

# USING TYPOLOGY TO READ A CITY THROUGH FRAGMENTS

## Typological research on urban space shaped by an invisible river

Chenqi Zhang (4895916)  
Chair of Urban Architecture, "Spolia"

## I INTRODUCTION

As a multifaceted discipline, the nature of architecture is knowledge, which is intimately related to the way we use the space<sup>1</sup>. In professional architectural practice, architects grow their knowledge through research. Precisely, there is a hierarchy of relationships between architecture, knowledge, and research: Architecture is an ontology concerned with "what a thing is". Considering that this is a constantly developing knowledge, including notoriously expansive activities, it's helpful to follow the epistemology to dig into its genesis, essence, and development. The awareness of epistemology provides us with a set of systematic perceptions of the world, consciously guiding the research and design. Following epistemology, research is a tangible tool that supports architects to expand their knowledge.

As stated above, it can be deduced that research is a fundamental step that runs through the entire architectural practice that could help to build up a robust knowledge framework and clarify personal intention. Ultimately, it would reflect in the design. To practice in a more verified manner, architects use methodology functions as a critical basis in this process. Thus, research-methodological awareness is the core when researching because it makes people perceive what to think about and how to carry out it.

The series of lectures roots this research-methodological awareness in my mind so I could conduct the research for the graduation project more systematically. As Lucas said, "Disciplines rarely benefit from working in isolation, particularly when it comes to research: different perspectives allow you to think differently about places."<sup>2</sup> The interactive talks let us know diverse kinds of methodology as more as possible that we can choose suitable ones by critically comparing. Additionally, the readings are complementary to the talks. For instance, Lucas and David both wrote about relevant definitions, concepts, theories of research, and present actual applications of different methodologies. Nonetheless, the lectures are livelier and more state-of-the-art from a personal perspective. Personally, the most intriguing part is about the cases given by lecturers and the different ways they talked about something. For example, in the "On Types and Typology" talk, Robert shed light on a series of confusable words to us via vivid images and diagrams, which made me distinguish them easily. Additionally, the alluring development from mimesis in the genesis of type to typology attracted me to use typology as the methodology for my research. About "how to read places", Klaske Havik showed us the Bruder Klaus Field Chapel as a case, where I've been to before. Thus, it's easier for me to get the point of phenomenology because it arose my empathy. The historical-theoretical perspectives in every lecture highlight critical thinking and enlighten my research and design logic.

As mentioned above, Robert evoked my curiosity of type and typology that I decided to use it for research. This thesis will be conducted in a typological view, carrying out the study of the "invisible" river Senne in Brussels. For the reason that the majority of Senne has been covered, the actual research would be more about the urban space shaped by Senne, although the theme of the research is the river itself. The research question is to explore how the current Brussels' urban space was shaped by the invisible river Senne. The purpose is to figure out the treatment of the river's trace, reflecting on architecture design. The theme of our studio is "spolia", which means the left-overs of a building or city. Though It is an archeological term, the studio promotes divergent thinking and invites us to use different research methods on particular research topics.

## II RESEARCH-METHODOLOGICAL DISCUSSION

Different from the research on a regional scale, the Senne should be read on an urban scale. The river, once a major river running through the center of Brussels as well as the project site, is now predominantly covered. How the invisible object impacts urban layering, patterns, and public space? It is inevitable to think about the city, memory, and history. Actually, in the 1950s, typology has been developed into a research method for conducting urban research and design: the Italian architects related typology to locus and collective memory when researching for urban reconstruction at that time. Rossi believes that "the history of the built environment can be analyzed in terms of typologies."<sup>3</sup>

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Typology is used to realize and analyze the process of urban evolution and could prompt architecture design and urban planning. Thus, typology is the most appropriate starting point for the research on this scale.

According to Lucas, typological research is carried out in context-led research, so it is needed to embark on fieldwork to collect information about the context. Based on it, different related tools or techniques would be used for typological research, which would be illustrated as below.

Before the on-site research, we did historical research on the river and used mappings (Fig. 1) to trace its original course. By overlapping the mapping with satellite maps, 30 spots were selected for the reason that the urban grain revealed the relation with the trace of Senne morphologically. Then, the diagrams (Fig. 2) for the thirty spots were illustrated, such as plans, sections, and axonometric drawings because these spots would be the case studies for the fieldwork. Categorizing has been subtly present in this process because the different scales of spots were comparable via diagrams, such as the industry blocks and the residential blocks. Putting the diagrams together is a unique way to read Brussels through the Senne. A collage of the river and the city has emerged in this way.



