

VISUAL UNDERGROUND CITY ON MOBILITY: A Iconological and Perceptual Phenomenological Cognition of the Underground Infrastructural Space in New York City

Student

Yanjie Liu (4845315)

Chair of Kees Kaan, "Complex Project"

Thesis "Underground Project"

1. INTRODUCTION

1.1 Research-Methodological Awareness: Persuasiveness and Cross-disciplinary

In fact, I always questioned that compared to the research of Mathematics or Chemistry that focuses on physical experimental data, is it that certain qualitative academic researches in a subjective-tend discipline, like design, will be too subjective to get a conclusion which makes the process more like a researcher's own carnival? Nevertheless, the Lecture Series of the Research Methods have solved my doubts very well by demonstrating a systematic and convincing methodology and research process. Valid research questions and effective methodologies can allow people to conduct convincing research and get powerful persuasive result. I began to understand the true meaning of the terms of "approach", "method", and "methodology", and the academic systematic theories involved. My knowledge of the particular methods that can be devised by architectural research has improved and completely changed my perception of the relationship between research and architecture.

In addition, as an interdisciplinary, architecture is a notoriously broad activity, During these lectures, I have seen many disciplines, like anthropology, sociology, and psychology, have a profound impact on the methodology of architecture when people applied some methodologies into architecture. At the same time, the new connotation of this methodology is also expanded.

1.2 The Research on Mobility of Complex city

As a graduate student in the studio of Complex Project, I truly argue that the research should targets all scales of the architectural thinking, from the large scale of global, or the city, to the medium scale of the site, and to the scale of the building, which could be combined by individual design narrative. Through this process, complex architectural problems can be tackled holistically and contribute to the real context in the city.

As a result, depending on the established site, New York City, I quickly found my fascination with underground mobility and decided to focus on how to understand New York City in a dynamic way and explore the fantastic stratified world underground. The whole research is dismantled at different levels with scales, formed three complementary research directions. Exploring New York's Special transportation background is the first step. In the whole typical context, how to understand the different layers of Mobility of New York with vertical and horizontal movement system which has the typical congestion is a key point in the research. The higher the city level, the more complicated the transportation hierarchy and overlaps. Secondly, in the context of the transportation system in New York, the research focuses more on the generation and operation of how underground infrastructure space and future trend. Finally, to a smaller scale, some research will be focused on the character of specific underground infrastructural space, such as the type of spacial combination, the nature of the transition, the public cognition and etc. The whole research tries to seek a specific public spacial form, in the context of future development, that can not only contain the unique underground culture of New York but also resolve conflict in the context of the site like congestion and meet the needs of the site.

2. RESEARCH-METHODOLOGICAL DISCUSSION

2.1 Epistemic Framework

Deal with the complex architectural problems holistically, I have divided the research into different layers,, from city-scale to building space. Different methods are used at different research stages with

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a superposition of multiple methodologies Based on qualitative research, I would argue that for this research methodologies need to be found in the synthesis of iconology and phenomenology of perception. Iconology helps to analyze the cognitive history of the development of underground space in New York, and cultural meanings and historical intentions of the city, And phenomenology of perception is to better understand how people visually recognize the surrounding space in the case of displacement in the city, in other words, how to perform visual recognition of the ongoing displacement.

Before proceeding with the methodology, it needs to be emphasized that the entire research is a context-led research, which allows the context to take the lead in the research process and establishing the primary importance of the physical, social or historical setting. (Lucas, 2016). Especially for New York City, 'context' of this city is so unique and typical that every step of research is based on this premise and from research objects to collection and observation of data are all about how to recognize this city as a whole.

2.2 Iconology theoretical context with Architecture

As a method firstly applied to "interpretation in cultural history and the history of the visual arts", iconology is a methodology which "studies the visual imagery and uncovers the cultural, social, and historical background of themes and subjects in the visual arts" (Straten, 1994). Erwin Panofsky defines iconography as "a known principle in the known world", while iconology is "an iconography turned interpretive"(Tudor,1974). More about social history and culture, iconology tries to reveal the underlying principles that form the basic attitude of a nation, a period, a class, a religious or philosophical perspective (Wikipedia, 2019 Edited).

