




AKADÉMIAI KIADÓ

The activation of industrial heritage: Transformation in the Petite Ceinture

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ABSTRACT

The development of the social economy has led to the reorganization of the original layout structure and spatial functions of the city. Based on the development background of the Petite Ceinture railway space, this article conceives the attribute transformation and activation method of this industrial heritage. The proposed methodology, applied to the leftover spaces in Paris: integrating the biodiversity; softening the boundary; setting up installations. This paper investigates the relationship between the vitality of leftover space and the texture of the cities. It is proposed to try to reconnect the leftover space with the city through a multi-dimensional system corresponding to the diversified space and make good use of its unique location and internal potential.

KEYWORDS

leftover space, industrial heritage, spatial connection, Petite Ceinture

ORIGINAL RESEARCH PAPER



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1. INTRODUCTION

La Petite Ceinture in Paris is a 32-km loop railway built on the inner side of Boulevards des Maréchaux around the city [1]. These railways were first used for transporting goods from December 1852, then as passenger transport from January 1854. The development of each transport was done gradually until its peak in 1900 [2]. Paris' first Metro line opened that year: from then, the numbers of those using the Petite Ceinture passenger service dropped steadily until its closure in 1934. Although maintained as a freight line, even this use of the Petite Ceinture had come to a practical standstill by the 1980s [3]. When it completed its historical mission, it was temporarily put aside, allowing the space to develop on its own. When first found, it is usually regarded as vacant, degraded land, empty and overgrown with weeds, and rusty railroad tracks. This is a visual sign with industrial collapse and disintegration, usually avoided as dangerous 'no entry' areas [4, p. 124].

This railway space has a long historical foundation and was once a bustling transportation fortress. It has old railroad tracks, platforms and viaducts, and provides a walking path that alternates between the urban landscape and the wild nature. This is a vibrant environment, which the blank spaces are filled with wild green vegetation, the walls are occupied by graffiti artists, and the trails are gradually discovered by joggers and cyclists. A randomness and release may be the main rhythm of this space (as it is shown in Fig. 1).

The Petite Ceinture may be interpreted as terrain vague, a term popularized by Spanish architect and philosopher Ignasi de Solà-Morales. Through the study of this type of terrain, it constitutes the aesthetic and ethical aspects, as well as the problematic of contemporary social life [4, p. 125].

Therefore, this analysis uses sequence and rhythm as the entry point to balance the spatial relationship to explore ways to enhance the urban space, and finally proposes a method that

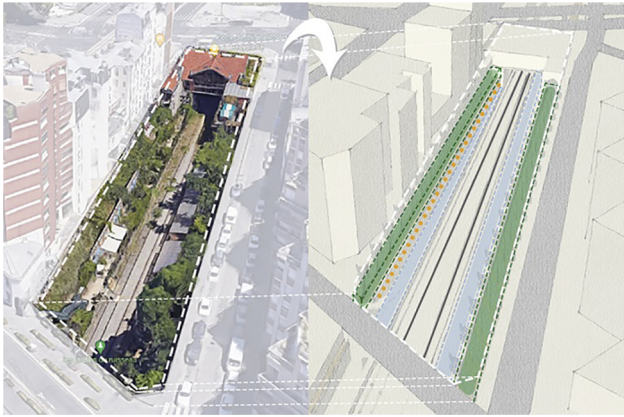


Fig. 1. The Petite Ceinture former Ornano station
(Source: edited by M. Wu based on Google map)

can be tried to be modularized in art corresponding to different spaces. Modularization is like a stitching effect. Through the regularization of this form and the subsequent introduction of the flow of people, it can make good use of its unique location and internal potential to reconnect the leftover space with the city. This article takes industrial heritage as a case, analyzes its existence as a leftover space in the city, and then gradually finds a suitable way of recycling roads and space utilization through exploration and discussions. The focus of the article is how to transform it from a no-man's land overgrown to a popular urban public space. At the same time, combined with the analysis of the characteristics of the leftover space, it helps us find an effective strategy to improve the state of the space.