Fig. 1 Mapping of river trace

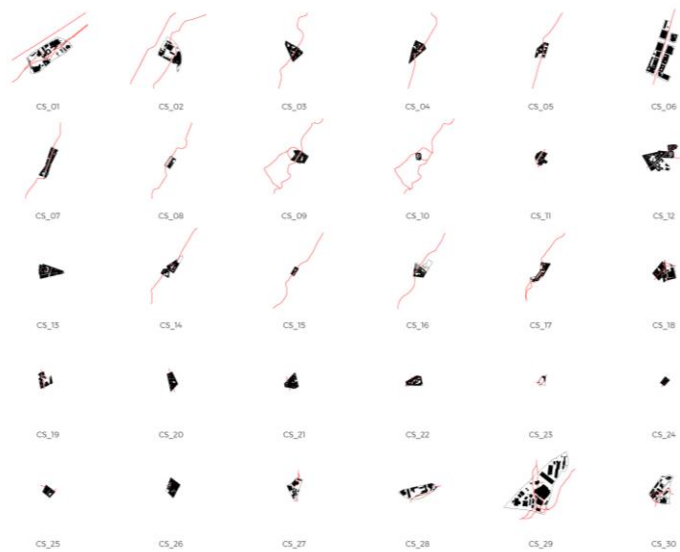


Fig. 2 Diagrams of selected spots

The research on-site was an expedition from north to south following the trace of Senne. On the thirty spots, an enormous amount of objective documentation was recorded, such as photos and films. This sort of qualitative data could support the following typological research. From the etic perspective as an observer, I kept the typological thinking that I tried to record some similar things at different spots such as the chimneys which reappeared several times. Additionally, practical information which could not be obtained online was easily found during fieldwork, especially the three-dimensional ones such as the facades forms and elements on site. The river has become guidance navigating me to figure out the fragments that have historical traces so that the city could be read in time and space.

After back, the catalog (Fig. 3) was made, which showed the elementary characteristics (such as programs or the edge condition) differing from case to case. It was a step to narrow down and sort out the overall materials. As Moneo said, "Type is fundamentally based on the possibility of grouping objects by certain inherent structural similarities." Though whether the categorizing dig into the inherence needs to be verified, it was the first try on typology at least. Based on the catalog, a "Trace & Edge condition" matrix (Fig. 4) visualizing the records from fieldwork came into being: the spots were sorted by edge conditions, and the similar "forms" shaped by the trace of Senne were put together. For example, some blocks were obviously separated following the trace of Senne, while some covered spots were coincidentally turned into the park. The typological process provided a robust tool for identifying and analyzing the valuable elements.

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	edge condition				event		programme			memory		
	outer	inner	reversed	permeable	activity	movable	leisure	production	infrastructure	formal	transformative	traces
CS01	•				•		•		•		•	
CS02	•				•		•	•	•	•	•	
CS03			•	•	•		•	•	•	•	•	•
CS04			•	•	•		•	•	•	•	•	•
CS05			•	•	•		•	•	•	•	•	•
RCS06									•	•		
RCS07									•	•		
CS08	•				•	•				•	•	
RCS09									•	•		
CS10		•		•	•	•	•		•	•	•	
CS11	•				•	•			•	•		•
RCS12					•	•			•	•		
CS13		•			•	•		•	•	•	•	•
CS14			•	•	•	•	•	•	•	•	•	
CS15		•			•	•	•	•	•	•	•	•

Fig. 3 Catalog of space conditions

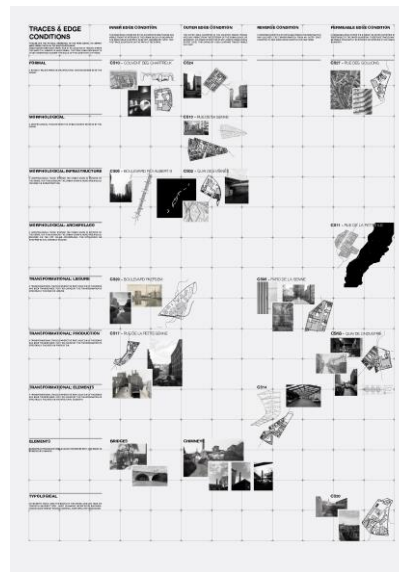


Fig. 4 Matrix of "Trace & Edge condition"

However, sorting out different situations is a mere representation of formation. In order to arrive something new and meaningful, the processual abstraction was essential for typology. That's the reason for making models of elements, which were selected and abstracted from the matrix that related closely to the trace of Senne. On the one hand, elements as "types" represent the sequence of the city; on the other hand, it would be heuristic for design when re-composing the models. In a personal view, the most substantial purpose of typology is to practically generate new things in response to the context by discovering the general rule from diverse forms.