For architecture, it mainly carries and conveys the spacial characteristics and cultural connotations contained in its own visual form. To pursue "implicit existence" of building forms beyond material functions, iconology is a more precise and effective methodology and the combination of both established the emerging discipline of architectural iconology. It evokes architectural experiences through visual images in people's imagination, mood or atmosphere, and become an essential part of the experiences of spaces, places, landscapes and cities. In the historical coordinates, architecture and other cultural forms co-existed, connected and interacted with each other, which together reflects the historical tendency of this period (Collard, 2005). By iconology, people's mental orientation or the basic attitude of society in a particular period could be reduced to the original historical situation. Therefore, architectural iconology is a comprehensive interpretation. And The most application of iconography is the collating of typical drawings in a different historical period to the development law and cultural connotation with other methodology, like typology.

2.3 Phenomenology of Perception

When people mentioned phenomenology , Qualitative, Subjectivist, Humanistic, Consciousness, Environment is always the main terms to help understand it. As one of the most important philosophical methodology in the 20th century, it has been widely used in various fields. In fact, Phenomenological approach prioritizes how we see over what we see and stresses the primacy of the perceptive subject with the subjectivity of knowledge about the world. (Lucas, 2016, pp.227). By setting aside any prejudgments and relies on own intuition and depending on imagination to uncover the universal or essential qualities of the phenomena, it clarified the essential meaning of the experience. Specific operations include four parts: "An Emphasis on Natural Settings, A Focus on Interpretation and Meaning; A Focus on How the Respondents Make Sense of Their Own Circumstances and The Use of Multiple Tactics" (Lucas, 2016, pp.233).

Phenomenology of perception was put forward in 1945 by the French philosopher, Maurice Merleau-Ponty, with his famous theory of "the primacy of perception" (Wikipedia, 2019 Edited). He emphasized the body is the primary site of knowing the world, and what it perceived could not be disentangled from the body itself. The primacy of embodiment led him away from phenomenology towards what he was to call "indirect ontology" and make his thesis on the phenomenology of perception had spatiality (Wikipedia, 2018 Edited).

3 RESEARCH-METHODOLOGICAL REFLECTION

3.1 Iconological historical context and application

Iconography was first proposed by a Frenchman, Mahler in the later 19th century, then introduced by the German art historian, Abi Walburg in the early 20th century as an important historical method for research in art. The application of iconography in the field of architecture has determined during the Second World War and mainly focused on the study of the history of architecture in medieval architecture in Europe and the United States, involving the issues of typology, history of architectural concepts, and symbolic architecture. There were a lot of achievements in the architectural layout of the church and local symbolic building and provided a practical and theoretical foundation for the application of iconology in the field of architecture.

Tan's research, *The rationalization of underground space in the city: Illustrated Modern Infrastructural History in New York (1870 - 1940)*, could be seen as a good application of iconology in the context of New York. By arranging the construction plans and renderings of New York's infrastructure, he obtained the history and specific cognition of social conditions and transit system at that time. He argued that from the perspective of social significance, the images in the mass media were a mixture of "imagination and reality, criticism and fable, and science and art"(Tan, 2019). Especially for the images related to engineering and space entities, which were different from general visual culture studies, they embodied the history of architecture, cities and technology (Tan, 2019). Therefore, selected from nearly a hundred published images of New York's infrastructure maps which had public influence, the 25 typical representation was used for investigated with their context. Based on this, New York's infrastructure space between 1870-1940 was divided into three categories, underground railway space, underground mass transit hub and underground public pedestrian network (Fig. 1), to describe the transit system of city's culture and value in the context of urban and technical history.



Fig. 1. three categories of images: underground railway space, underground mass transit hub and underground public pedestrian network. Retrieved from Tan,Z. (2019). *The rationalization of underground space in the city: Illustrated Modern Infrastructural History in New York (1870 - 1940)*. Time Architecture, (5), 4.

3.2 Phenomenological historical context and application

Since the 19th century, architectural research has traditionally borrowed the traditional methodologies of art, in which researchers have personally deduced depending on the collected materials. The

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application of phenomenology was to ensure that the researcher had direct experience with the subject and avoided the interference of personal prejudice with introspection.

