

Chapter 1

Geological Records

'In order to have lived in a month where the world was not warming month-by-month, you need to have been born in 1985 or earlier', otherwise, as Nicholas Mirzoeff contended in *How to See the World*, 'you have never known what the pre-climate-changed world was like.' The bodily sensation of living in an anthropogenically transformed environment has conditioned the way we 'see the Anthropocene', with scientific investigation directed towards identifying potential turning points in planetary history when human activity first overwhelmed Earth processes. The megafauna extinctions caused by overhunting and the changing climate of the late Pleistocene are among the earliest signs of such 'golden spikes' in the geological record, while the upswing in atmospheric carbon dioxide levels etched in the permafrost by the Industrial Revolution is another contender for the start of the Anthropocene. The authors of *The Human Planet* pointed to an 'Orbis Spike' of reduced carbon dioxide levels due to the return of forests following the death of an estimated 50 million native Americans as marking 'the beginning of today's globally interconnected economy and ecology', drawing a connection between the crimes of colonialism and the onset of the Anthropocene. Indicators of intensifying disruption of the natural world have also been found in residues of plastic pollution, chemical fertilizers and skeletal remains of genetically modified chickens in the soil, while the first atomic test on 16 July 1945, which dispersed radioactive isotopes across the planet, is another stratigraphic marker. In that sense, over-exploitation, colonialism, industrial modernity, fossil fuel capitalism and the Cold War arms race are all implicated in the forceful reassembling of geological matter and contribute unequivocally to climate derangement.



3 Nicholas Mangan, *A World Undone*, 2012

Nicholas Mangan's film *A World Undone* (2012) took as its subject zircon, the oldest mineral in the Earth's crust, which dates back 4.4 billion years to the long period of the planet's history before it became the stage for the emergence of biological life. Sourcing the aggregated red rock from the Jack Hills range in Western Australia where the most ancient fragments have been found, the artist reversed the geological process by crushing it back into particles. He then filmed their dispersal against a black background with a slow-motion camera. In the absence of a reference of scale and with the impression of gravity obscured through capturing the falling dust at 2,500 frames per second, the viewer could easily be inspecting microscopic substances in closeup or observing asteroids orbiting through cosmic domains. Metaphysical contemplation of the deep time of granular matter and the transience of human existence measured in the lifetime of the planet collide here with the brutal extractivism of open-cast mining of this ancient crystal in Mangan's native Australia. The geological understanding of 'earth as a set of stratified levels of being and time' is itself, as anthropologist Elizabeth A. Povinelli showed in her study *Geontologies: A Requiem to Late Liberalism*, closely entwined with the Anthropocene, since

the history of science and the extractive mining of minerals developed in tandem at the onset of the new era.

The entanglement of ancient minerals in the economic and political microstructures of contemporary capitalism comes into focus in US artist Amie Siegel's film *Quarry* (2015), which took as its starting point the residential architecture of Manhattan luxury apartments. The work traced the journey of the polished slabs of marble used for worktops, floors and bathrooms in high-end penthouses back to the underground chambers deep beneath Vermont's Dorset Mountain, from where the white metamorphic rock was cut. The artist revealed the connection between the brutal process of extraction and the shiny showrooms that entice prospective clients by relying on the associations of marble with exclusivity and opulence in the speculative real estate economy. In a related work, *Dynasty* (2017), Siegel presented a fragment of pink marble from the lobby of the Trump Tower in New York, which she purchased online in the aftermath of the 2016 US presidential election. By exposing the links between political and economic forces and the extraction of geological matter, the artist challenged the blind spots of a narrow understanding of the Anthropocene that does not differentiate between branches of humanity or particular social groups in attributing responsibility for human impacts on Earth.