1.1. Petite Ceinture's development model

The uncertainty of urban development makes Petite Ceinture different from other cities with a single form of transportation. The diversity of geographic location has led to the separation of the ancillary space of the railway from the existing urban space. The long and narrow strip space has made it more difficult to reuse. It is not easy to clean up the tunnel section and to construct the surrounding infrastructure. The sections that can be reconstructed are not continuous and the base conditions are different, making it hard to merge into the original urban form.

Due to the difficulty of using the diversified spaces along the route and their respective characteristics, the planning department of the Paris government did not set a deadline for the renovation of Petite Ceinture. On the contrary, it adopts a gradual development method, breaking into parts, opening to the surrounding communities, breaking the old railway into various parts. They are entrusted to several subject groups to organize various seminars and seminars that residents participate in to jointly determine the future of Petite Ceinture.

The transformation of various sections of Petite Ceinture has been in dispute. It was not until the signing of the framework protocol on June 17, 2015 between SNCF

(French National Railway Company) Réseau, SNCF Mobilités and the City of Paris for it to launch a reflection on the economic development of spaces in Petite Ceinture. The protocol aims to jointly expand the new spatial functions of Petite Ceinture in Paris, while respecting and reflecting on its origin and historical basis, and summarizing the changes in spatial attributes that have occurred over the past few decades and their future prospects. Under the terms of this protocol, the partners confirmed their desire to preserve the continuity of the small belt and the reversibility of the developments that could be made there, so as not to hamper the transport potential for the future [5]. The planning framework is dedicated to promoting the development of natural, architectural and landscape heritage and developing multiple uses. Many sites on Petite Ceinture have been remodeled.

1.2. Architectural form of stations along the line

The architectural forms of the stations along the line are mainly divided into four categories [6]. The first type is very simple in the north and east: they are a small single-story building with a large basket-handle opening surmounted by a pediment is framed by two smaller-scale windows. The second type, in the west and south, is more special. In the basement, the main façade has three equal openings with semicircular arch; on the sides two cut sides have an identical hole; a pendulum is implanted in the axis; above a recessed attic, with three windows. The third type is in the form of a relatively large building of three levels. There are three openings in the center and two on the sides; a clock crowns the whole; a large external staircase joins the platform. The building is located at street level, parallel to the railway line, and its last level directly serves a platform. The fourth type is less rigorous than the other three and shows no monumental will. The buildings are discreet and in general almost invisible from public space, being located on the railway platform. These are small stations of provincial character: a lower part is made up of two bays with two and three equal openings; the narrowest part is covered by a one-story building, which is an even more banal architecture.

Most of these buildings have been preserved in the decades since they were abandoned, but there are aging problems in many aspects like structure and lighting. The main challenge for the reuse of the station building at Petite Ceinture is the damage and maintenance of the old building. Although severely damaged, the historical value of the station building cannot be ignored. The transformation strategy through the in-depth community also helps to discover the historical value of the station building. Activate nearby communities along the line by giving stations new functions. In the architectural intervention and renovation with this entry point, many old stations have been repaired and functionally updated through open competitions and citizen decisions, becoming new venues for nearby residents, and driving surrounding community activities.

1.3. The existing renovation plans

The renovation plans that have been launched so far generally include the following methods: functionally transforming abandoned station buildings; reactivation of linear constructions attached to the railway; and development of the natural environment of wasteland along the line. The concept of breaking up into parts is implemented along each road section, and each case is based on the urban environment of nearby communities.

1.3.1. Refurbishment of the station building: La Recyclerie. The Recyclerie is located in the former Ornano train station [7]. This station belongs to the first type mentioned above.

The passenger building is heavily modified. Only its roof is still recognizable. The stairs have disappeared; the location

of the south staircase is occupied by a concrete slab, the service yard of the shops [8]. The original waiting hall of the station straddles the tunnel of the railroad track, forming the best view of Petite Ceinture as it is shown in Figs 2 and 3. It was transformed into a cafe with floor-to-ceiling glass windows on the facade to ensure indoor lighting and view during the day, and outdoor seating is also set on the platform. At night, the space of the railway and the tunnel will be combined and used as an open-air cinema. The tunnel has a dark background for the screening, and the platform on the side is used as an area for ticket sales and snacks and drinks during movie viewing.

