# 论 Brittle City：Brittle City 及其对城市发展的影响

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**摘　要：**第二次世界大战后，城市迅速发展，其结构和功能得到更新，但它们变得脆弱，在旧城改造后，人们往往选择逃离而不是继续生活在其中。这引发了对 Brittle City 与城市规划和发展之间关系的研究和讨论。本文将探讨脆弱的城市及其对城市发展的影响。随着时间的推移，城市规划者将改变城市的现有状态，以适应当前的环境，并寻求激活城市的发展潜力，但 Brittle City 的出现打破了这一观点。脆弱的城市是过度决定的结果，阻碍了城市发展。

**关键词：**Brittle City；城市发展

Discuss the Brittle City：Brittle City and its influence on urban development

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Introduction：After the Second World War, cities grew rapidly and their structures and functions were renewed, but they became brittle and after the transformation of old cities, people often chose to flee rather than continue living in them（Gehl 2010）. This has led to research and discussion on the relationship between brittle cities and urban planning and development. This essay will explore brittle cities and their impact on urban development. Over time, urban planners will change the existing state of the city to suit the current environment and look to activate the development potential of the city but the emergence of brittle cities breaks this view. Brittle cities are the result of over-determination and hinder urban development（Sennett 2007）.

In order to examine brittle cities and their impact on urban development, the research methodology begins with a review of the research literature on brittle cities. Firstly the essay will identify and critically evaluate Sennett's account of the brittle city in The Open City and explore it in relation to the analysis of crowd action in Cities by design：the social life of urban form and Cities for people . Secondly, a practical study of the relevant theory will be undertaken, specifically on Corporation Rd（to Avondale Rd）, located west of Cardiff city centre. The site is a street space with a mixture of historic and modern buildings, and the contrast between the two states of a street provides important information for the study. There are mostly private spaces and very few businesses. This facilitates the observation of the development of the streets and the activities of the residents, thus studying the impact of brittle cities on urban development. In the course of the survey, images will be drawn to illustrate the arguments presented. Then, a detailed analysis of the function and structure of the different neighbourhoods and the behavioural characteristics of the inhabitants will be combined with the previous discussion on brittle cities. The main focus of the study will be on how vulnerable spaces emerge in the selected sites and how it affects the development of the neighbourhoods. Finally, solutions to the problems of the selected sites will be presented.

## Sennett's articles and narratives

The "renewal" of the block leads to the decrease of street life, which will aggravate the demise of a city（Tonkiss 2015）. Since 1980, the occupancy rate of block public housing in Chicago, USA is only 45%, and the life span of the housing is also decreasing year by year（Gehl 2010）. Sennett（2007）explained this phenomenon as a brittle city in The Open City. He pointed out that excessive planning makes the modern urban structure more brittle, such as population separation and population homogenization, which all promote the emergence of brittle cities. As demonstrated by Hyra（2012）, the fragility of modern cities is particularly obvious in the comparison between old and new blocks. A well-functioning city has a sound and reasonable economic and demographic structure（Hyra 2012）. However, in a brittle city, population loss and asset transfer of pillar industries are normal.. Therefore, we can see a magical phenomenon in big cities：although the living environment and infrastructure have been improved after the transformation of old blocks, the original residents have chosen to flee here, and foreigners will not choose to live here. In other words, the modern urban structure is more prone to aging than the past urban structure, and it is easy to meet the daily needs of urban residents. Therefore, Sennett（2007）thinks that modern cities are ill, and brittle cities are one of the symptoms.