Prefiguration of the concept of the Anthropocene could be found in the work of early twentieth-century Soviet scientist Vladimir Vernadsky, who developed the notion of the Noösphere, or envelope of thought, to account for the magnitude of technological, scientific and military interventions in the biogeochemical processes of the Earth. Romanian artists Anca Benera and Arnold Estefan proposed the related term 'debrisphere' to denote alterations to the surface of the lithosphere as a result of the destructive power of the military-industrial complex of the modern era. Scale models and botanical drawings in their installation *Debrisphere: Landscape as an Extension of the Military Imagination* (2017) drew attention to the effects of war on specific environments, from the hilly mounds of rubble that reshaped the topography of post-war Berlin to the flattening of bombsites to create made-ground in London's East End. Another model dealt with the transformation of the British colonial territory of Diego Garcia, the largest island of the Chagos Archipelago in the Indian Ocean, into a US military base, at the cost of the eviction of its inhabitants and destruction of a finely balanced marine ecosystem. The persistence of the military-colonial mindset was exemplified by the British decision, following the legal



4 Anca Benera and Arnold Estefan, *Debrisphere: Landscape as an Extension of the Military Imagination*, 2017

recognition in 2008 of the islanders' rights to their ancestral home, to declare the Chagos Archipelago a protected marine biosphere in order to block their return.

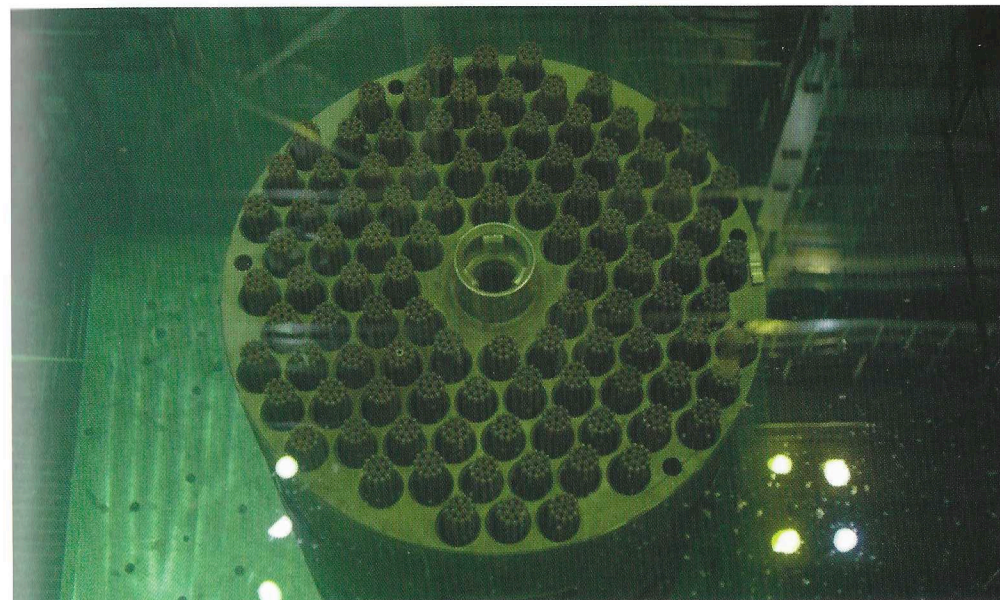
London-based artists and filmmakers Sasha Litvintseva and Daniel Mann's film *Salarium* (2017) explored the geological phenomenon of sinkholes, which since the 1980s have frequently appeared around the shores of the Dead Sea in Israel and Palestine. As a result of hydro-engineering projects on the River Jordan and the extraction of minerals in mines to its



5 Sasha Litvintseva and Daniel Mann, *Salarium*, 2017

south, thousands of sinkholes have collapsed patches of the land that stretches between the salty lake and the Judean Desert, sucking in parts of the beach, water park and settlements. The title refers to the common etymological roots of the words for 'salary', 'soldier' and 'salt', which are all at play in this work that demonstrates the entwining of economic, military and geological elements. For the artists, the sinkholes represent on the one hand 'the geological scale of gradual mineral sedimentation and erosion', and on the other 'the human historical scale of settler colonialism and resource extraction'. What is more, since the sinkhole 'makes the invisible visible' and is therefore 'imbued with political agency', the work vividly illustrated how schemes of social engineering and environmental control come up against implacable natural forces.

