesy of artist

Interregnum Penelope Cain

INTERREGNUM

An interregnum is the period between rulers - a break in continuity as the rule of one sovereign ends and the next ascends— a gap between hierarchies, between sets of rules and systems of governance. A cycle of extinction and subsequent emergence of new systems of power.

Interregnum pivots in response to the history of Casula Powerhouse Arts Centre as a coal-fired power-station and present as a cultural centre. Post interregnum. It considers a linked series of extinctions, structures of power and scales of time - from thermochemical burn time to deep geological time.

A STRATIGRAPHY OF EXTINCTIONS

In the period immediately after WWII, the Electricity Commission of Sydney was tasked with addressing power blackouts as the city's electricity needs dramatically expanded. In 1950 NSW Minister JJ Cahill approved the purchase of four ready-made power-stations from the USA for 2.5 million pounds, to provide uninterrupted power supply. The identical plants were rapidly assembled in Casula, Penrith, Port Kembla and Maitland. Each with identical, massive 6-inch thick, multi-gabled concrete roofs, ten-ton girders and 85-foot chimney stacks. After a few decades operation, in 1976 Casula was decommissioned and locked up, as the economics of urban power generation shifted, generators were consolidated closer to the coalmines, and ultimately privatised.

It is most likely that the majority of coal used at the Casula power-station originated from the Illarwara Coal Measures, part of the Permian coal deposits extending along the Sydney basin.

In the late Permian period, the Sydney basin area-part of the ancient megacontinent of Gondwanaland- was a cool temperate swamp, covered as far as the eye could see with forests of deciduous trees, primarily *Glossopteris* species. Fossilised leaves from *Glossopteris*, with their characteristic long, round-tipped, tongue-like shape, are found in the rock strata under Sydney sandstone, as well as Antarctic, India and Africa.

Across the Permian era, the build-up of leaves and plant materials gradually compressed down into the swampy soils. And so it would have continued, but for the Permian-Triassic mass extinction event— otherwise called the 'Great Dying'—a climatic event that wiped out 80% of living plants, insects and animals on the planet; the largest mass extinction event in earth's history- to date. The initial cause of this event, 252 million years ago, is open to debate, but it is clear that the outcome was cataclysmic, runaway climate change, resulting in reduced oxygen and temperatures, and increased CO2 and ocean acidification.

In the aftermath of the extinction event, in the interregnum period between one ecosystem and another, the denuded Sydney basin was awash with alluvial sands, repeatedly flooding across the de-forested lands. Eventually, across the subsequent 10 million years, new forms of life evolved to occupy the acidic, depleted conditions of the wetlands.

Arguably, this significant build up of heavy sandstone deposits on top of the swampy Permian vegetation helped compress the Permian peat material into the quality black coking coal that is mined today. It takes average of 8 metres of plant matter and at least 150 million years, with or without a mass extinction event, to form one meter of coal- a thermochemical reaction lithifying leaves and branches into solid rock and coal. The Sydney basin coal seam contains some of the youngest Permian coal left in Australia. This process cannot be rushed.

In 1912, when Robert Scott and his fellow British explorers raced against the Danish team to claim the last un-territorialised continent of the Antarctic, they had additional scientific goals to attend to. Arriving at the South Pole twelve days after Roald Amunsen planted the claimant Danish flag in the ice, they determined to at least fulfil a request for fossils on their return journey. Scott's team collected around 16 kilos of fossil samples, which were subsequently found with their bodies and sleigh; Scott refused to jettison them as the team struggled unsuccessfully against the conditions to return.

These fossils included *Glossopteris* specimens, which helped prove that there had once been a land-bridge between Antarctic, Australia and India, ultimately named Gondwana (from the Sanscrit, *gondavana*) and supported the emerging modern theory of plate tectonics and continental drift.

In 2017 Australia mined 481 million tonnes of coal from the Gondwanaland legacy. Coal is the compressed energy outcome of plant photosynthesis; the conversion of light energy to chemical energy through the evolutionary magic of chlorophyll molecules, creating plant-based carbon from atmospheric CO2. In steam-powered generators, coal is crushed and burned, relinquishing that stored chemical energy, and releasing CO2 back into the air.

The released thermal energy heats water to steam, rotating generator blades which in turn rotates a copper coil inside a magnet, and following thermodynamic principles, via the physics of electromagnetism, converts the energy of motion into electrical energy. These alchemically complex systems of energy transfer enable the conversion of 150 million year-old sunlight to light from a bulb. From power to power.

The majority of NSW electricity is produced by coal, releasing 36% of the state's total greenhouse gas emissions. Almost all state-owned generators were sold to private hands from 2010 onwards by successive NSW governments, just over 100 years since the first coal-fired power-station was switched on in Pyrmont in 1908. At 5 pm on that day, the Mayor's wife turned a golden key that switched on the electrical circuit, and lights went on for the first time through the CBD grid, to the wonderment and applause of the party gathered by the coal loader.

The interests of coal have been embedded in the stratigraphy of Gondwanaland-governance ever since, and in 2017, to the applause of the gathered Government of the day, the then federal Treasurer, Scott Morrison, brought a lump of Permian era coal into Parliament House. It was rumoured to have been lacquered, to ensure that hands weren't dirtied.

ESSAY BY PENELOPE CAIN

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