

Yasmin Smith — Forest
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text by Kathryn Wier

Glossopteris, a giant tree that flourished in Gondwanaland's swampy forests in the Permian period, makes up much of Australia's black coal. Unlike the other plants that ended up as coal – horsetails, ferns, cycads and others – it has no living relative and disappeared 250 million years ago at a time when around 90% of earth's species became extinct following catastrophic volcanic eruptions that released enough carbon dioxide to trigger a greenhouse crisis and drastic global warming. The coal deposits that contain Glossopteris' ancient forest remains, across what is now Africa, Australia, India and South America, are today at the centre of another climate and toxicity crisis.

In her artistic methodology developed since 2014, Yasmin Smith works with plant ash to make visible what a plant has absorbed in its lifetime through applying ash glazes to ceramic sculptures. She first considered working with coal ash when she encountered ash from the coal-powered steam cranes on Cockatoo Island at the time of the 2018 Sydney Biennial. Ash is a by-product of burning coal for energy, and through further research Smith learned of the huge 'ash dams' that have been created next to coal power stations all over Australia, which in turn are built near coal deposits and mines. Australia has around a quarter of the world's coal reserves, and, according to a recent report on water pollution in NSW, coal ash accounts for a fifth of all of Australia's domestic waste.¹

Smith decided to make visible the composition of the ash from as many coal ash dams as she could access. Systematically researching dimensions of environmental science and chemistry, as well as, in the case of this project, of plant palaeontology, her practice also relies on developing networks of collaborators, who may range from scientists to activists to industrial workers. It was only through such relationships that she was finally able to access the ash from 11 power stations from along the Eastern Australian seaboard and in inland areas of New South Wales, Victoria and Queensland. These divide into ashes of black and brown coal, which are coals laid down in different geological periods, from around 300-250 million years ago (black coal), to 'just' 66-23 million years ago (brown coal), all constituting concentrated chemical traces of plant and other organic materials formed over time into coal-rich rock through sedimentation, compression and heat. Brown coal, being more recently formed, retains more organic materials and the glazes made from brown coal ash are more highly coloured and textured, showing more plant-like elemental characteristics. Black coal ash glazes on the other hand are almost white, their light colouring reflecting the absence of many soluble minerals deriving from organic materials that have leached away over the longer time frame since the coal was formed.

In the installation, the sculptural elements are arranged in a chronological horizon line that proceeds from the earliest formed ash materials to the most recent. The sculptural forms were moulded by Smith from coal lumps that she selected from a mine south of Sydney, coal in its unprocessed state as it is extracted from its stratum within the geological layers of the earth. The line of the installation evokes the stratum of the underground forest transformed into coal, but also the stratum of ash that began to be visible in the geological record from the 1950s with the exponential increase in coal burning across all geographies in the wake of the coal-fired industrial revolution. It also figures as a horizon line beyond which we cannot see, like the event horizon of a black hole. Temperatures rise as carbon continues to be emitted from coal-burning industries; coal ash dams in the marshy areas around coal deposits continue to leak into ground water. Smith has returned across many bodies of work to industrial and agricultural effluents that flow into water systems, toxic presences to which her plant ashes testify. Her most recent major body of work produced in 2021 near Naples in southern Italy explored the disaster of illegal industrial waste disposal buried in agricultural fields dubbed the 'Terra dei Fuochi'. While coal in the ground is not toxic, the concentration of certain heavy metals in the ash produced by burning coal makes this coal burning by-product highly toxic. There is potential for greater re-use of the ash in asphalt, bricks and cement, but if more is not done to remove and repurpose this material, many tonnes of heavy metals will continue to leach into the waterways from unlined coal ash dams in coming years.

Smith speaks of her motivation in creating this work:

'I'm attempting to represent a cycle of growth> death> coalification> extraction> reduction> return. From the Industrial Revolution onward, sections of humanity have dug vast amounts of coal from the earth leaving voids where forests once stood. A seam of geological time is removed. We then burn the ancient forest and resow its ashes back into geological time, returning the ashes to the earth's surface and creating a new stratum. The accelerating industrialisation globally since the 1950s is a likely candidate to mark the entry of humanity into the geological time-scale, defining the so-called Anthropocene. When considering the massive, industrialised extraction and use of coal undertaken by humans since the mid-19th century, as a contributing factor to changes in earth's systems and climate, I think about the morphological changes that this activity leaves behind; the physical void 300 million years down, where coal was removed from geological time and the drastic changes to contemporary terrain to reach those depths. But to officially enter the Anthropocene into the geological record, evidence of humanity must be defined in geochemical strata as it is laid down on the earth and contributes to a new geological age. If you ask what humans contribute to the geological fabric of the earth, the answer is fly ash from coal combustion. The spectrum of coal ash glazes in *Forest* present a visual understanding of this geochemical contribution.'

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¹ *Out of the Ashes II: NSW water pollution and our aging coal-fired power stations*, Hunter Community Environment Centre, 2020.