The contested history of nuclearization was the site of intervention for Belgian artist Maarten Vanden Eynde, who in his *Manhattan Project* (2017) attempted to recreate the perfect dome that occurs 0.025 seconds after detonating an atomic bomb. The artist used green antique uranium glass for miniature explosions to create bubbles on a bed of sand that came from White Sands Missile Range, where the first atomic tests were conducted. Adding UV lights to this scaled-down model, which turned the display fluorescent green and purple,



6 Emilija Škarnulytė, *T1/2*, 2019

had the effect of amplifying the menacing environment. Unravelling the entangled histories of cotton and uranium, his related installation made with traditional Belgian bobbin lace, *The Gadget 3D* (2017), referred in its title to the nickname given to the first atomic bomb that was detonated in the Manhattan Project. The work drew attention to the parallels between the colonial trajectory of the uranium mined for the first atomic bombs in the Katanga province of what was until 1960 a Belgian colony but is now the Democratic Republic of Congo, and that of the slave labourers, many of whom came from the Congo, destined for cotton plantations in the southern United States. These in turn provided the raw materials for the bobbin lace industry of Belgium, completing the circle of colonial domination, extraction and exploitation.

The ruins of Cold War nuclear culture and its unforeseeable impacts on the health of the planet were the focus of Lithuanian artist Emilija Škarnulytė's futuristic archaeological exploration *T1/2* (2019), which in its title referred to the abbreviation for half-life that in nuclear physics is a measure of the rate of radioactive decay. Slowly panning shots of a hi-tech fusion of speculative and historic atomic architectures equipped with fuel rods and cooling pools are devoid of human presence, pointing to the geological timescale of nuclear waste with



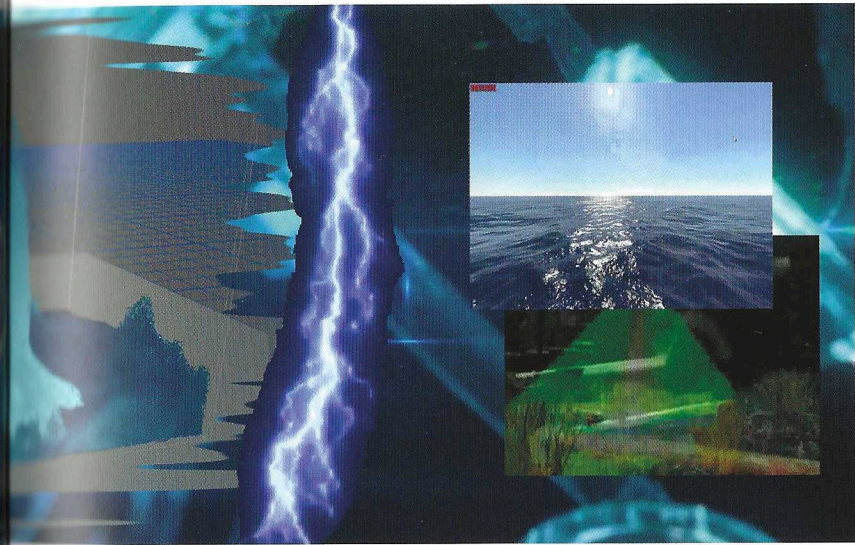
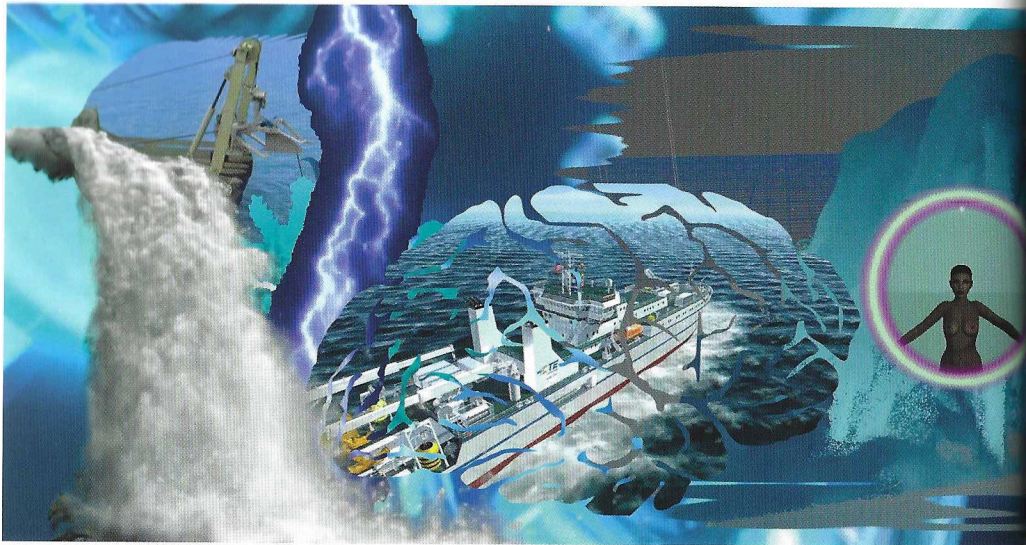
7 Armin Linke, *Blind Sensorium: Il Paradosso dell' Antropocene*, 2019