The commercialization of cities has promoted the emergence and development of brittle cities. According to a block study of Barcelona from Summer（2021）, the present city is more a commodity, and the purpose of urban development is to gain more benefits in more time. Therefore, the connection between the city and the past is not considered in the design of new blocks in Barcelona, and only the blocks with substitution relationship are presented. This is reflected in Cities for people by Gehl（2010）. In his street survey and interview, more than 70% residents are willing to choose the old street where they once lived. They think that the old streets are characterized by their familiar living habits and street culture, which are not available in cities now. It is these factors that interweave to form a stable urban structure. On the contrary, in modern cities, the infrastructure is relatively perfect, but due to the commercialization of the city, the time and space needed for urban development are not given, which leads to the fragility of the current urban structure（Summer 2022）. These studies just demonstrate the view of Sennett（2007）on the emergence of brittle cities. The ties of communities cannot be formed in an instant through the designer's planning on the drawings, and they also need time to develop, which is ignored in the development of modern cities.
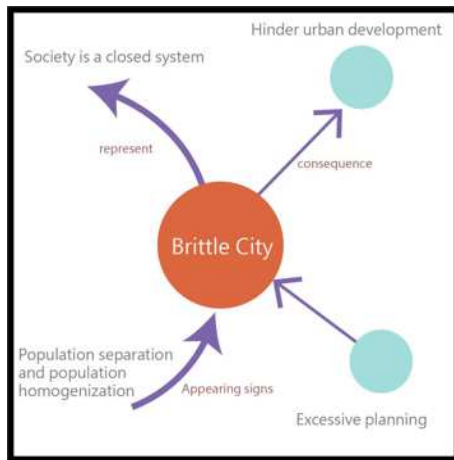
Figure 1　Logical relationship of brittle cities. Source：
Author（2022）

The emergence of brittle cities will not stimulate the development of cities, on the contrary, it will make the urban structure more unstable. The richness of street life is a good breakthrough in studying urban development（Mehta 2018）. A study on the development of street life in residential apartments in Sydney, Australia shows（Troy 2018）that there is a lack of critical participation with differentiated spatial, material and socio-economic results in high-density neighborhoods. For example, in some outer suburbs of Sydney, the design is over-standardized in order to improve the value of buildings. There is no interaction and physical communication between neighbors in daily life, but only a central park as a hub. This also confirms the view of Sennett（2007, p.292）: Although this brittle city will actually stimulate urban growth, new cities will die out more easily than old ones. Tonkiss（2015）agreed with this view of Sennett, and supplemented this view from the aspect of population composition. It seems that the infrastructure of modern cities is perfect and the living environment is suitable, but it does disconnect all blocks, resulting in stratification. The populations of different blocks are no longer communicating with each other, and everyone has a fixed living area, which intensifies the block isolation. Therefore, the emergence of brittle cities is caused by over-standardization, urban commercialization and other factors, which is not conducive to the future development of a city.

### Description and analysis of selected locations

In order to further explore and study the brittle city and its influence on urban development, the block of Corporation Rd（to Avondale Rd）located in the west of Cardiff city center is selected for example analysis. This area is a street space with a mixture of historical buildings and modern buildings. The total length of the street is about 856 meters and the width of the road is 6 meters. Most of the buildings are small buildings with 2 to 3 floors. The south side of the central garden is mostly new blocks and renovated areas, with rich infrastructure but mostly private space.

From the point of view of function and density, the function and density of the two areas are very different. On the north side, the regional buildings with mixed historical buildings and modern buildings are rich in functions, mainly residential areas and commercial areas, and the ground floor near the street is all kinds of commercial shops, such as supermarkets, clothing stores and restaurant

s. Deep in the block are residential areas and offices of some companies. In addition, due to the rich business in the northern region, it attracts a large number of working people. The resident population is also the highest in the north. The southern region is completely different from the northern region. Although the southern region was built later and the related infrastructure is more perfect, the building function is very single. Therefore, it can be seen that the degree of block structure perfection and development potential in the northern region is much greater than that in the southern region.



Figure 2　12a.m Hot map of residents' activities. Source：
Author（2022）

From the perspective of street life, the street life in the northern region is far richer than that in the southern region, and some restaurants on the street will set up some temporary seats for guests to communicate outdoors. In the north, except residential areas, all the frontage areas are open to the interface, which is more conducive to the communication and interaction between residents. On the contrary, the southern area is mostly private space, and there is little social space on the street. Consequently, the northern region is more attractive to the population.