As the founder, German philosopher, Edmund Husser put up the thesis of phenomenology in the 1910s and then the phenomenologists who have the most influence were German philosopher, Martin Heidegger, and French philosopher, Maurice Merleau-Ponty, and the latter one had more influence on architectural theory by proposing phenomenology of perception with the concept of spatiality. Ponty believed that space was not the place where things are placed, but the way in which direction was positioned (Miao, 2019). Latter, Norwegian architectural theorist, Christian Norberg-Schulz defined architectural phenomenology (Peng et al, 2019).

Based on this, the application of phenomenology in the scope of architecture is very extensive. British urban design theorist, Gordon Cullen has studied certain specific urban scenes by phenomenology. His book, *Concise townscape*(2012) is actually a note made up of many reports of his own observations and feelings of these scenarios with images to make readers experience it indirectly.

Besides, by phenomenology, Gordon Cullen also creatively explored a sequential experience of architecture in *Townscape* and gave “visual coherence and organization to the jumble of buildings, streets that make up the urban environment”. By investigates the dynamism of space in a series of perspective drawings with serial vision (Fig. 2), he aimed to capture the altering perceptions one experiences in contracting and expanding spaces (Cullen, 2012). In this way, the city became coherent drama for people who read in this book.

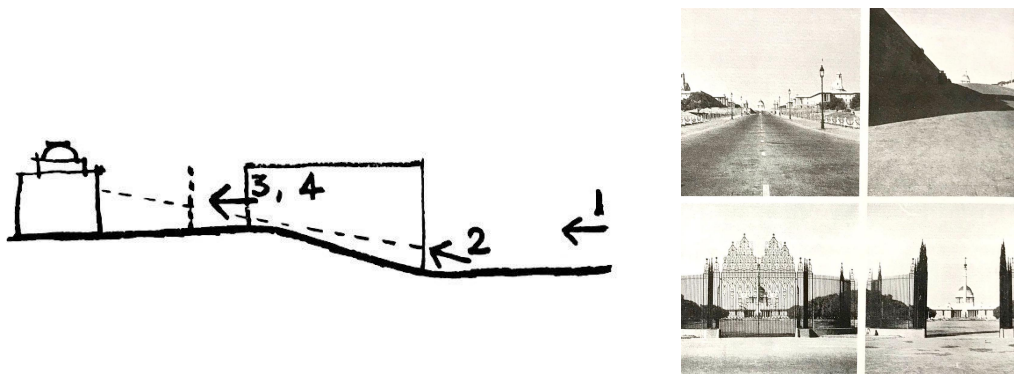


Fig. 2. the serial vision of a street. Retrieved from Cullen, G. (2012). *Concise townscape*. Routledge.

3.3 Critical positioning in regards to the selected methods

However, when applying the methodology of phenomenology, we must always pay attention to the special context, and be alert to subjective experience under a direct response to the environment by ourselves. During my field trip in a community park in New York, as an adult visitor, my subjective experience of this park was totally was terrible: the site was too empty with shelters, lack of security and privacy, and the black rubber round pavement was too monotonous and soft. Interestingly, the experience was opposite with the surrounding residents, for there was indeed an ideal parent-child space: for parents the open-vision park was good for visual monitoring of children when they played around; for children, the soft floor covering prevents and less back set protecting them while playing. In this case, it is necessary to look at the real context, avoid the interference of personal prejudice with introspection and modify the subjective experience of the environment from the perspective of the user, like interviews and recorded video.

4.POSITIONING

Using these two methodologies, I conducted my research basing on special case studies, observation and collection of data, etc.

4.1 Iconology in The underground space of New York

highlighting the value of visual representation for underground, I have reclassified the underground space images of New York. Mainly drew by interlude, architect, engineer, most images focused on three parts, spatial organization, technical performance, expression of vision. On one hand, based on the existing infrastructural thesis from Tan, I have put the Integration of images on timeline into the macro context which was in my first research, the typical context of different vertical and horizontal layers of New York's Transit system, and got the conceptual summary about the development process (Fig. 3). The significance is to simplify the evolutionary process which is a reference for predicting future development in transit in the context of New York.