Typological thinking has been broadly used in architecture research and design. For instance, by typological methods, Saverio Muratori, Gianfranco Caniggia, Augusto Cavallari Murat, and other Italian architects analyzed cities in the post-war period, to explore the possibility of relating history with reconstruction practice. As for architectural design, typological thinking is indicated in the projects of Oswald Mathias Ungers, Louis Kahn, and Mario Botta. It has been proven by precedence that typology is an effective method from research to the conceptual design. Nonetheless, the emergent challenges cannot be denied when typology research facing dramatic developing cities. For instance, the typological research on some Asian cities might be hard to conduct due to the vastly diverse urban grain coupled with the spontaneously-formed architecture morphology throughout history.<sup>4</sup>

### III RESEARCH-METHODOLOGICAL REFLECTION

Different from taxonomy, typology is more than classification<sup>5</sup> that it is a method to recognize and analyze architecture because people are always curious about the essence of a thing. As Aldo Rossi said, the type often seen as "the very idea of architecture, that which is closest to its essence."<sup>6</sup> Types are the core of architecture as well as a city, related to various forms and social relationships determined by people.

After sprouting in the 15th century, typology gained much momentum during the 1960s, as a reactionary response to the crisis brought by modernism after World War II. It seems that after a kind of revolution, nostalgia would always be triggered, and people had an interest in re-engaging with history at that time. As present in the lecture that the genesis of "type" was a process from mimesis to geometrical projection and finally achieved its concept. This turning from natural perception to scientific rationale is similar to the history of typology. In the article On Typology, Moneo has clarified the historical development of typology about various schools' debates. The history of typology could be summarized into three phases, which would be illustrated as below.

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In the first phase, typology was inspired by nature and attributed the development of architecture to its archetype. The relation with nature was clearly shown in the "illustration of a primitive hut" by Marc-Antoine Laugier. Then, Quatremère de Quincy defined "type", which could function to link architecture with the past from his view: "In all countries, the art of building is born out of a pre-existing germ."<sup>7</sup> While in the 19th century, Jean-Nicolas-Louis Durand shifted the focus to composition, which can be found in his comparative chart "Ensemble des Edifices". Concentrating on the relation between form and function to meet the need for production, he defined type mere compositional and schematic. In the second stage, the new idea of type was totally different from the previous concept that the type had become the prototype in this period. For example, Gropius thought history was dispensable for design, and Le Corbusier's Radiant City revealed his belief of architecture as a typical instrument.<sup>8</sup> The uniqueness and adaptability of the context were rejected that architecture was nothing but mass production. Type (refer to Quincy's definition) is based on historical and processual thinking, while modernism or functionalism is utopian. Such confrontation is even visible in contemporary society. The third phase linked typology with humanity and historically dig into the essence of architecture or city. In the 1960s, this stage started with exploration to historically read the formal and structural continuity of cities against the past failure. For instance, Giulio Carlo Argan more systematically interpreted Quincy's concept of type and made typology more pragmatic<sup>9</sup>; Rossi associated typology with urban morphology and pointed out that type was inherent in architecture. Later on, Alan Colquhoun established ties between the society with architecture.<sup>10</sup> At this point, "type" was no longer just a representation of the inherent autonomy of an object, but a vital element evolved from the process of history, closely connecting with the public realm and their integral position in society.

By learning from the historical evolution of typology above, it is evidently found that typology kept its vagueness<sup>11</sup> but turned its connection from nature to the pragmatic society, indicating that the type needs to be researched in a specific contextual and cultural background. This instruction is highly relevant to my research that the catalog includes events, edge conditions, and so on. Apparently, the type cannot be isolated from the context and social. It is significant to make a contextual analysis of the type to achieve the possibility of creation instead of simple classification. Throughout the whole research, I always kept this typological thinking, paying attention to conduct analysis in such specific contexts as well as reflect on the context.

Apart from inspired by the tendency of typology evolution stated above, different schools in history also impressed on me in various ways. Relating to research, I would explain by comparing it with precedents. As an example, Saverio Muratori used typological mapping to research the urban fabric in Venice<sup>12</sup> and linked the individual elements with the overall form of the city. This thinking is highly connected to my research: use the Senne river as a tool to read the whole of Brussels. "Types" being abstracted from my research spots could be thought of as a fundamental structure to discover the continuity of a city. As for Rossi, the analogy was what he used to discern the generality of the built environment from its inevitable vagueness.<sup>13</sup> Similar to his work "La Città Analoga" (Fig. 5), the reconfigurable models (Fig. 6) are my attempt to use the analogy to explore new urban scenarios. Each single element model could be thought of as an extracted type that could reflect on design. Rossi's typology process was often presented as a fragment of history, focusing on the form and atmosphere of space that can be transplanted. My intention is also to delve into the possibility of transplantation through typology, to verify what to keep or demolish in design.