In addition to the transformation of the form itself, and the functional transformation of this project, there are many details that convey a recyclable harmonious concept to the people of Paris. The Recyclerie aims to raise public

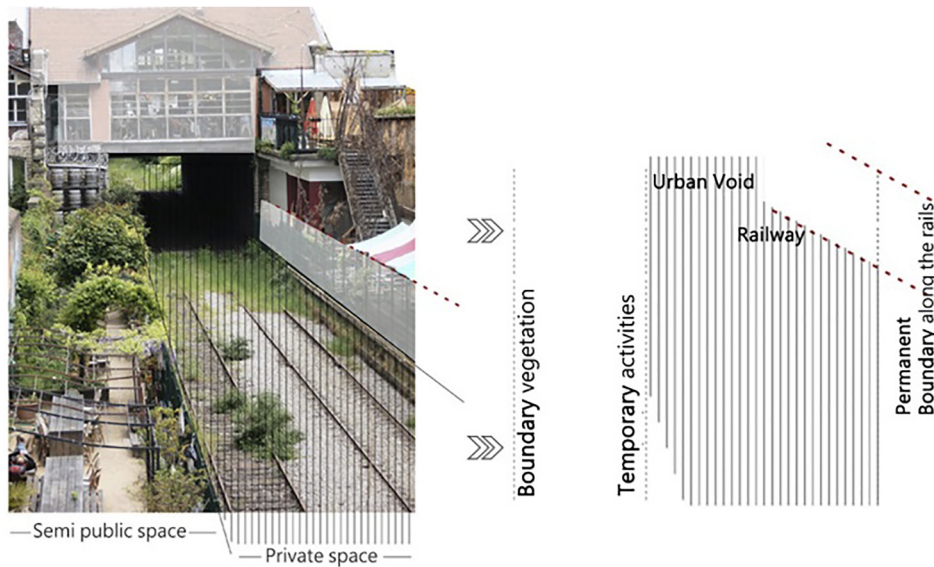


Fig. 2. Spatial analysis of train tracks outside the Recyclerie
(Source: edited by M. Wu based on Google map)

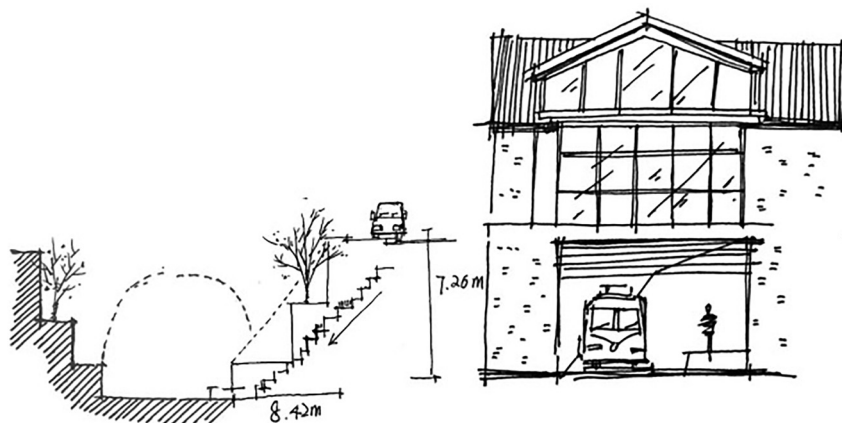


Fig. 3. Sketch of the elevation of the Recyclerie
(Source: Drawn by H. He)

awareness of eco-responsible values, in a fun and positive way: the 3 R, which includes reduction, reuse and recycling [9]. This is advocating cooperation and personal participation, emphasizing value and guiding the concept of location, while providing programming and catering services. A small garden was set up in the backyard of the cafe to cultivate fruits and vegetables, and a chicken house was also built in it. And most of the kitchen waste generated inside the cafe will be used as compost or animal feed, and the agricultural products in the backyard will also be used as ingredients in the cafe. This sustainable concept is not only reflected in the diet, but the garden space will also regularly hold some workshops, weaving and other hand-made creative experiences. There is not too much electronic equipment intervention, and more activities are carried out in a primitive way to encourage people to participate in a sustainable lifestyle.

