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mark caruana

the metabolic periphery

towards socially, economically and ecologically productive operational landscapes in the periphery of Madrid

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research methodology reflection

At the beginning of the graduation year, it was unclear what my research topic would eventually develop into. However, by reading an initially diverse set of literature I was able to focus on a broad theme which intrigued me, which was related to the relationship between urban centres and the unseen hinterland which supplies them. While this was initially framed within agricultural practices, and the ancient drove roads which cut through the centre of Madrid, liking rural agricultural practices to the city centre, the topic eventually evolved into a study into the peripheral operational landscapes which feed the city's metaolic systems.

My readings of 'Unless: The Seagram Building Construction Ecology' (Kiel Moe, 2021), 'Reciprocal Landscapes: Stories of Material Movement' (Jane Hutton, 2019) and 'Drosscape: Wasting Land in Urban America' (Alan Berger, 2006), were especially useful in further establishing the research domain in which I have worked. Through these readings, and others, I developed a generalised theoretical framework which dealt with the systems of inequality and the wasting practices associated with the linear metabolic system by which the city operates, and the speculative nature in which it develops.

figure 1 (page 3)
demolition of a concrete factory in Vicálvaro, replaced by housing (Robert Royal, 1998-2001).

figure 2
an edited illustration of Brunneleschi's perspective experiment. while the sky and clouds above the human figure supply the light for the scene, they are out of sight in an orthographic persepctive. Similarly, operational landscapes
that supply resources for the city, they are out of sight in the object-oriented viewing of the city.
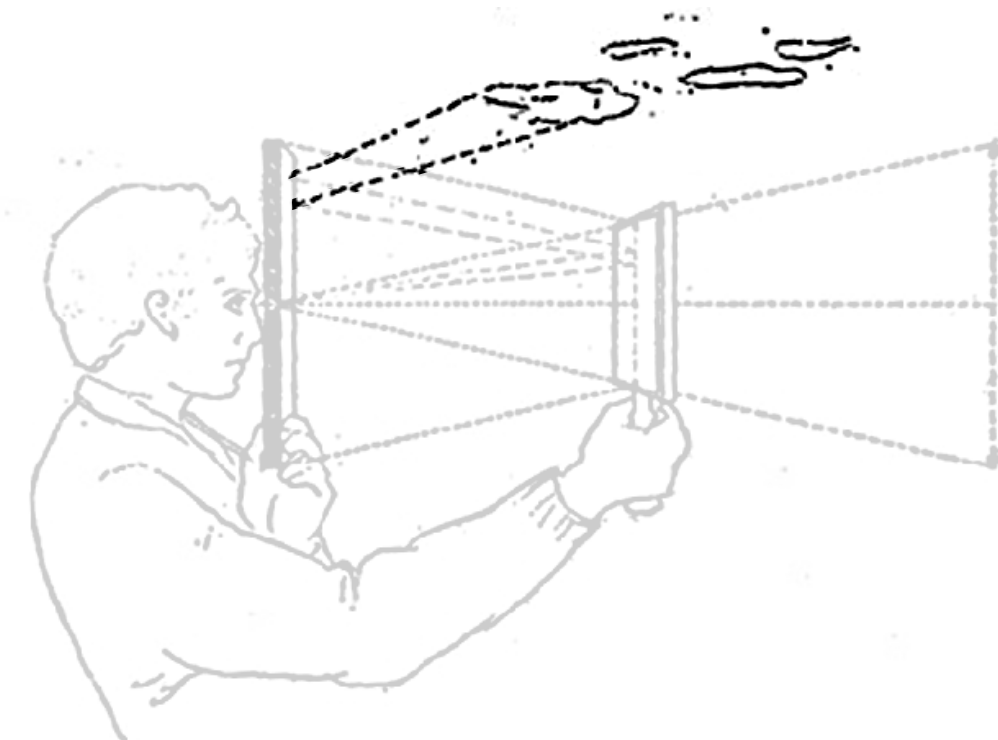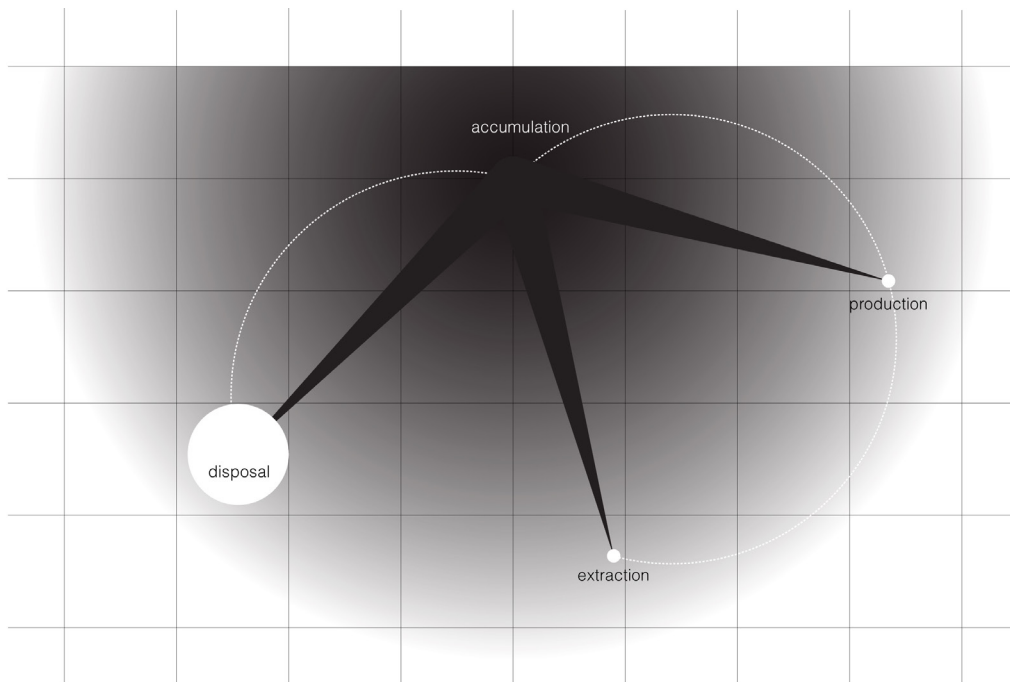
figure 3
theoretical framework: a conceptual diagram showing the contemporary city within the capitalocene, performing an unequal exchange between the centre and its operationalised periphery, simultaneously contributing to wasteful patterns of growth and operation.

