"Metaplasis": Scenarios for recovery of post-extraction territory of Eordaia Region

CONTENTS

Ilias Vouras

Student number 5859026

AR3EX115/ Explore lab/ Research plan

November 2023

Research Mentor: Heidi Sohn

Design Mentor: Alper Semih Alkan

Building Technology Mentor: Rufus Van den Ban

ABSTRACT

Soil extraction results in different material qualities. Some products, like coal, are affiliated with industry and pollution. Others, such as marble, equal to perpetual wealth and aesthetic. In the region of West Macedonia, in the North of Greece, those qualities coexist in the form of mines and quarries, creating a material network. With starting point the difference between marble and coal, the research investigates extraction practices as a multilevel topic, an ever-growing field where artificial and natural landscape blends. In the possibility of extraction sites closure, questions emerges in regards for the impact in city, environment and humanity sites towards a future transition. Those sites wound create a new archaeology, signs of an era of Anthropocene and a wounded nature.

Hence research circulates around three themes. First it examines the Hinterlands as a system of operations carrying industrial production, following by the sites of extraction and the narratives around them, in pursuit of the spirit of place. The third aspect is a cognitive examination of the human position into those practices. A placement of human through craft proposes a rethinking of materiality and nature as active agents. This affiliation with non-human entities underlines a transition of culture into a caring state, creating an ecosystem sympathy. Goal is to find answers about the recovery of post-mining territories, the revival of this inert anthropogenic environment.
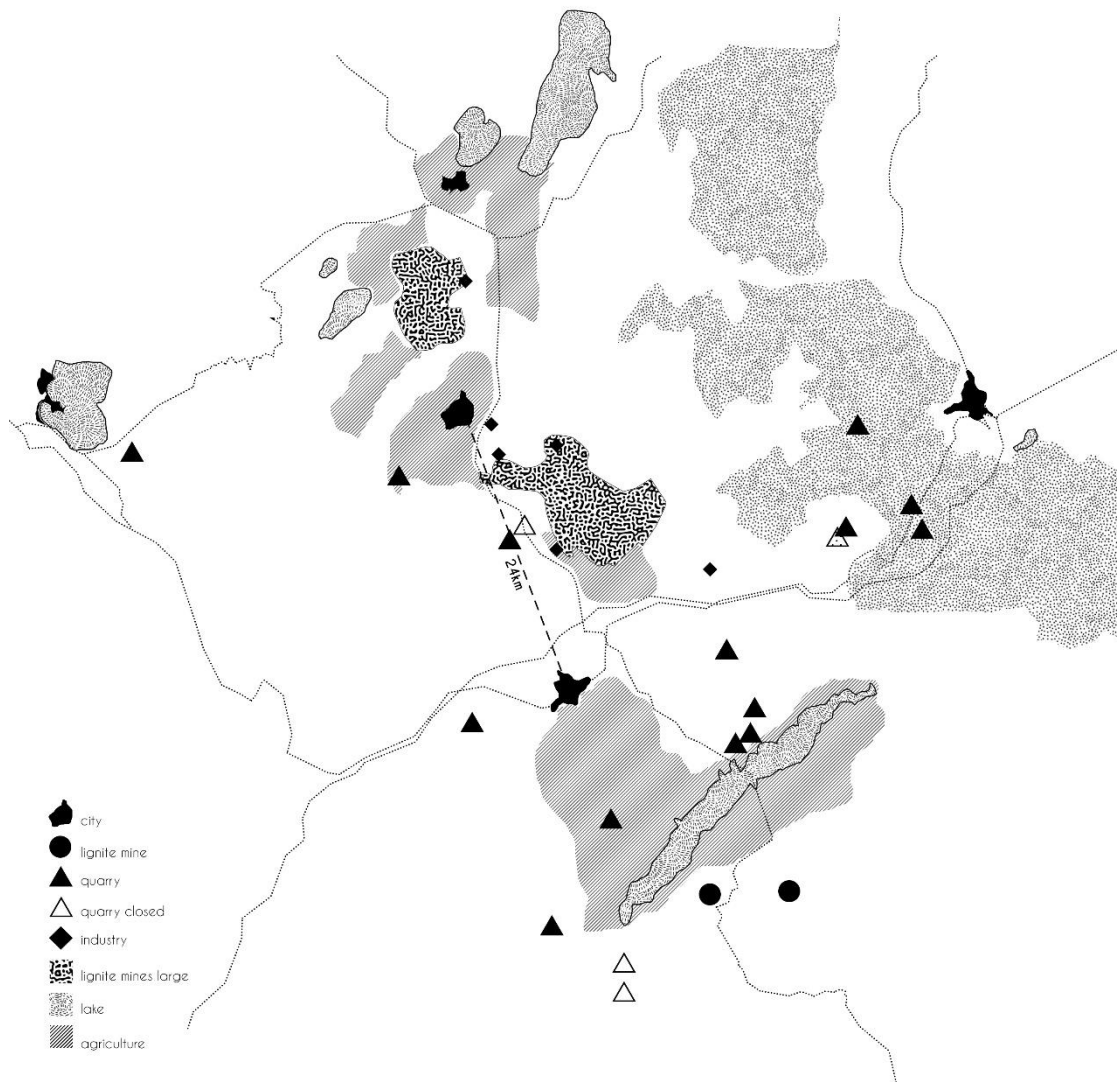
lignite repository
active mines
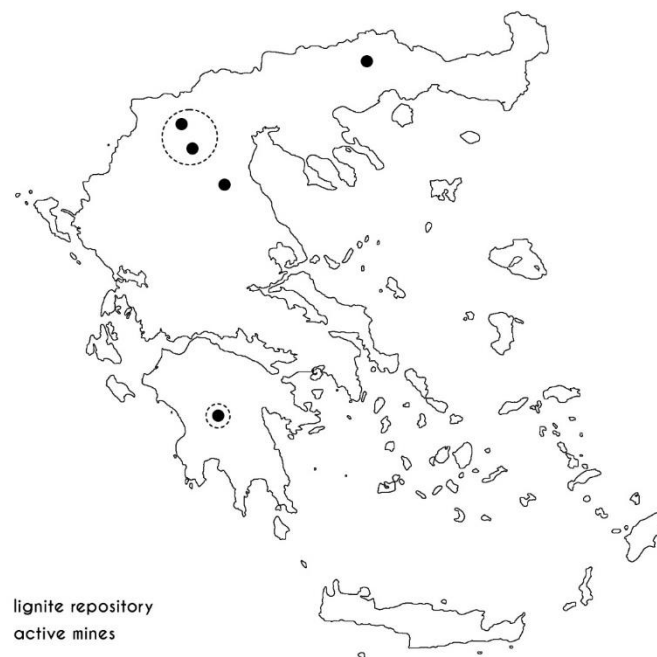
map 1: Map of Greeece with lignite repositories.There are two active mining territories. The largest is placed in the North of Greece.