2. METHODOLOGIES

The research is based on the integration of the relevant theoretical background of the railway and the existing analysis of the reconstruction plan of the Petite Ceinture, as well as the author's own design optimization ideas for the characteristics of the selected site. This article proposes the activation method for leftover space in the city: establishing and strengthening the complementary relationship between disordered and ordered space. Specifically divided into these parts.

2.1. Explore the disorderly natural manifestations in the space and get along with them freely

The railway lines of the Petite Ceinture present an astonishing plant biodiversity in urban areas: more than 460 plant species have been recorded there to date [10, p. 46], and many animals also frequently appear here. Under the decoration of different 'natural stages', the railway tracks have been integrated with the vegetation, and the railway lines are almost invisible. After decades of being away from the crowd, it has become a biodiversity paradise.

Petite Ceinture is gradually given a natural gift, disorderly vitality and creativity. It is a unique space in Paris because of its biological richness and its landscape, historical and geographical aspects. A true ecological corridor, it offers access routes from outside Paris to many species that find refuge there [10, p. 53]. Biodiversity also gives the space rich possibilities. Therefore, strict and coordinated planning and design are not necessary here, because the land has already made important and creative contributions to ecological and social resilience and vitality and this is particularly compatible with the sustainable development advocated by the city. Urban portraits should emphasize the connection between people and their residences by providing different forms of activities. These modes should highlight the diversity of local culture and natural environment and the potential of regional networks [11].

2.2. Use the spatial nature of the terrain to extend the boundary

One method to get leftover space to connect with the surrounding is to extend the urban texture (Figs 4 and 5). Combining the texture, for example, the direction of streets and buildings. Then, use the spatial nature of the terrain to extend the boundary, they are terrain vague, its mean they are flexible (Fig. 6). Before entering the space, the boundaries can be expanded and merged for transition. That is to connect with the surrounding road, the main purpose is to give it priority accessibility, which means that people have the desire to join it (Fig. 7). Through extension, this is also a function of stitching and establishing connections. Thereby embedded in the environment of nearby communities. They also have the potential to become a social place for nearby communities in terms of geography and introduced activities.

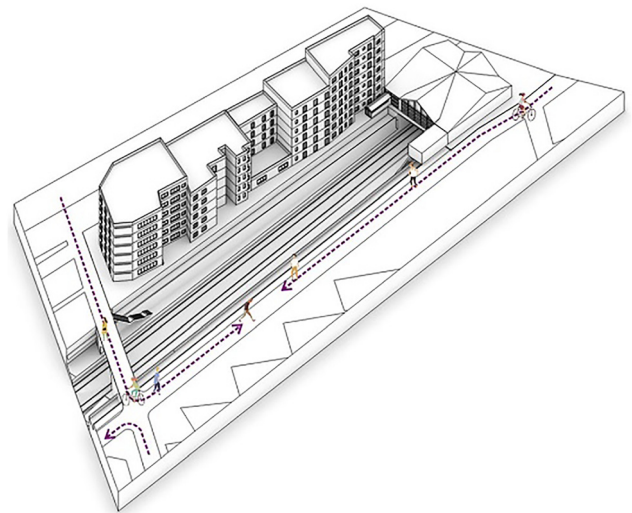


Fig. 4. The original edge of the road
(Source: designed by M. Wu and H. He)

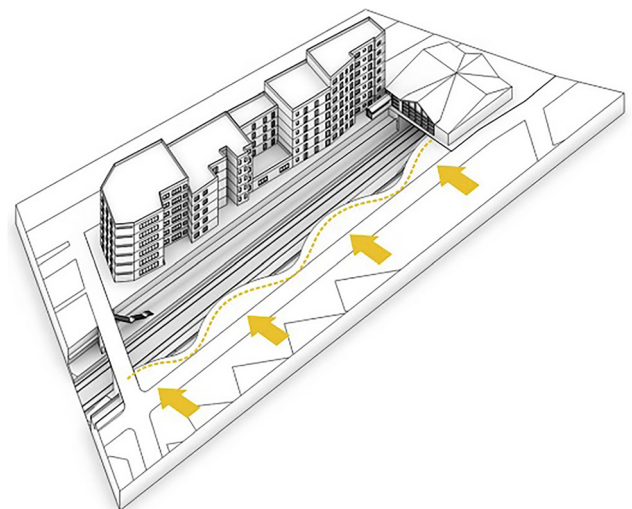


Fig. 5. Inward extension of the edge line
(Source: designed by M. Wu and H. He)

