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Unknown Fields Division – Rare Earthenware

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Abstract

This Photo Essay contemplates on the creative practice of Unknown Fields Division to reflect on the planetary geopolitics of rare earth elements. Knots interlace points, trajectories, and networks in their moment of becoming. In 2014, Unknown Fields Division developed an expedition in East Asia to follow the unmaking of electronics and reveal information and landscapes that are in principle absent from or unseen in urban societies' everyday life. The group focuses on the raw materials of our global capitalist societies, their extraction, and refining. It investigates the production and distribution of a globalised commodity through container loads via ports in Shanghai, Singapore, and Busan. The group's interest in industrial ecologies and precarious labour led them to carry out an exploration of global maritime trade by tracing large container ships routes, supply chains, factories, and working conditions. The project aims at revealing a tremendous ecological catastrophe as a consequence of global capitalism. Intensification of mining operations, loose regulations, small illegal refineries, combined with the environmental impact of the production of rare-earth elements (REE), have caused unprecedented ecological destruction in the Bayan Obo mining district.

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Unknown Fields Division – Rare Earthenware

1

In 2014, Unknown Fields Division

developed an expedition in East Asia to follow the unmaking of electronics and reveal information and landscapes that are in principle absent from or unseen in urban societies' everyday life. The group focuses on the raw materials of our global capitalist societies, their extraction, and refining. It investigates the production and distribution of a globalised commodity through container loads via ports in Shanghai, Singapore, and Busan.

Marianna Tsionki

fig. 2

2

The group's interest in industrial ecologies and precarious labour led them to carry out an exploration of global maritime trade by tracing large container ships routes, supply chains, factories, and working conditions.

-1:1/3

-1:2/3

-1:3/3

-2:1/3

-2:2/3

-2:3/3

-3:1/3 -3:2/3 -3:3/3

Behind The Scenes of Technology: Inner Mongolia Rare Earth Mineral Mines Unknown Fields Reconnaissance Team Summer 2014 China 40°39'40.16" 109°50'36.12"
Unknown Fields Division, ¹ a group of architects and artists based in London, organise expeditions around the world to

investigate hidden territories

and reveal their inextricable

in sustaining it.

connections to global capitalist

production and their importance

fig. 3

3

As part of this expedition, Unknown Fields Division visited the Rare Earth mineral mines in the Bayan Obo mining district, Inner Mongolia, China.

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-3:2/3

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Over the course of documenting the global production chain of electronic devices, the group captured the spatial particularities of the Bayan Obo mining area, including the open pits, refinery factories, and the thirteensquare-kilometre tailing dam, a rural landscape hegemonised by the industrial architecture of these toxic operations.

fig.5

5

A series of photographs and the film *Rare Earthenware* (2014), was produced to reflect the group's close encounter with a destructed natural and social landscape, through which they scrutinise inadequate labour conditions, toxic operations, and environmental degradation. This representation of the dystopian territory of Bayan Obo is a heterogeneous aesthetic approach that lies between documentary practice and symbolic re-appropriation of the by-products of the global industries of technological equipment. The various methodologies employed in the processes of territorial documentation borrow elements from Sekula's critical realism,² along with geo-spatial aesthetics to create a unique example of a critical spatial practice that encourages an active questioning of the world around us.

fig.7

7

The project aims at revealing a tremendous ecological catastrophe as a consequence of global capitalism. Intensification of mining operations, loose regulations, small illegal refineries, combined with the environmental impact of the production of rare-earth elements (REE), have caused unprecedented ecological destruction in the Bayan Obo mining district.

1. Unknown Fields (UK/AU) is a nomadic design research studio directed by Kate Davies and Liam Young. They venture out on expeditions into the shadows cast by the contemporary city, to uncover the industrial ecologies and precarious wilderness its technology and culture set in motion. These distant landscapes - the iconic and the ignored, the excavated, irradiated, and the pristine - are embedded in global systems that connect them in surprising and complicated ways to our everyday lives. Unknown Fields make provocative objects and films from this expedition work, exploring the dispersed narratives that coalesce to form a contemporary city. They chronicle their expeditions in a book series titled Unknown Fields: Tales from the Dark Side of the City and their work has been published extensively in the Guardian, the BBC, Wired, New Scientist, and many more, and their projects have been collected by institutions such as The New York Metropolitan Museum, the Victoria and Albert Museum, and the Museum of Applied Arts and Sciences in Sydney.

2. "For Sekula, in the early 1990s, [critical realism] meant realism's recovery from postmodern 'hyperreality', the supposed condition of a pervasive loss of the real wrought by the dominant logic of the simulacrum. For Sekula, a 'critical representational art ... that points openly to the social world and to possibilities of social transformation' remains the only art worthy of an oppositional politics". Bill Roberts, "Production in View: Allan Sekula's Fish Story and the Thawing of Postmodernism", *Tate Papers*, 18, Autumn (2012), https://www.tate.org.uk/research/publications/tate-papers/18/production-in-view-allan-sekulas-fish-story-and-the-thawing-of-postmodernism.

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8

All stages of REE extraction, including

mining, refining, waste management, and disposal, are highly toxic and have severe environmental effects. The extraction and purification of rare-earth ores require material and energy-intensive processes, along with radioactive thorium emissions, which are known for their deleterious effects on animal and human health.



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Almost seven thousand workers are involved in the Bayan Obo mining industry and they are subject to poor working conditions and thorium inhalation. Toxic chemicals and radioactive waste are pumped into the tailing ponds accumulating two hundred million tons of radioactive substance, which in turn have polluted the soil, groundwater, and vegetation in the local area.³ Although pollution is considered to be confined within the Baotou region, it has been recently argued that there is a high risk of a large environmental disaster in the event of an earthquake or severe weather conditions,⁴ as well as contamination of the Yellow River, the principal source of drinking water and irrigation for one hundred and forty million people.

<image><image><image>

3. Jost Wübbeke, "Rare earth elements in China: Policies and narratives of reinventing an industry", in *Resources Policy* 38 (3) (2013), 389.

4. Julie Michelle Klinger, "On the Rare Earth Frontier", PhD Thesis in Geographu (Berkeley: University of California, Berkeley, 2015), 122.

9000 Gunhilde Maersk containers. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith

90% of the world's electronics are produced in Guandong. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith

fig. 1

fig. 2



- fig. 3 Bayan Obo rare-earth mine. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith
- fig. 4 Essential components of electronics, medical equipment, and generators. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith
- fig. 5 75% of the world's rare-earth magnets are produced in China. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith
- fig. 6 A smartphone uses 8 rare-earth elements, creating 380g of toxic waste. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith

One ton of rare-earth elements produces seventyfive tons of acidic waste-water cocktail, mixing acids, heavy metals, carcinogens, and radioactive material. Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith

23700 litres of water to produce one ton of steel. fig. 8 Credit: Rare Earthenware by Unknown Fields. © Unknown Fields/Toby Smith

Lanthanum magnet forge. Credit: Rare Earthenware by fig. 9 Unknown Fields. © Unknown Fields/Toby Smith 151