INTRODUCTION

Today, mining sites like quarries and coal mines, are perceived as degradation sites. Characterized as **"constructed site," Carol Burns argues, emphasizes the visible physicality, morphological qualities, and existing conditions of land, looking at the natural and human forces that have shaped the land. (Sheppard, 2013).** Phases of a mines' life are constructed by technical means focusing on the maximum exploitation as design core. A quarry is successful when extraction is fluid, constant, meticulous, and functional. The notion of extraction repeats until the end of repositories, the death of the extraction site, This notion renders quarrying-mining as an inevitable and irreversible process on the territory, as humanity's' reliance on energy force the process to be ongoing, leaving an alienated space with few possibilities to recover. But what if those sites never existed? Is humanity so reliant to extraction that make it inevitable? How can humanity reverse this potential dystopian future, creating a timeline of productive vector for transformation, a future Arcadia?

In region of West Macedonia, more specifically Eordaia, in the North part of Greece *(map 2)*, a combination of extraction sites are placed *(map 2)*. Coal is the main dominant factor, as the production line carries the third of Greece's energy, giving work opportunities to the region and reforming both cities and environment. Besides coal, marble and other stone quarries coexist in the region creating a material network of extraction. This dense materiality blends with the industrial building shells, giving its own identity to the region. The context seems an ever-growing field, as this dense network of artificial and natural landscapes blends. People of the region have grown up with these industrial sites, which prominent figures stand as landmarks of a heavy production era.

The national government has created a plan for the closure of mines, with only few factories continuing their work with other fuels, effective by the end of 2028. The reason is the end of the repositories, as the region need to focus on its next "post-lignite" period. Questions emerge about the future of those territories and the content of the new period. Project attempts forecast this period and turn it into a productive process for humanity and environment, to carve a new culture with sympathy to natural process. These post extraction sites wound create a new future archaeology, signs of an era of Anthropocene and a wounded nature.

city

lignite mine

quarry

quarry closed

industry

lignite mines large

lake

agriculture

24km

map 2: West Macedonia, specifically Eordaia region, between the two largest cities Kozani - Ptolemaida. An archipelago of extraction sites and industries, a territory focused on extraction

PROBLEMATIZATION –COAL versus Marble

Mines and quarries are sites of human production, participating in an epoch of anthropogenic impact in geology and ecosystem. The exploitation of coal mines has severe connection to this era, as synonymous with industry. However a question emerges about the position of quarries. Quarries are an ancient, primordial form of mining, traced back into antiquity. Even today marble is perceived positively in the Greek imaginary[1]. Its relation to sculpture, architecture and symbol, or Parthenon, contributed to that status. Thus their role is a catalyst of this research to focus on materiality and unravel a different understanding of soil extraction, helping also understand the coal mines. Based on this observation, a small analysis of coal and marble unravels sub questions about extraction. Analysis stands in the hylophormism[2] laws, searching the causality of these stones, their formation, characteristics, typology, temporality, human perception. First conclusion is that coal and marble are different sides of the same practice: extraction. Although they are created by earth formations, their matter and consistence diverge.

Main Question:

How can we recover post-extraction territories?

Subquestions:

Which are the components, operations and hidden data of extraction?

How extraction sites are related to human perception?

What is the future of a post-extraction site and a Hinterland in transition of its mining dependent state?

Can the role of human as a producer, analyst, and architect be rethought in relation to extraction? What role should he take to create a new caring culture?

Could the impact of extraction on environment and society be reversed?
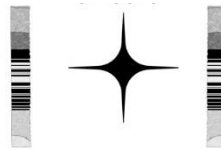
	coal "λίθος άνθρακος" = anthrax	marble "μάρμαρο"= shining stone
perception	cheap factory+industry workman (labor)	wealth architecture craftsman
time	temporal not durable	perpetual durable
Matter formation (potentiality)	sedimentary rock fossil fuel earth layers of strata (coal beds)	metamorphic rock stone earth (temperature + pressure)
form - operation	industry = combustion energy (intangible)	industry , carving architecture (tangible)
products	pollution (combustion) debris, dust, smoke, exhaust, noise	pollution (through excavating) debris, dust, noise

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[1] Marble comes from the Greek word "μάρμαρο" meaning *shining stone*.
[2] According to the Aristotelian term hylomorphism (*Υλομορφισμός = ύλη "matter" + μορφη "form"*) every object is composed by materiality and form.

Humanity is deeply connected with production process, hence the term homofaber, the human manufacturer whose ability to formulate matter is his main characteristic, *"by their factories ye shall know them" (Flusser, 1993)*. Extraction sites are placed in the first step of production, in finding raw supplies for industrial operation. Despite its connection with nature, as products of the soil and geological formations need to be understood before extraction, extraction sites tend to an alienation from environment. *"Material is already a product of human hands which have removed it from its natural location….. Interrupting nature process, in the case of stone or marble torn out of the womb of earth" (Arendt, 1992, p139)*. This sentence depicts the current geological era of unprecedented human dominion in morphology and ecology of the Earth. The term **Anthropocene** was proposed as a subset of the Holocene to describe the impact of anthropogenic forces on geological formations.

Despite humanity has understood the dangers of modernization and globalization, it appears incapable of finding effective solutions. Bruno Latour describes a tension of humanity to return to local, diverging from globalization. However this shift can be made under the modern knowledge, so it's not just a return to the old, but rather a mediating point a combination of local and modern ideas. **This point, or "attractor", is called terrestrial**. (Latour, 04.05.2018) In this form, human and non-human systems are perceived equally, creating a network of relations between them *(diagram 1)*

Bruno Latour implies no subjectivity, as humans act on earth and nonliving things react to this action, reshaping the earth and impacting in the counter back the human actions. His proposal is the end of separation between non-human and human beings and their characterization as entities that are intricately connected to each other. This equality helps human perception, which understand not separate entities but relationships between them. In this notion we can understand materiality and not living things in a different manner. Sites of extraction and their products are not passive territories helpless in human imposition, but rather active entities.