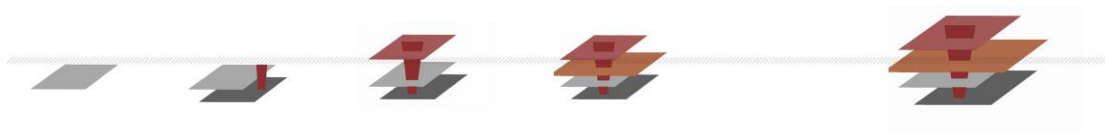


Fig. 3. Four processes of the rationalization of underground infrastructural space. Source: author's own photograph

Back to the site, nowadays the distribution of traffic density and congestion is extremely uneven. What's more, the pedestrian flow brought by the upcoming Second Avenue subway will be seriously conflicted with vehicle flow brought by Queen tunnel in a certain place. At least three layers (car, subway, pedestrian) of the horizontal transport system will meet here, which means there will be a new transit hub in the later stage.

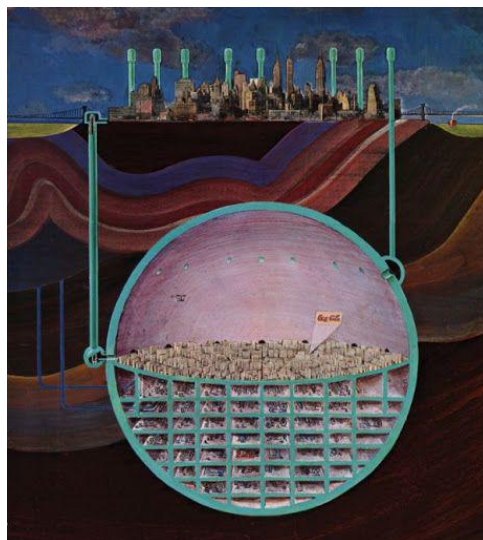


Fig. 4. sci-fi solution of underground city of Manhattan. Retrieved from:
<https://www.atlasobscura.com/articles/one-architects-spectacular-vision-for-a-spherical-subterranean-city>

On the other hand, different categories of images represent different cultural intentions and perspectives on the vision of the New York transportation system at that period. Different with the

research of Tan, who was most interested in images of spatial organization, technical performance, I pay more attention to the images of expression of vision and published in both newspapers and magazines with a media meaning, which could better reflect the general public perception or longing for the underground space or cultural connotation of New York. In this way, understanding the fantasy and cultural implications of New York's underground city through iconology could be more interesting. For example, this fantasy map (Fig. 4), printed by an architect and city planner in New York, Oscar Newman, in 1965, proposed a sci-fi solution to creating more space in Manhattan after learning that an atomic test in Nevada had produced a massive underground cavern. Next step could be collecting this category in different periods and exploring the infinite possibilities of underground space in New York, to find the social events and cultural sense behind.

4.2 Phenomenology of Perception: Serial vision of mobility

Inspired by Cullen, the methodology of perceptual phenomenology is used to understand how people visually recognize the surrounding space during the process of movement in my research.

"Therefore, if we design our towns from the point of view of the moving person (pedestrian or car-borne), it is easy to see how the whole city becomes a plastic experience, a journey through pressures and vacuums, a sequence of exposures and enclosures, of constraint and relief. Arising out of this sense of identity or sympathy with the environment, this feeling of a person in street or square that he is in it or entering it or leaving it." (Cullen, 2012, p.10)

For me, underground infrastructural space is the ignored public space which is extremely variable and fluid with different types of spaces and experience. It is not only a connection between different urban space but also the place where urban life happened. As urban public space, what is the significance and role of this space besides connecting different levels of traffic? How to effectively recognize this kind of space to get enough sense of sequence and make it play a positive role in the life of New York City? The essence of the movement is the shifting of different qualitative space. Therefore, the research could mainly take serial vision to perceive a series of scenes, and then analyzes them visually. Through the mapping of streets, subway station and transition under the context of New York, I try to record and perceive the shift, or jump between different spaces. Another interesting question will be put up later: for space has influenced people's perception and behaviour, does the rapid shift between different spaces bring cognitive confusion for people who experience these context? When the speed is fast enough, even ridiculously, will there be cognitive confusion as follows: a bed in the library? a study desk in the restaurant? a swimming pool in the auditorium?

Back to the research, through the serial vision under phenomenology, how to gain the consciousness of efficient shift and comfortable qualitative space will be my next research direction.

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