This general framework was then applied to Madrid, the studio's site city. I discovered that in Madrid, there exists a clear division between the north and south, in which the north, situated on higher ground, generally is historically and contemporaneously better off than the south ecologically, economically and socially. Initial readings into recent articles, news sources, time spent exploring the city digitally on google maps, and my initial mappings of the city, primarily using QGIS, revealed these global systems I researched within the context of Madrid. I believe that this approach of fist framing my research in global systems and then applying it to Madrid worked quite well for me as by doing so I was able to continue finding more sources of theoretical research, since I already had an insight into the existing literature on the topic. Furthermore, this approach gave me security in the relevance of the research topic, as although I find the city of Madrid interesting, I do not have any personal attachment to it, and my intention for the graduation project was more about identifying a relevant topic of research and doing a project within that, rather than exclusively tying the project strongly to Madrid. Therefore, my approach freed me up to view the city more as a lab in which a design proposal related to my topic can be tested, while this lab could have been almost any major city around the globe.

In my research plan, finalised at the end of the first quarter, I posed a hypothetical research question:

What if the existing metabolic processes of supply, production and disposal in Madrid's periphery could be rethought, and a socially, economically and ecologically productive process could be instated for peripheral communities?

The methods I planned to apply to answer this question were:

1. Primary / Secondary Sources
2. Mapping
3. Cataloguing
4. Precedent Studies
5. Historical Analysis
6. Actor Network Analysis
7. Site Visit

Below is a discussion on the approach and outcome of each method:

1. Primary / Secondary Sources

A literature review composed of primary sources first established my theoretical framework, which was then understood in Madrid's context using secondary sources, a method I found quite productive, as discussed previously. Secondary sources such as journal articles, blog posts and news articles were also used to understand the current symptoms of problem domain on the ground in Madrid. This helped in gaining a familiarity with the character of the diverse neighbourhoods in the city, its important industries, and the city's current events.