Through their importance extraction sites and their material products, coal and marble, are placed in the center of analysis, trying to understand the conditions that happen around and produced from them. *"The mine generates a set of hierarchies between what is undergrounded and what is accumulated on the overground, and how accumulation is managed across these states." (Yussof K., 2021)*. Taking in account the current state of the extraction sites in Eordaia region, an aging state going to the closure of the mines and end of their repositories, analysis gains interest in the future possibilities of those territories. This research is an understanding of the current position towards the futurity, the things are yet to be done, approximating a modern locality, the "terrestrial" state. Going to that prophesized state, extraction sites wound create a new future archaeology, signs of an era of Anthropocene and a wounded nature. So goal of this project is the restoration of this ecosystem, the revival of this inert anthropogenic environment.
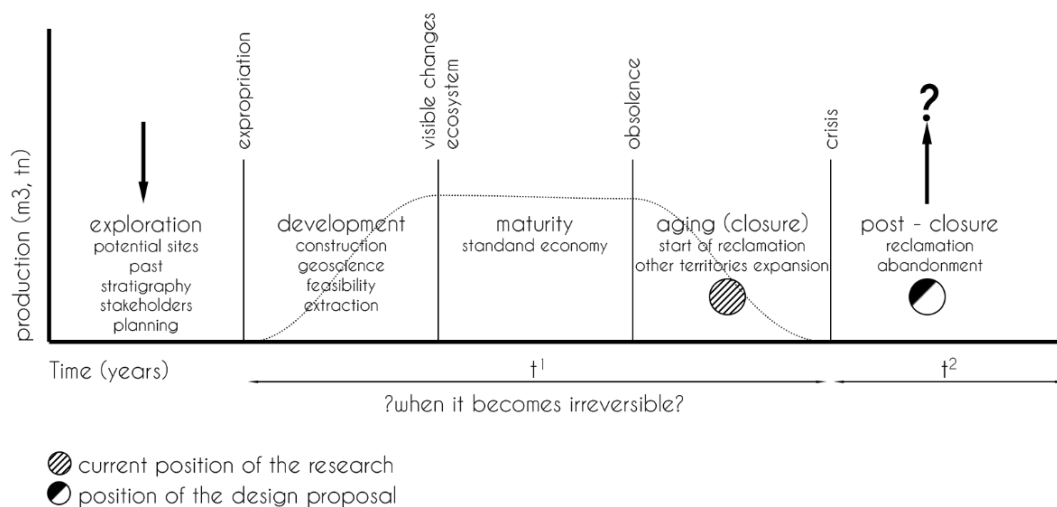

diagram 2 life phase of an open pit mine. In circles the position of research and design. Question is how the future arrow should be placed.

attractor 01
local

current timeline

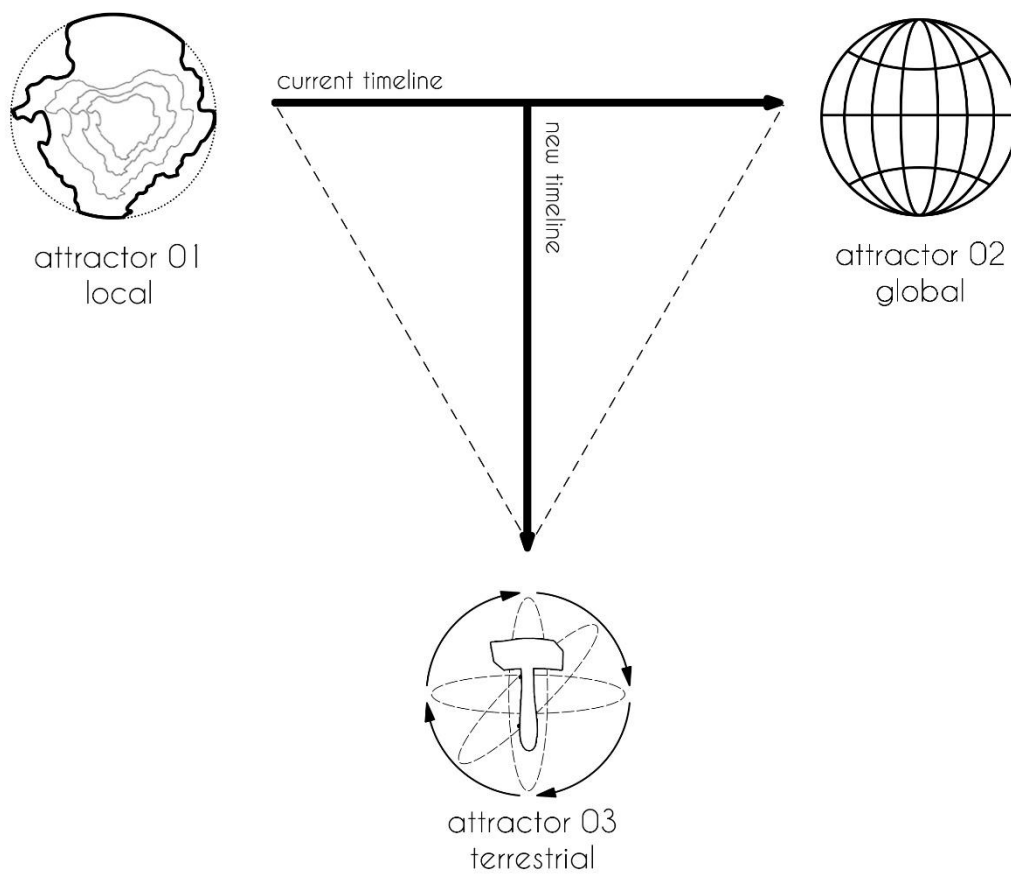new timeline

attractor 02
global

attractor 03
terrestrial

diagram 3 theoritical framework:As from local humanity turned to globalization, a new timeline is heading to modern return to local, the terrestrial. Diagram is based on the lecture of Bruno Latour about Anthropocene (2018)

METHODOLOGY

The present research proposes a combination of three related perspectives. Firstly the analysis of hinterlands, as the regions which carry industrial production. The main analytical tool is mapping based on the case study in the region of Eordaia, *"Revealing new dimensions and extents," (Belanger, p102).* Secondly a scale down view to the actual extraction sites, mines and quarries of the hinterland is the next step. The aim is to find how they work, the hidden data that exist in the soil and relation to human mind, finding the spirit of place.