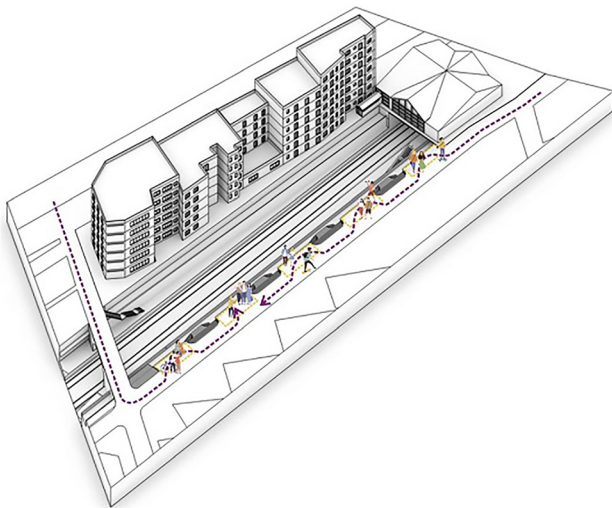


Fig. 6. Introduce people flow & increase stay time
(Source: designed by M. Wu and H. He)

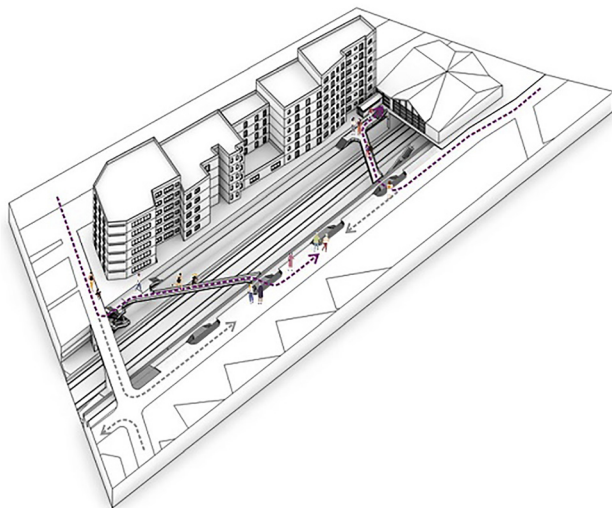


Fig. 7. Longitudinal connection according to surrounding texture
(Source: designed by M. Wu and H. He)

2.3. Put in orderly modular installations according to local conditions

The method is based on introducing from the outside and diverging from the inside.

Modular combination is used as a balancing tool in this concept (Fig. 8) because it is adaptability; modular layout is easy to change and move. It is cost-effective and scalable. It emphasizes that participation of people and exploration methods enrich the space, and try to provide many possible spaces for the space, so that it has its own corresponding relationship, communicate unconsciously, and have different degrees of 'participation' allows people to experience and return to this once prosperous trade center. The idea of participatory design methodology is that people affected by design actively participate in the design and update process and should be able to secure already-existing skills and resources [12]. It is also an attempt to establish the spirit of the

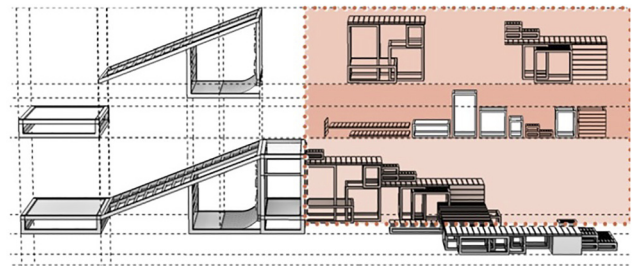


Fig. 8. Modular entertainment installations can be combined flexibly according to the requirements
(Source: designed by M. Wu and H. He)