2. Mapping

Several mappings were carried out, not only as a method of visualisation, but also as a research tool. Historical mappings helped me spatialise the patterns of wasteful development which continuously take place in the city. A mapping of the city's drosscapes (which I identified as disposal/ extraction landscapes, mono-functional industrial estates and housing developments, sprawling highway infrastructure, operational leftovers and failed speculative developments) helped me to understand their relation to one another and spatialise them, further understanding them within the unequal landscape of Madrid.

3. Cataloguing

Cataloguing techniques, paired with mapping, were critical in identifying potential sites of intervention in an objective and comparative manner, and this also informed the narrative for my design proposal, where I argue that the potential sites of intervention may be seeded by different social and operational processes, and together they could create a resilient network, an alternative model to the

city's current model of development, which segregates functions and continues to sprawl outwards.

4. Precedent Studies

Precedent studies were particularly useful in developing a program and were important in the translation of a somewhat abstract research topic into a more material architectural project.

5. Historical Analysis

A historical analysis was conducted, particularly focusing on the patterns of development in Madrid, which was useful in confirming certain things I was suspicious of and in articulating the project's narrative.

6. Actor Network Analysis

An understanding of important actors was mainly done once a site of intervention was identified. The site was understood on a physical level through mapping and my visit, while the processes associated with it were understood through historical analysis and the identification of actors who have an important role in the site's ongoing processes. This was useful in the development of a programmatic strategy.

7. Site Visit

Visiting Madrid was important for me in grounding much of the research I built up during the first quarter of the graduation year. During my time in Madrid, I visit several neighbourhoods in the south of the city relevant to my research topic. These included the industrial estates in Villaverde and Vicalvaro and the neighbourhoods of Villaverde, San Cristobal, Villa de Vallecas, Vicalvaro and El Canaveral. My visits to these neighbourhoods gave me a deeper understanding of issues on the ground and gave me a window into the social issues present in the city's peripheral southern districts, and their neglect. I believe that this experience was invaluable for the development of my graduation project.

personal reflection

Reflection on mentor feedback and how that feedback was translated into the work.

The questions posed by my mentors at the P2 and during the weekly tutorial sessions helped me constantly reflect on the design choices I made in relation to the research topic I had previously set up. The continuous need to question and reflect on my design in relation to these research topics sharpened my proposal and kept it on track to remaining relevant within the research framework.

What I have learned from the work.

I have learned several things from my graduation year so far. In relation to the topic, I learnt a lot about the systems of material movement, wasting practices and urban metabolism, as well as on the history and development of Madrid. On an academic level, I learned how to conduct this type of research, what kinds of questions to ask which could lead to productive avenues, and how to formulate and articulate a research topic and be able to express a cohesive argumentation from a general fascination to a broad research topic, to a site and eventually to a fully developed architecture project.

figure 4
ongoing construction
project at El
Cañaveral (author,
2024).

academic relevance

1. What is the relation between your graduation project topic, your master track (A, U, BT, LA, MBE), and your master programme (MSc AUBS)?

The graduation project topic is relevant to the architecture track and the master programme as a whole as it deals directly with aspects within the built environment at different scales, from an urban scale to a quite detailed specific architectural scale. The project deals specifically with the proposal of an alternative model of urban development in which social and operational processes may support each other, disrupting the city's linear metabolic model and replacing the speculative, top-down model of urban development with a community-led, bottom-up approach. This requires the integration of aspects of urban planning, coupled with an architectural approach, which is critical if an intervention is made on a smaller scale, and led by community members.

2. How did your research influence your design/recommendations and how did the design/recommendations influence your research?

Initially, the design proposal stemmed directly from the research I conducted, but later there was a certain amount of cross-pollination as the direction the design headed in also informed my research of certain case studies and research on urban metabolism.

3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?

Through the ability of these methods to propel the project forward, motivate me to continue developing it and their ability to bring in relevant information for the elaboration of the project.

4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

A reading of contemporary architectural discourse, as well as contemporary discourse on the city of Madrid related to my graduation topic, allow me to assess the project's relevance in the wider practice and the scope of the graduation topic.

5. How do you assess the value of the transferability of your project results?

The theoretical framework of the project, which was informed by contemporary literature embeds the project in globalised systems, and while the project that I developed responds directly to issues in Madrid, and the site in which it exists. Since I approached the city of Madrid as a lab to test out my ideas within a constructed theoretical framework, I believe that the principles of my findings, and design results may be constructively transferred into other aspects of my practice in the future, which I believe may be highly valuable.