Based on the above analysis and comparison, we can see that two different areas in the same street have these two different States, and the northern area is prosperous and the southern area is deserted. The urban structure in the southern region is more brittle, street life and local culture disappear, and the population begins to lose and the economy collapses. It can be seen from the description of Sennett（2007）that residents choose to stay away from this area after the block renewal in the southern region, because it fails to provide the time and space for the block to grow.

### The relationship between street development and brittle city

Brittle City is an obstacle to the development of streets. To begin with, the development of blocks in the northern area has a historical accumulation, and the structural composition and functional distribution of the whole area are obtained through the cumulative development of time, so the block structure is more stable. Urban development needs long-term accumulation（Dovey and Pafka 2020）.

On the contrary, the southern areas are mostly new buildings and renovated buildings, which were built in just a few years. Many designed places seem to improve the quality of life, but in fact they have a sense of isolation, making the blocks brittle. On the other hand, the critical area in the northern region is flat and wide, and there are no obstacles. The ground floor shops put the seats outside, which provides social space for the surrounding residents and at

tracts residents from other blocks to the business district, attracting people and promoting business. In addition, from the perspective of residents' life experience, in order to ensure privacy, the southern region has blocked all the buildings in the residential area with walls, so that there is no communication channel between neighbors. Open urban interfaces will make more people integrate into the neighborhood (Dovey and Wood 2014). The life experience of residents is reduced, and the attractiveness of living is reduced, which prevents the development of the block. Furthermore, from the perspective of the service life of buildings, the architectural functions in the northern region are more flexible and will change with the passage of time. For example, in the early days, the area was dominated by corporate offices, and now it is a mixture of residence and business. The south is only a simple residential function, which will be gradually eliminated with the change of regional functions, which also confirms the remarks of Sennett (2007). Therefore, by comparing the north and south of the selected block, we can see that Brittle City has hindered the development of the city.

In order to slow down the impact of Brittle City on urban development, Sennett (2007) thinks that the emergence of Brittle City represents that society is a closed system, and changing the closed system into an open one will ease the obstacles to urban development. As Hyra said, liberating the city will make the urban system and structure more open (2012). For the selected southern area, the first thing is to make the block open and have rich social public space, such as opening the commercial space on the ground floor facing the street as a place for neighborhood interaction and communication. Residents of Tesco supermarket in the north also regard it as a part of their daily communication life while shopping in the supermarket. The other is to change the private interface of southern residential areas to make them more open, such as increasing transparency: windows, doors.



Transparent interface in the northern region    Impermeable interface in southern region

Figure 3   Two different interfaces in two different regions. Source: Author (2022)

The different development States at the two ends of this street reflect the obstacle of Brittle City to urban development. Where Brittle City appears, people will flee here, and cheng's will rot.

## Conclusion

Sennett's description of brittle cities is fully reflected in the development of two different regions: the north and the south of Company Road (to Avendale Road). First of all, the emergence of brittle cities will not promote the faster development of cities as people expected, on the contrary, cities will become more brittle and even be eliminated. It is particularly obvious in two cases: the apartment block in Australia (Troy 2018, p.1332) and the new block in Barcelona, Spain (Camerin 2019): the block structure is brittle, and people begin to flee with the economic fluctuation and business fragmentation. The perfect infrastructure and convenient daily life in modern cities cannot alleviate the impact of brittle cities. In addition, the commercialization of cities promotes the development of brittle cities. As emphasized by Sennett (2007), modern society has two characteristics: balance and integration. This will lead to the commercialization of the city, and in order to get more profits in the same time, it will lack sufficient space and time for the development of a city. After the renovation of old neighborhoods in the United States, few companies and residents choose this place as their living and working place (Hyra 2012).

In the future, we can attract people by strengthening the links between different blocks and easing the isolation between different regions. Density change is an important index to detect urban development (Dovey and Pafka 2013). We can also focus on the renewal of urban structure to promote urban development and alleviate brittle cities. In addition, it is necessary to focus on the development of urban social system. An open social system will enable people to best absorb, participate in and adapt to urban changes.

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