Thirdly, the last perspective is the role of human in mining activities and materiality. Under the scope of crafts(wo)man, the worker with deep knowledge of materials and connection with tools, the research intends to integrate the architect into the design process of those heavily industrial territories and evaluate his/her role. The three topics do not only represent a scale analysis, but rather a cognitive evaluation of extraction. Based on their oppositions and bonds, extraction is perceived as a system of relations.
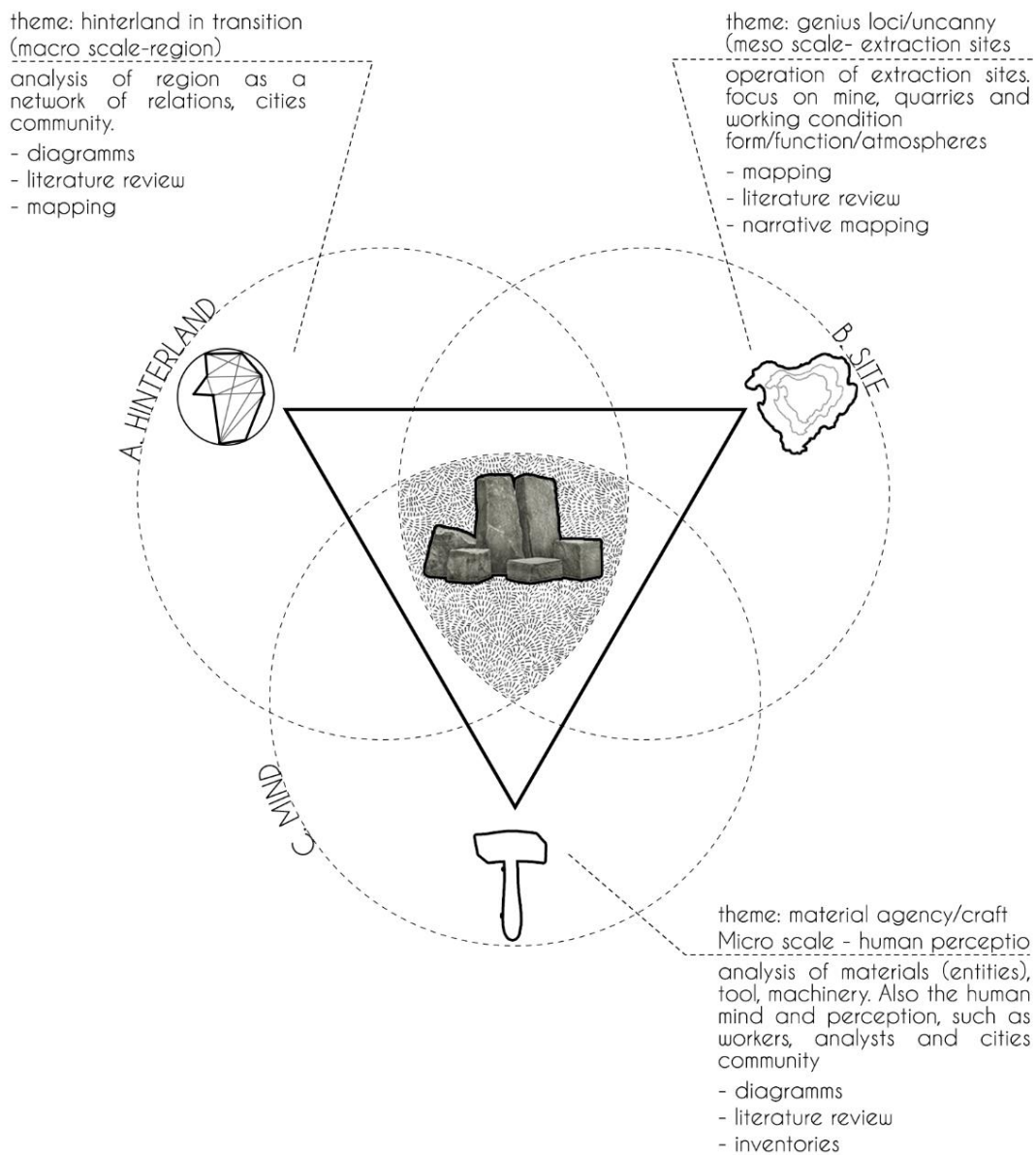
theme: hinterland in transition
(macro scale-region)

analysis of region as a network of relations, cities community.
- diagramms
- literature review
- mapping

theme: genius loci/uncanny
(meso scale- extraction sites

operation of extraction sites. focus on mine, quarries and working condition
form/function/atmospheres
- mapping
- literature review
- narrative mapping

A. HINTERLAND

B. SITE

C. MIND

theme: material agency/craft
Micro scale - human perceptio

analysis of materials (entities), tool, machinery. Also the human mind and perception, such as workers, analysts and cities community
- diagramms
- literature review
- inventories

diagram 4 Methods of analysis: three perspectives HINTERLAND-SITE-MIND

A. HINTERLAND

The term 'hinterland' is used here to **"demarcate the variegated non-city spaces that are swept into the maelstrom of urbanization, whether as supply zones, impact zones, sacrifice zones, logistics corridors or otherwise." (Brenner, Katsikis, 2021, p24)**. Those places are left out of this analysis, as cities remain the core of analytical framework. The term is relevant to the case study, as Eordaia is far away from the Greek coastline and thus, accrues the majority of hinterland traits.

The processes of urbanization are metabolic procedures, in which inflows such as materials, water, labor, fuels produce byproducts in the form of pollution. These inflows are produced mainly in the Hinterlands **"cities are not self-propelled...... The urban process is materialized within city spaces while invariably exceeding them" (Brenner, Katsikis, 2021, p25-26)**. Despite their contribution in this metabolic procedure, Hinterlands are a "black box" left without analysis. whatever happens in their interior remains enigmatic, peculiar or uncanny. It is like a **"terrain vague" (De Sola Morales Rubio I. 1995)** where information is opaque and ambiguous. Thus project searches for clarity.

This section of Hinterland sets the ground for an investigation that starts not in the industrial sites or mines, but rather the interconnected cities, villages, landscapes that take part in this metabolism. Extraction is the aggregate of the secondary practices around extraction. **"When all these practices are functional, coal transforms into commodity." (Mezzadra S., Neilson B., 2019, p139)**. Thus the investigation includes traces that are not only the natural elements of the terrain, but an imbroglio of natural and social processes. Hinterland is presented as a Network of mutual dependent relations *(diagram 03)*, for a holistic understanding of the **"various hidden forces that underlie the workings of a given place" (Corner, 1999, p197)**.

A1. THE AGENCY OF MAPPING

In order to understand the complexities of the Hinterland, a series of maps is proposed. Mapping has the purpose of both discovering, unraveling, digging traits of a region and also find relations among those traits. James Corner characterizes mapping as an operative tool, which *"agency lies in uncovering realities previously unseen or unimagined, even across seemingly exhausted grounds." (Corner, 1999, p197)*. In that sense the project uses maps not only as a reproduction of reproduction of traces, but rather as an operating table for experimentation.

