Mapping urban and social space: towards a socio-cultural understanding of the built environment

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Abstract
This paper presents a methodological framework for studying the interaction between urban form and social space within the built environment. The purpose of this 'socio-cultural understanding of urban form' is to be able to design new and regenerate existing residential neighbourhoods with sustainable living qualities. By bringing together specialized knowledge of the physical form of the built environment and its social use and meaning we can create a more complex level of understanding the working and interaction of physical and social urban space, and thus raising the awareness of architectural and urban designers about the social quality of residential environments.

Although the study of the spatio-physical identity of the city has a long history in the designing disciplines of architecture and urbanism, it is only since the second half of the last century that a more specialized and in depth research of urban form was developed. In reaction to the dominance of the modernist 'tabula rasa' approach to architecture and urban design, new studies of urban form were initiated trying to reconnect the scales in research and design of the individual built object and the urban environment. Thus, it was claimed that architecture could not be understood outside of its historical and urban context. This re-contextualisation of architecture was undertaken from the 1950's onwards at faculties of architecture in Italy (Venice, Milaan) by architect-researchers such as Muratori, Aymonino and Rossi. Their urban-architectural studies were mainly directed to understanding the construction and development of residential environments, analysing relationships between *typologies* of houses and housing complexes on the one hand and *morphologies* of urban 'tissues' on the other. For this purpose the techniques of cartographic analysis and building plan analysis were fused.

It was however not until the early 1970's that this so called 'typo-morphological' research was also connected to social aspects of urban space. In France architects at the Versailles school of architecture combined the methods and insights of the former Italian studies with recent research results from French urban sociologists, like Henri Lefebvre, bringing a new level of knowledge into the study of urban form. In their groundbreaking book *Forms Urbaines* (Panerai c.s. 1977) architects Castex and Panerai together with sociologist Depaule showed the productivity of such an approach through studies of several European cities, focussing on both the spatio-physical *and* social effects of the transformation of the traditional urban housing block into the open building forms of modernist urban design (i.e. Le Corbusier et. al.) between 1850 and 1960. For this purpose the French researchers distinguish three levels of urban space in and around residential complexes: private, collective and public space. To each of these categories of urban space they relate a specific form of social use ('practice'). Their studies point out the necessity and delicacy of the physical boundaries between these different types of urban space and their specific social practices. In specific I will address these dual analytical categories of 'architectural' and 'cultural' models as developed by Panerai c.s.

Only recently this major French study has been translated into English (Panerai c.s. 2004), and has its contents become available to a wider audience. To the English edition a new chapter has been added containing studies of more recent developments of so called 'new urbanism' in residential design in the US, bringing this classic study up to date. The English translation shows that the 'socio-cultural study of urban form' is currently undergoing a revival among architectural and urban designers, which opens possibilities for renewing inter- and cross disciplinary collaboration in research fields of urban form.

The study of urban form and the practice of space

In *Urban Formes* Panerai, Castex and Depaule analyze the transformations that the urban block went trough between 1850 and 1950. They show the important moments in the history of modern architecture: the Paris of Haussmann, the English garden cities of Unwin, the Amsterdam school and the South-plan of Berlage, the Siedlungen of May in Frankfurt and the Unités d'habitation of Le Corbusier. The authors consider these as milestones in the development of modern architecture, as built experiments where people live. There study shows how in several steps Modern Architecture disengaged itself from the historic city and realized an 'anti-urban ideology'. The study does however not stop at the architectural characteristics of urban space but tries to relate them to a specific way of urban life. The urban block is at the same time considered the building stone of the architecture of the city and the concrete framework for living in the city. To investigate this relationship they make use of both the so called 'typo-morphological' urban studies of the Italian architects Aymonino and Rossi, as well as notions related to daily life and urban space from the work of French sociologists Lefebvre and Raymond (Engel 1984; p. 277, Moudon 1994).

Urban Forms deals with the question of the building block, understood as an integral element of the urban tissue. The concept of 'tissue' evokes ideas of interweaving and of connections between parts, but also with a capacity for adaptation. In this sense the concept of tissue stands in contrast to that of the completed or fixed work, implying a process of transformations. The urban tissue is composed of a superimposition of several structures acting at different scales:
1. the bigger scale of roads
2. the intermediate scale of plot subdivisions with its connections of land ownership and public and private initiative
3. and buildings that contain several functions (Panerai 2004; p. 158, Panerai 1999b; pp. 75-76).