a half-life of hundreds of thousands of years. A mythological siren swims past submerged archaeological ruins and along the waterways of deserted atomic facilities, including the twin of the Chernobyl power plant still operating in present-day Lithuania, the Large Hadron Collider at CERN near Geneva and a nuclear submarine base within the Arctic Circle. Illuminating the relics of East–West nuclear competition, the work points to the indelible scars left by military and civil atomic infrastructures and the radioactive waste they generate on the natural environment and wellbeing of future generations. Seeking to explain the willingness of those in power on both sides of the Iron Curtain to create radioactive ‘sacrifice zones’, environmental historians John McNeill and Peter Engelke have pointed in *The Great Acceleration* to the use of ‘the security demands of the moment’ to justify ‘lethally contaminating chosen sites for millennia into the future’.

The Cold War rivalry between opposing economic and political models, which were also competitively exported to the countries of the global South, took place against the backdrop of a surge of economic and social activity since the mid-twentieth century. The rapid growth measured in the indicators for urbanization, transport and communications was mirrored in the scaling up of human interventions in Earth systems, such as water use and soil degradation.

7 In his collaborative work *Blind Sensorium: Il Paradosso dell' Antropocene* (2019), Berlin-based artist Armin Linke devised an archive to register the impact of anthropogenic changes on the planet, depositing footage from laboratories, data centres and conference settings, as well as photographs of sites of resource extraction, from a Chilean copper mine to abandoned oil platforms in the Caspian Sea. The work disclosed the central ‘paradox’ of the Anthropocene, namely that despite the oversaturation of images in the contemporary interconnected world and the employment of various sensory mechanisms, from satellites to sonars, to observe and collect data about the Earth, the majority are still blind to the effects of climate change. For Linke, this reflects the fact that knowledge generated by the ‘technological sensorium’ is deeply implicated in the accelerated exploitation of nature, while such images fail to narrate the complexity of the present moment on Earth in which technology, finance, politics and culture are interlocked in a self-reinforcing cycle of unsustainable growth.

8 Challenging the supposed neutrality of new technology, French Guianese artist Tabita Rezaire drew attention in her film *Deep Down Tidal* (2017) to how it functions as a tool to maintain and reinforce global structures of colonial power.



8 Tabita Rezaire, *Deep Down Tidal*, 2017

Exposing the prejudices and inequalities that thrive on social media and bolster Western domination of cyberspace, her work is a vibrant call to confront structural racism and decolonize the internet. The optic cables on the seafloor appear not just as infrastructure for the data transfers on which the globalized world depends, but also as a conduit for the transmission of 'exploitation, exclusion and eco-system disruptions'. What is more, due to the fact that these cables mostly follow the submarine paths of nineteenth-century copper telegraph lines laid along colonial shipping routes established in the slave trade era, they can also be considered as the hardware of a new 'electronic colonialism'. For the artist, the process of cleansing and healing in the face of the destructiveness of the Anthropocene is to be achieved by reviving the methods of 'ancient African spirituality' to reconnect to ourselves, each other, the Earth and the universe.

The artistic practices discussed here outline the ways in which anthropogenic interventions in the biogeochemical processes of the Earth system have left an indelible record in the geological materiality of the planet. These ruptures are detected in mineral deposits, the pulverizing of the lithosphere, the reconfiguration of topographies and the secretions of atomic radiation, as well as in the deep time components of new technologies. Manifestations of geological evidence are approached in these works through the lens of geopolitical

power relations, illustrating the entwinement of capitalist and political interests, the ongoing encroachments of the military-colonial complex and the extractivist agenda of cybertechnology. The exposure of toxic geologies and their climate-altering impacts goes hand in hand with tentative gestures to remythologize, re-enchant and spiritually cleanse contaminated grounds.