Initial first steps include mapping in both horizontal and vertical directions, as the majority of extraction data is hidden in the layers of soil, the strata. Also thinking in layers helps for an independent analysis, As Lola Sheppard suggests, *"to understand the land as a series of separate strata suggests the possibility that such forces can be understood as operating independently." (Sheppard, 2013, p80)*. A **third step** of the analysis is a **combination** of the different conclusions of the horizontal and vertical maps, a three dimensional field of operations evolving though time and space. This **composite map**, a superposition of the outcomes of the previous mapping, may produce a **heterogeneous volume**, uncovering strata that are not visible with the other fields. (diagram 5)
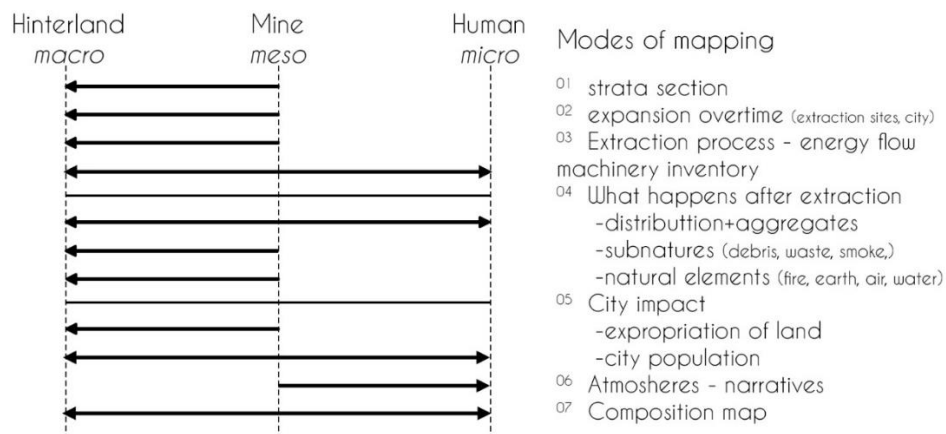

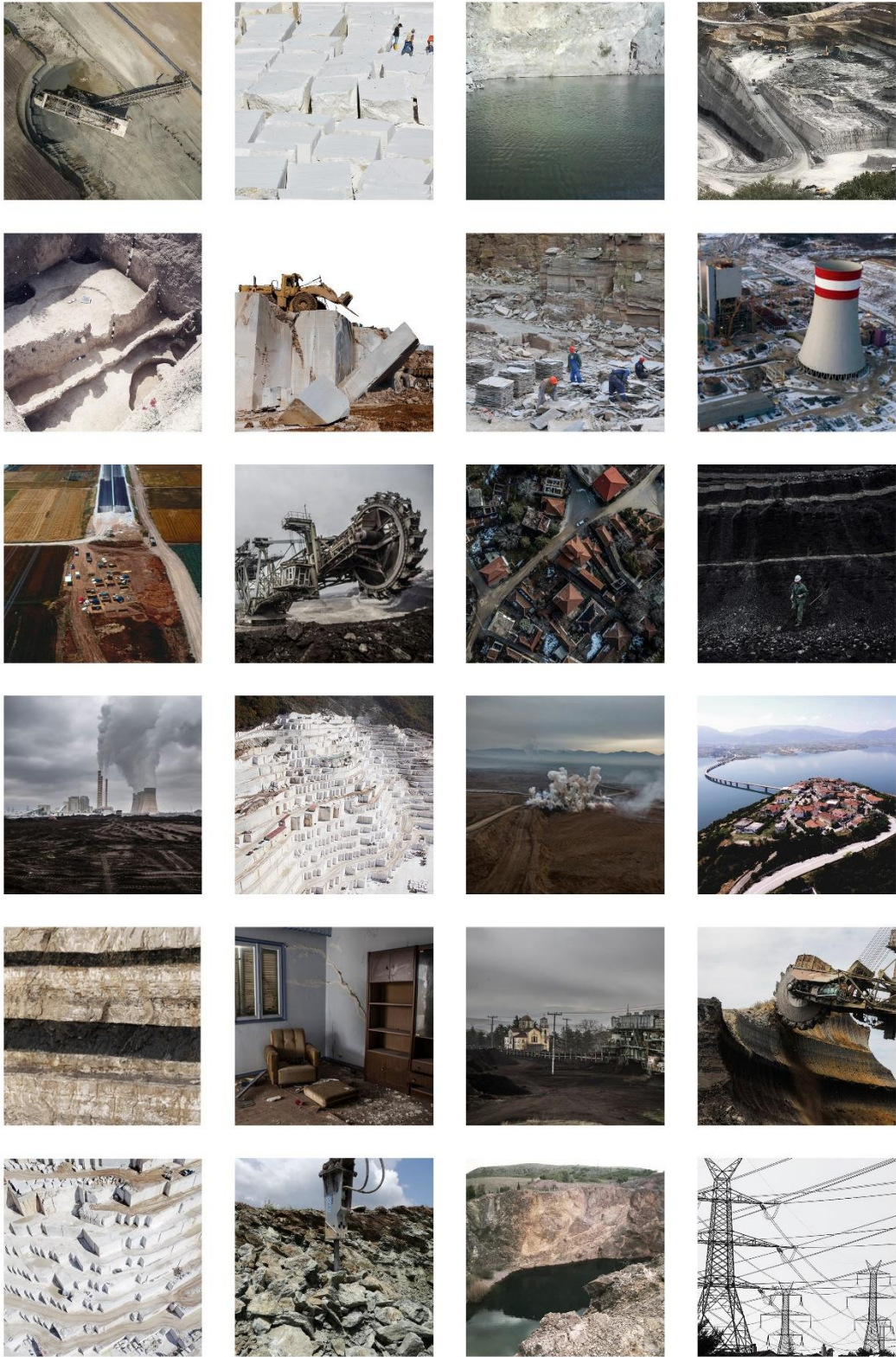diagram 6. Modes of mapping in relation to the three concepts of research HINTERLAND-SITE-MIND

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diagram 7 inventory of photos from the region of West Macedonia. Region as a network of relations

B. MINE: AN UNCANNY ENTITY

As described previously, the mine is characterized as an ambiguous territory. This ambiguity creates an atmosphere, a connection with the human mind. *"Soil is not always what is expected, hiding histories inside its layers" (Yussof K., 2021).* The term uncanny, created by Sigmund Freud and expanded from several writers as Anthony Vilder, Nicholas Royle can be used to give another dimension to those sites and analyses how human mind perceives, senses and gives meaning to those territories. Expanding to this idea, mines instead only analyzed by its operations, they could described from a phenomenological perspective. Goal is to find the meaning of place creating a narrative over sites of extraction.

The subject of the uncanny is related with the subject of aesthetics, a theoretical term associating with experience and the qualities of feeling. It is similar with what is frightening and it is connected with emotional impulses. However there is no clear definition of the uncanny. Freud in his endeavor to describe uncanny resulted in a preliminary conclusion that *"the uncanny is that class of the frightening which leads back to what is known of old and long familiar." (Freud, 1919, p01-p04).* Mines support this atmosphere through the intuitive scope of the Hinterlands' habitats, who learned to recognize mines and their relating structures with their prominent figures as landmarks and symbols of their current living.