The block – in French îlot, which etymologically means small island – is a part of the urban area isolated from the surrounding parts by streets. It's a group of interdependent building plots. In their study the authors do not consider the special cases of facility or monumental blocks, which consist of only one, big, undivided plot, like just one building. Rather they study the heterogeneous block that consist of a collection of interdependent plots and buildings. This built structure obeys to some rules of economic logic and a fix legal and real estate framework, which conditions the evolution of buildings and the type of use by the inhabitants (Panerai 2004; p. 162; Panerai 1999a; Panerai 1999b).

Urban Forms does however not stop at the spatio-physical understanding of the urban block. It is a form of architectural research that does not study the specific individual architecture of buildings but rather the more general characteristics of built structures related to a certain way of life. This is particularly the case for (mass) housing, which is characterized by general, non-personal constraints, in contrary to other building types where the particular and individual design choices play a dominant role. Housing however is not an individual design assignment, but a collective one. (Engel 1984; p. 285). Panerai cs. see a settlement not only as a collection of built objects, but understand this also as a habitat, a living structure in which the internal relations are determined by social life. The authors speak of 'the practise of urban space' (Panerai 1999b; pp. 159ff, Panerai 2004; pp. 124ff). Changes of form can therefore only be understood if architecture is studied as a 'social book' (Engel 1984; p. 279).

The studies of the French sociologist Lefebvre and Raymond show that the research of mass housing should be conducted from a double perspective: at the one hand there are the *architectural* models that in the past century determined the production of the dwelling environment; at the other hand there are the *cultural* models that structure the possibilities of social practices. As space is loaded with different

meanings for both architects and inhabitants, the challenge is to bring both architectural and cultural models in line with each other (Engel 1984; p. 286).

The transformation of the urban block and the practice of space

The history of the transformations of the urban block under consideration is determined by structural social-economic changes that appeared as a result of the rise of industrial capitalism during the 19th century. This resulted in a reorganization of social space consisting of a separation of the different moments in everyday life, and an autonomization of those moments that are not related to productive labor. Spatial strategies that where applied in these processes of transformation where those of clarification, specialization and zoning, which resulted in a division of production and living but also social segregation. This 'ideology of separation' appeared for the first time with the 'Haussmannisation' of Paris. These on different scale levels: the private family life was separated in clearly defined spaces, in which the specific denominations (like: dining room, bedroom, kitchen etc.) refer to a specific use and social relationships that were aloud to take place in these spaces. It's a process in which dwelling becomes an autonomous practice, according to Panerai. (Panerai 2004; pp. 124-126)