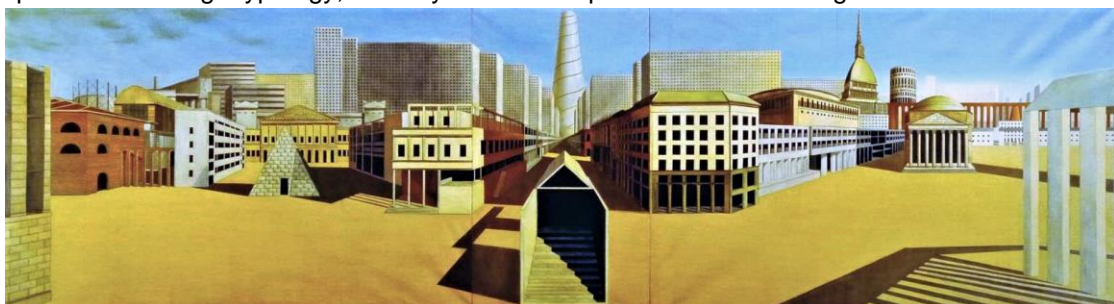


Fig. 5 La Città Analoga<sup>14</sup>



Fig. 6 Reconfigurable models of fragments

#### IV POSITIONING

While looking back on the whole typological research, it is clearly found that typology does not focus on the classification or definition of the "types", but aims at clarifying the vagueness and homogeneity hidden behind the architectural forms. The inherent essence of architecture unifies the continuity of the city culture and provides the possibility of logical innovation. That is also what Rossi believed: "Typology is the essence of architecture."<sup>15</sup> Type is the architects' abstraction of historical forms. Typology helps us to dig out collective memories, abstract forms, and find the connection between forms and life.

Relating to my research, by classifying diverse urban spatial morphology under the influence of this invisible river, several forms were extracted with common characteristics. The forms include urban space or tangible objects that revealing the imprint of Senne. Abstracting them into types could help realize a possibility: the type might be transplanted to the site for design projects and be developed into a specific form according to the context. This process would bring the memory of Senne to the form.

It is unavoidable to confront difficulties while conducting the research, but I solved them under the help of the positions I adopted.

One thing is about the scale. The research on such an urban scale is entirely new for me. Muratori enlightened me to use typology. From a theoretical view, he believed that type was not so much an abstract concept as an element that allowed him to understand the pattern of growth of the city as a living organism taking its meaning primarily from its history.<sup>16</sup> He encouraged the way of reading a city through types, which was what I did. From a practical view, what he did in Venice guided me as well: He deliberately ignored the economic and social factors and focused on the study of the buildings themselves. It should be admitted that research would be tough without any compromise, so I decided to concentrate on the space and context influenced by river instead of spreading out. Additionally, the reason why I could choose thirty case studies on a proper scale is that I adopt Rossi's "study area", which is "minimum urban context".<sup>17</sup> That means, the proper scale such as blocks instead of looking at the whole city all the time might be easier for conducting the research.

Another thing is about the invisible river and its meaning to the present city. How to research a majorly covered river? To focus on the currently existing parts or to dig into its trace? Rossi answered the question. "The city itself is the collective memory of its people, and like memory, it is associated with objects and places."<sup>18</sup> The cover of the Senne is an event that leaves imprints in the city, which is part of history. These relevant blocks or elements are not only the forms of the river's memory but also related to the collective memory, which would, in turn, participate in the actual transformation of the city. Isn't the significance of typology in uncovering the history and collective memory of cities? Rossi believed that the logic of architectural form lies in a definition type based on the juxtaposition of memory and reason. A city is first a four-dimensional city of memory, and then a three-dimensional city of objects. That is the reason why digging into the memory of Senne is significant. Furthermore, considering that the theme of our studio is "spolia", which is an archeological element containing the temporal dimension. The river as a spolia should also be researched historically. "Typology becomes

the apparatus of time's measurement."<sup>19</sup> This method is helpful for me to conduct the research both synchronically and diachronically because the history of a city is not superseding but superimposed.