The relation of uncanny with myths and tales complement the narrative of extraction. Through the extraction process myths about the past are revealed and new tales are created. Under this umbrella mines and quarries could be understood as archaeological sites, where mysteries about nature and society are hidden. *"Like archeology, which is time read backwards," says Lucy Lippard, "Mines are metaphorically cities turned upside down, though urban culture is unaware of its origins and rural birthplaces.".* Intention of the research is to spot the narratives found into the network of extraction of the case study region of Eordaia. Mapping is used to attribute meaning to places that are described as sites of no locality or no *"topos" (Flusser,, 1993).* This attribution is a proposal to **"become friends with a particular environment" (Schulz, p20),** which later assist in change of culture that cares.
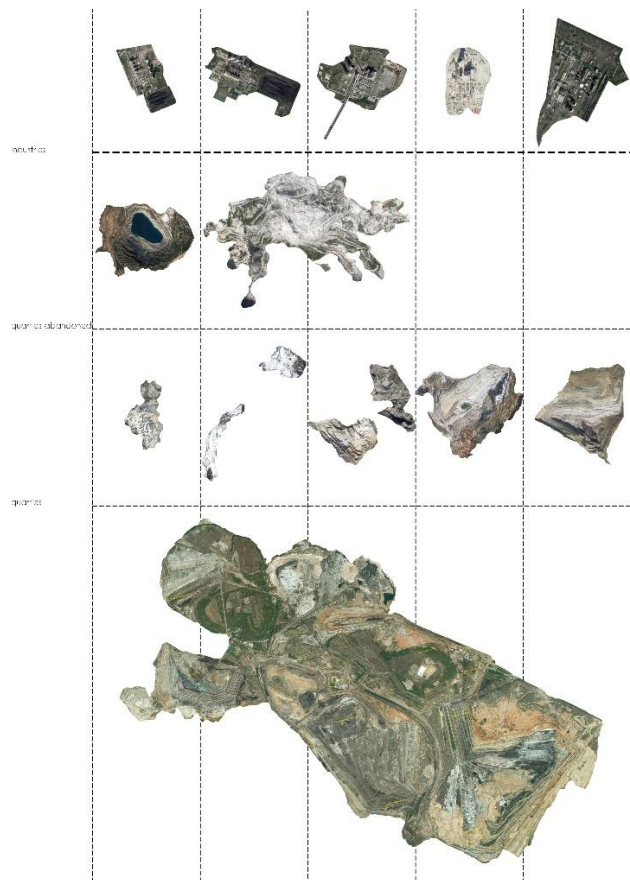

diagram 8 inventory of industries mines and quarries in West Macedonia

C MATERIAL AGENCY

The goal of this segment is to position the architect into a landscape that is constructed by **functionalities of industry**. How a designer can approach mines as a site of analysis. Under the scope of return to local, might the notion of architect could take extra attributes that involve materiality. Assumption of this segment concerns **irreversibility.** Extraction sites are considered places with no future, as after the end of repositories they are redesigned or they are semi reused, left in a mediating point between abandonment and use. If we could reverse the position of the entities that associate with this stagnation, the human and non-human entities, we could find proposals and gateways for mining sites recovery. The proposal is the reconsideration of the role of materials and nature as operative not passive objects. In this transition the participation human is evident, so its role as an analyst should be reconsidered, as the accountable finding the solution to irreversibility.

-Or Do we want to reverse it?

The beginning of the reverse perception of non-human entities could place in one of the most famous stories from ancient Greece, the one of Pygmalion and Galateia. In this myth, the sculptor Pygmalion was so impressed by the detail and beauty of his creation, the female sculpture Galateia that fell in love with it. His love and affection to the sculpture intrigued Aphrodite, goddess of love, who turned it into a woman. Galateia eventually married Pygmalion and gave birth to a daughter, Pafos, which name gave to one city in Cyprus. The story of the breath of life in a statue is encountered several times in Greek mythology, every time with a different meaning.

In story of Pygmalion, the causality of the object reforms, partially defying the hylomorphism laws. The objects becomes alive, obtaining an autonomous existence and intuition *(diagram 9)*. A contemporary approach to the myth recalls for a separate hauntology of the object, capable of producing work. In his system of networks, Bruno Latour implies that object have agency too. The equal approximation of human and non-human as a **"summary of entities mobilized to render long lasting asymmetries"** in order to uniform society turns to the observation that objects change the ways that an action is produced. In this notion objects are active participants in social relations, as **"anything that does modify a state of affairs by making difference is an actor" (Latour, 2005, p71)**
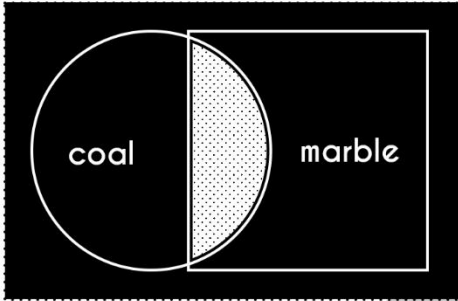
However objects actions are difficult to trace, because of their associable behavior. Hence Latour proposes humans to make objects speak, a sympathy of objects. In other words there is a first observation of the traces, and then an action of revealing. Of course in the myth of Pygmalion the tool of prominence is a divine intervention of Aphrodite, in the network context there should be other ways for this reason project attends to make a tracing and identification of the entities that appear in the three analytical scales, *hinterland-mine-mind*, a form of catalog that filters entities before revealing and understating their actions. (diagram 10*)*

But who is going to bare the role of reconstructing those territories? Who is going to make non-human entities alive?. Hypothesis of the project is a role that evokes materiality, a human close to craft. Crafts(w)man diverges from workman. The term implies a deep knowledge of the materials, a creative imagination similar to the designer and not only a skilled hand which is involved in the constructing process. **"Knowledge that allows him to see beyond the elements of a technique to its overall purpose and coherence.... It is the knowledge in which making and fixing are parts of a continuum." (Sennett, 2008, p199).** The craftsman has a deep attachment to the object, an affinity that derives from a knowledge of material. It stands between art and architecture, design and construction, maker and user, theory and praxis. *(Sennett, 2008, p11. Risatti, 2007, p162).*

entities

	non - Human macro —	Human meso +	mind micro ✕
hubs ○ centers of an action many connections	/	/	/
mediators ◇ aggregates - between actions - links: they change action "transform, translate, distort, and modify the meaning or the elements they are sup- posed to carry." (Latour, 2005, p39).	/	/	/
material agency ↓ non-human become actors "If there is human agency, then there is material agency......there is no way human and material agency can be dis- entangled" (Malafouris L., 2013, p119)	/	/	/

diagram 9: filter- catalog of entities

hylophormilm = ύλη (matter) + μορφή (form)