The block forms the important element that establishes a spatial separation of life and mediates between dwelling and city. To study this process the authors 'try to observe how the block allows a connection between external and internal spaces, between private and public life', which becomes evident in the contrast between the exposed front façade and the hidden rear elevation on the courtside. Important is here the socio-spatial relationship between different types of space in and around the block: the private space of the individual dwelling unit and outdoor gardens, the collective space in the house entrances, halls, staircases, and collective spaces on the inner court; and public space on the street side or inner court.
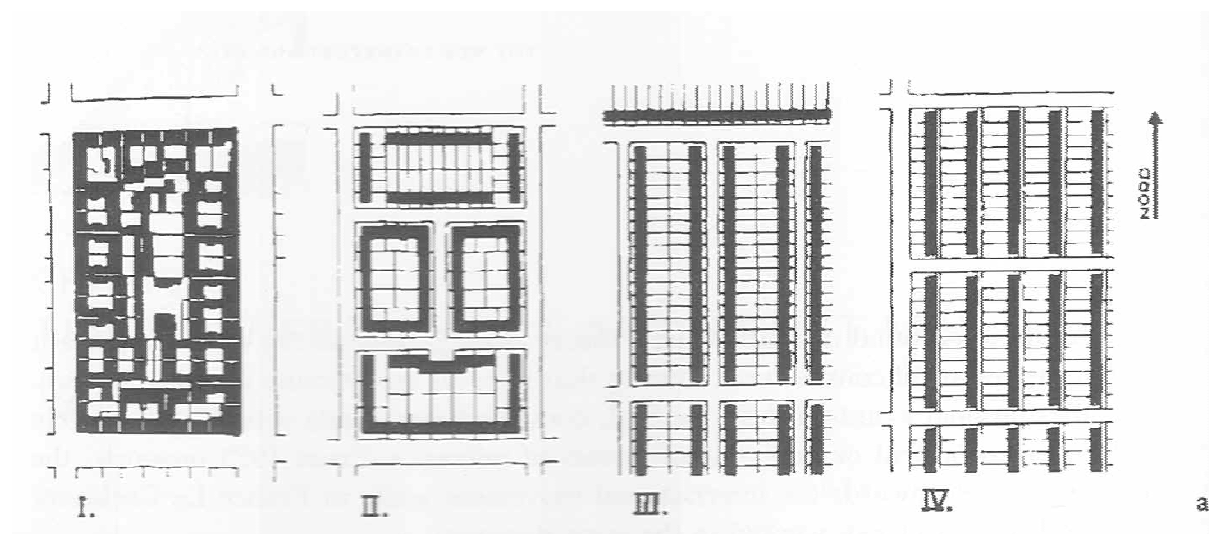

Figure 1. E. May, layout illustrating the transformation of the urban block around 1900, from: *Das neue Frankfurt* 2-3 Feb-March, 1930.

The Paris of Haussmann

In the pre-Haussmann situation there was a strict division between interior and outside of the block. The edge or perimeter of the block was directly connected with the street, understood as the place for public representation, controlled by specific social codes. The interior of the block, on the other hand, was clearly separated form the street, a hidden space that was marked by loose codes, offered to private appropriation. This opposition between perimeter and interior of the block made it possible to order and distribute a multiple mix of functions: living quarters, work shops, exchange, and even collective facilities (Panerai 2004; pp. 24-25). There was no marked differentiation or difference between the dwelling and external spaces, it occupied an homogeneity of functions (Panerai 2004; p. 128)

In the hausmannien block the polifunctionality disappeared from the block, now solved on the scale of the city: zoning became the tool to separate activities according to specialized districts for living, trade, commerce and production. Only those activities directly related to housing found place within the block. The distinction between perimeter and centre, the visible and the hidden, was however upheld (Panerai 2004; pp. 26-27 and p. 128).

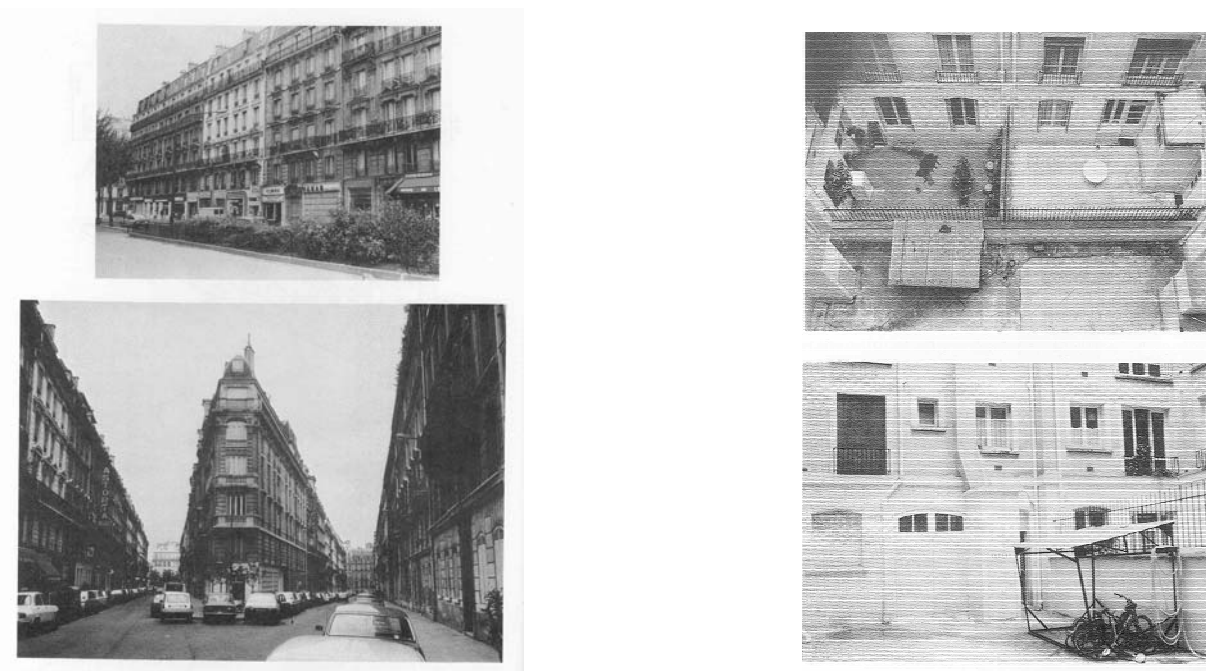**Figure 2. Haussmann's Paris: typical blockstructure**