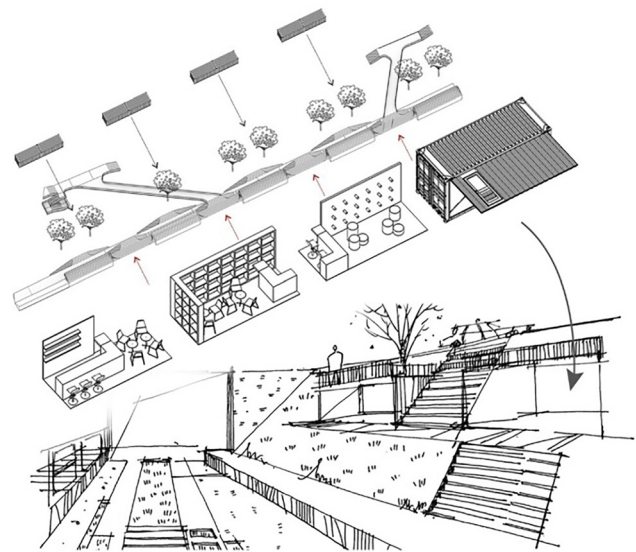


Fig. 9. Conception of the embedded unit container
(Source: designed by M. Wu and H. He)

place. People need a place to embody themselves, carry out social life, and create a sense of culture and belonging. The quality of an environment is to avoid feelings of loss.

Human is one of the important factors, because the number of people and the socialization also means the emergence of various forms of activities, so that the area can be more energetic (Fig. 9). Through the residents' familiarity and understanding of a modular unit, it can be extended to other design areas. On the one hand, modular unit can satisfy the needs of users, on the other hand, it also connects the originally broken layout. This is the non-permanence of the leftover space, from ignore to emphasis on the change. In the unique urban form and historical buildings along the line, there is the possibility of a new public space connected to the city. In addition, in the years when the railway was abandoned, the surrounding citizens spontaneously used the space they needed, which also gave different railway sections different spatial characteristics.

3. RESULTS AND DISCUSSION

The railway imprints the historical and cultural memory of a city, and people repay that prosperous era with new vitality.

The basis of the renovation proposal is based on the spirit of the place: respect for the existing culture. The design adopted a minimal intervention method, retained the wilderness on the site due to natural succession, and provided accessibility and balance by extending the boundary and setting up modular installation art. The transformation of different sections of the railway has awakened the vitality of the urban corners, promoted the revitalization of the railway heritage.

Through studying the transformation of urban leftover space, analyze its design and utilization status and existing problems, and explore the potential social function attributes of urban leftover space from the perspective of community construction. In the transformation process, a new model was adopted, that is, rounding into zeros and transferring points to lines. For example, through the transformation of important railway nodes, in order to promote the revival of industrial heritage. Petite Ceinture has found a suitable transformation direction through constant exploration. Through the transformation of different sections of the railway, it has awakened the vitality of urban corners and created a variety of sustainable and environmentally friendly lifestyles. Rethinking the flexible and interactive value of urban leftover space, combining the theoretical study of space and place spirit and background data investigation, put forward the connection and strengthening strategy of place spirit through the participation of multiple subjects, which explores the vitality of urban leftover space suitable way.

4. CONCLUSIONS

As urbanization moves from incremental development to the stage of stock renewal, the improvement of urban space quality will become the focus of future urbanization development. The negative impact of the existing transportation infrastructure on the city will be a problem that urban planning and builders need to face and solve seriously in the future. However, looking at it from another angle, any problem is also an opportunity. Leftover space should not only be regarded them as thorny and negative urban troubles, but also as favorable conditions for creating new urban spaces with unique characteristics and charm.

The linear feature of the railway is the basis for the establishment of corridors. If these facilities can form linear open space greenways and connect them with urban rivers, parks, green spaces, cultural heritage, tree-lined roads, etc., to build green ecological corridors and networks play a good comprehensive benefit. The design of crossing the railway can promote the continuity and connectivity of the city and enhance the vitality of the city. For example, infrastructure, parks, and buildings can be integrated into a multi-level,

three-dimensional public space system to stitch together the broken urban texture. It has a very positive effect.

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