coal | marble

extraction

perception	{	cheap factory+industry workman (labor)	wealth architecture craftsman	}
time	{	temporal not durable	perpetual durable	}
Matter formation (potentiality)	{	sedimentary rock fossil fuel earth layers of strata	metamorphic rock stone earth (temp+ pressure)	}
form opera	{	industry = combustion energy (intangible)	industry , carving architecture (tangible)	}

stratigraphy

coal
"λίθος ανθρακος" = anthrax

marble
"μαρμαρο"= shining stone

human agency
human

material agency
nature, non human

actuality

matter | form

agent,
process | "τελος"
final

potentiality

Human⁺
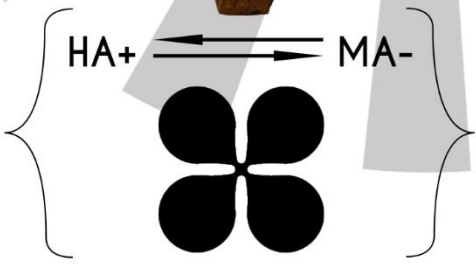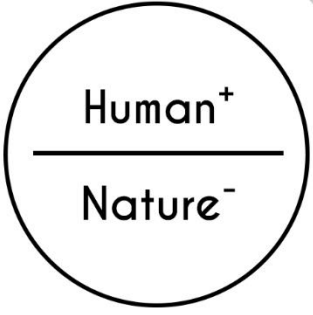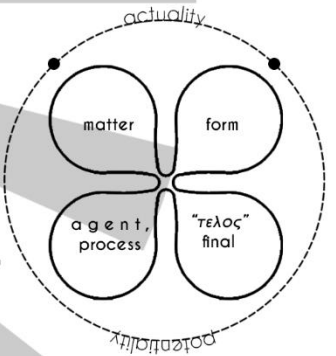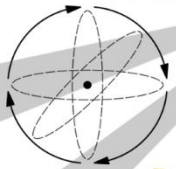───────
Nature⁻

{ HA+ ⇄ MA- }

ENTITIES

diagram 11: poster of relations regarding the muth of Pygmalion and hylophormism. How object can become entities?
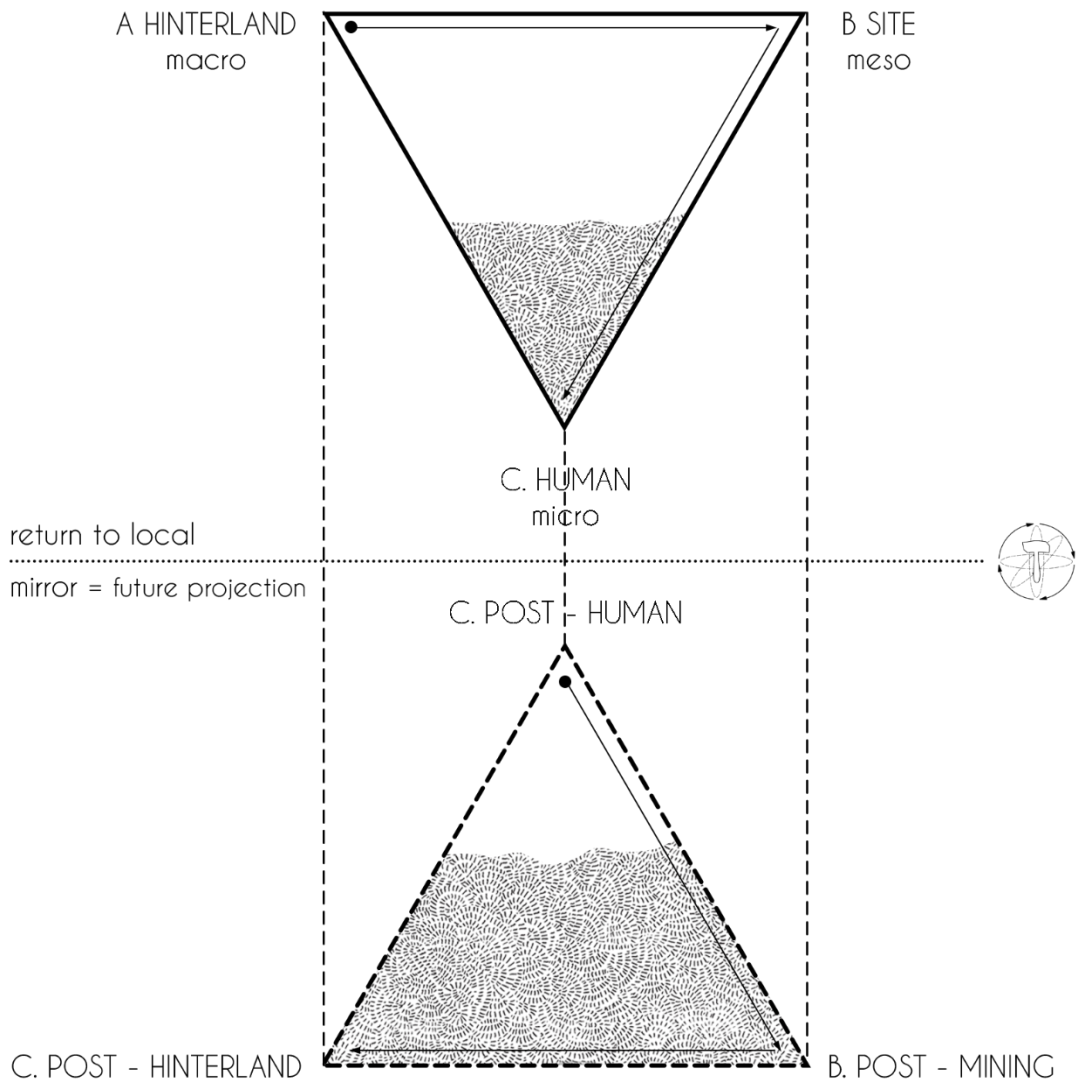
DAYS OF FUTURE PAST

The notion of digging, unravelling the soil layers scratches the parameter of time. "**If mining unearths the exoskeleton of geologic life to produce the nowness of contemporary life, its energy and communication networks, its pathways, it also creates an opening and the passageways of unintended fractures that lead into other undergrounds." (Yusoff K., 2021**) In that sense the temporal dimensions of a mine-quarrying those fissures that mining represents past through stratigraphy, deals with present through its connection with networks, but the question is if it could unravel potential futures. As sites of extraction are dealing with their potential exploitation and end of their repositories, a reversal of the digging method could be a claim for the notion of irreversibility. Digging unravels both past and future.

As the process is formulated, research is a study of the in-between concepts of the networks. The research focus is to locate, identify and comprehend the mediators, the nodes that connect the different layers of the extraction network, and not the nodes that exist in every layer. The study of the uncanny adds to that point, as it is placed between terror and familiarity in human cognition. For this reason also craft comes into place, as something in between theory and praxis, a mediating point. The three scales of macro (hinterland networks), meso (uncanny extraction sites) and micro (material agency through craft), are formulated to create a narrative over extraction.