Nevertheless, some positions are doubtful in my view. For example, Rossi highlighted the autonomy of architecture and ignored its function. His definition of type as "functionally indifferent", which could function when research on a "monument". The death of function, according to Rossi, results in permanence in the city. After a building's death, it begins its life of continual reuse; therefore, it owns immortality. However, this kind of "type" does not properly fit into my research. For me, the research feeds the design process. I found it meaningful to include program into categorizing the space, such as leisure, production or infrastructure. They are closely linked with the context and the river. In this typological research, the program is a key that cannot be further simplified since it implies the logic of type here. Is it reliable to ignore functions when evaluating cities? The function is based on demand. Although function owns its uncertainty in the temporal dimension, it is based on a social consideration. If the city or a building (not as a monument) deviates from its sociality, does it still have meaning?

Additionally, I think typology could be developed if combined with other methods. Typology impressed me as a sort of practical research-methodological perspective, rather than merely a method. It might be better to conduct research in a cross-disciplinary way. For instance, typological research is flourishing in traditional Italian cities. What about the research in a super complicated metropolis? It might be wise to combine urban morphology because it could help deal with distinct contextual problems. From research to design, it's significant to transform abstraction to a specific form from the typological view, which means a shift from perception to a tangible object. Actually, this process would integrate phenomenology, praxeology, and so on. These methodologies relating to humanities help us grasp the life of type.

To sum up, types abstracted through typology both retain the tradition and meet the current needs. Also, the abstraction inherited in types leaves room for design. This method is valuable for both research and design, by which the value and essence could be figured out. If related to the research question, the river's influence on urban space could be researched by typological methodology. Precisely, the memory of the invisible river could be revealed from the visible urban morphology or elements. Various kinds of space are the "forms", while the "types" are hidden with social evolution, culture, and collective memory. For example, somewhere covered was transformed into an urban farm. The "farm" is a form, but the "transformation into production" is a type that includes the history and collective memory of the city. Typology makes it easier to perceive the essence of a city rather than its visual formation. As for "how to re-appropriate the types or the memory of Senne", that is the open-end question for my research because "it is always important to reiterate the openness on research."<sup>20</sup>

<sup>1</sup> Lucas, R. (2016). *Research Methods for Architecture*. London: Laurence King Publishing. P8

<sup>2</sup> Lucas, R. (2016). *Research Methods for Architecture*. London: Laurence King Publishing. P9

<sup>3</sup> Jo, S. (2003, May). Aldo Rossi: Architecture and Memory. *Journal of Asian Architecture and Building Engineering*, pp. 231-237.

<sup>4</sup> Shiqiao, L. (2014). *Understanding the Chinese City*. Los Angeles: SAGE Publications Ltd. P30

<sup>5</sup> Lee, C. (2011). Glossary entry on "Type". *The City as a Project*.

<sup>6</sup> Aymonino, C. (1977). *LO STUDIO DEI FENOMENI URBANI*. Rome: OFFICINA EDIZIONI.

<sup>7</sup> Quincy, A. C. (1825). *Dictionnaire Historique d'Architecture*. Librairie d'Adrien le Clere.

<sup>8</sup> Moneo, R. (1978). On Typology. In *Opposition* (pp. 22-45). the MIT Press. P32

<sup>9</sup> Argan, G. C. (1962). On the Typology of Architecture. In *Theorizing a New Agenda of Architecture* (pp. 240-247). Princeton University Press.

<sup>10</sup> Colquhoun, A. (1969). Typology and Design Method. In *Perspecta* (pp. 71-74). The MIT Press.

<sup>11</sup> Quincy, A. C. (1825). *Dictionnaire Historique d'Architecture*. Librairie d'Adrien le Clere.

<sup>12</sup> Muratori, S. (1960). *Studi per una operante storia urbana di Venezia*. Rome: Istituto poligrafico dello Stato, Libreria dello Stato.

<sup>13</sup> Rossi, A. (1976). An Analogical Architecture. *Architecture and Urbanism*, 74-76.

<sup>14</sup> Cantàfora, A. (1973). Drawing. Source: <https://architetturainsostenibile.wordpress.com/2011/04/08/la-citta-analoga-di-arduino-cantafora/>

<sup>15</sup> Moneo, R. (1978). On Typology. In *Opposition* (pp. 22-45). the MIT Press. P36

<sup>16</sup> Moneo, R. (1978). On Typology. In *Opposition* (pp. 22-45). the MIT Press. P37

<sup>17</sup> Rossi, A. (1982). *The Architecture of the City*. New York: The MIT Press. P63

<sup>18</sup> Rossi, A. (1982). *The Architecture of the City*. New York: The MIT Press. P130

<sup>19</sup> Rossi, A. (1982). *The Architecture of the City*. New York: The MIT Press. P5

<sup>20</sup> Lucas, R. (2016). *Research Methods for Architecture*. London: Laurence King Publishing. P21

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