SELF POSITION – THE TERRESTIAL HYPOTHESIS

Among the topics of the research goal is to construct a narrative over extraction and find gateways for a recovery, to see what conditions are now and what needs to change. The research plan proposes the analysis of fields that are in the grey in between zones, in order to create consciousness of the parameters of extraction territories. Against entropy and pessimism research create a basis for a future design project. The solution to the theme could be a reversal, a mirror, starting from the micro scale and the cognitive reformation, alteration of materiality and designer. The reposition in human mind, a post human cognition could bring solutions to the meso and macro scale, the reclamation of extraction sites and eventually the hinterland (diagram 12). Through this projection in time the research could project possible sites of intervention and type of design project as final outcome, a productive vector towards the futurity.

But what this solution could be? The terrestrial state, a modern return to locality implements an initial look into the past of the region of Eordaia. The local communities were based on agriculture before the great economic potential that soil discoveries brought, changing life of inhabitants. However this solution would be immature, as research claims that a static architectural proposal of a large master plan would leave out essential parameters. Hence the new, evolved architect should be closer to the non-living things and the necessities of the living. Aim is not to propose a fixed state, or a manifesto, of solution, but rather an evolving process of a culture that cares. A sympathy environment and the notions of earth could make these stones, or better dead places, alive

A HINTERLAND
macro

B SITE
meso

C. HUMAN
micro

return to local

mirror = future projection

C. POST - HUMAN

C. POST - HINTERLAND

B. POST - MINING

research analysis a-b-c = design analysis c-b-a

diagram 13 possible design proposal going from research to design analysis. A possible solution to the post mining and post hinterland state through the cognitive and micro scale analysis of the human mind.
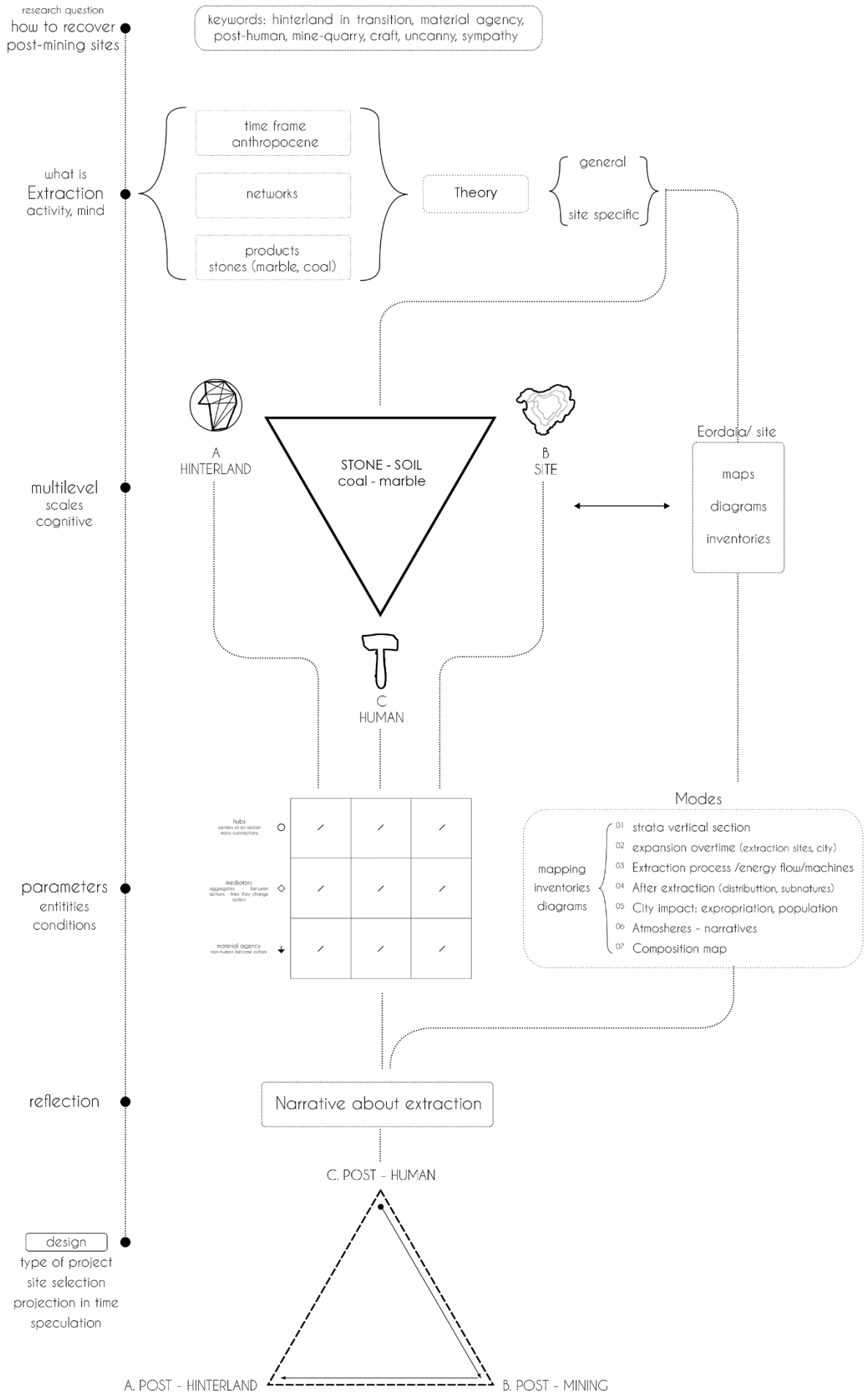
how to recover ●
post-mining sites

keywords: hinterland in transition, material agency,
post-human, mine-quarry, craft, uncanny, sympathy

what is
Extraction ●
activity, mind

time frame
anthropocene

networks

products
stones (marble, coal)

Theory

general

site specific

A
HINTERLAND

STONE - SOIL
coal - marble

B
SITE

Eordaia/ site

maps

diagrams

inventories

multilevel ●
scales
cognitive

C
HUMAN

Modes

hubs
centers of an action
many connections   ○

mediators
aggregates - between
actions - links: they change
action   ◇

material agency
non-human become actors   ↓

mapping
inventories
diagrams

01 strata vertical section
02 expansion overtime (extraction sites, city)
03 Extraction process /energy flow/machines
04 After extraction (distributtion, subnatures)
05 City impact: expropriation, population
06 Atmosheres - narratives
07 Composition map

parameters ●
entitities
conditions

reflection ●

Narrative about extraction

C. POST - HUMAN

design ●
type of project
site selection
projection in time
speculation

A. POST - HINTERLAND

B. POST - MINING

diagram 14 METHODOLOGY

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