Figure 3: Interior and exterior of the Haussmann block: contrast between public street facades and private courtyards

The London garden city

A next stage in the transformation of the traditional urban tissue is illustrated through introduction of new block typologies in the English Garden City movement. The idea of the Garden City was developed as a solution for the urbanization problems of the London city based on the model of the 'satellite city'. The traditional block layout is here replaced by the so called 'close' typology, which appears in Letchworth, Hampstead and Welwyn. The close is a rectangle space enclosed by row houses on three sides. The close functions as a courtyard that is opened to the street, forming a dead end street, or cul-de-sac: this results in a reduction of the street to a service access (fig. 4). A variation on this scheme was a close made up of groups of two semi detached houses, through which the distinction between front and back space becomes blurred. An alternative was a garden wall between the houses, making a continuous elevation on the courtyard). The close belongs to the residents, its space is semi-public (fig. 5). But it is more diffused: the gardens in front are private. This gives problems for appropriation, and marking of private and collective territory. The front represents no longer the collective, or level of the city, as in the traditional tissue, but rather that of the community of neighbors (Panerai 2004; pp. 41-45).

In Welwyn the close becomes opened even more, and front and back space start to intermingle, at least visually, and the close space starts to be more appropriated by the inhabitants, and thus becomes private. We see here a process in which the close transforms from a public space to a private space. The interior space of the close contrasts with the public space of the street trough its enclosure. With this a series of functions is taken away from the street, reducing it to a route for movement only (Panerai 2004; pp. 53-55).
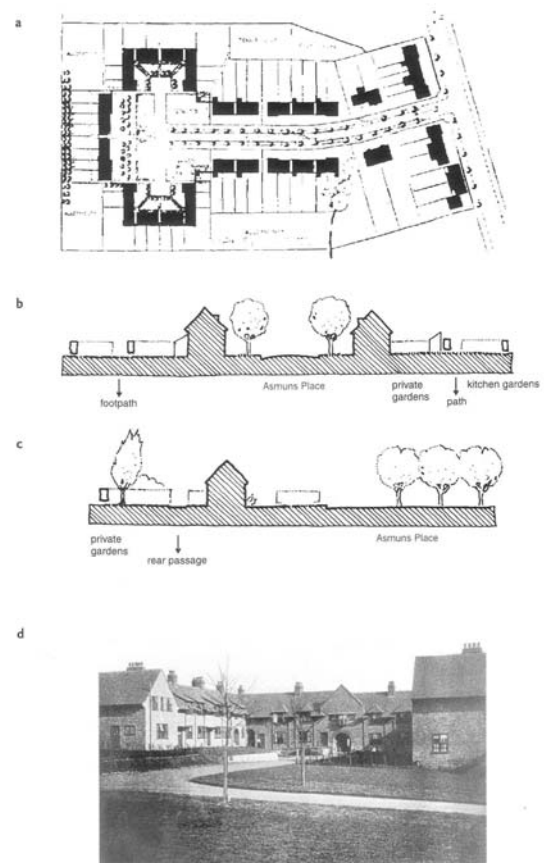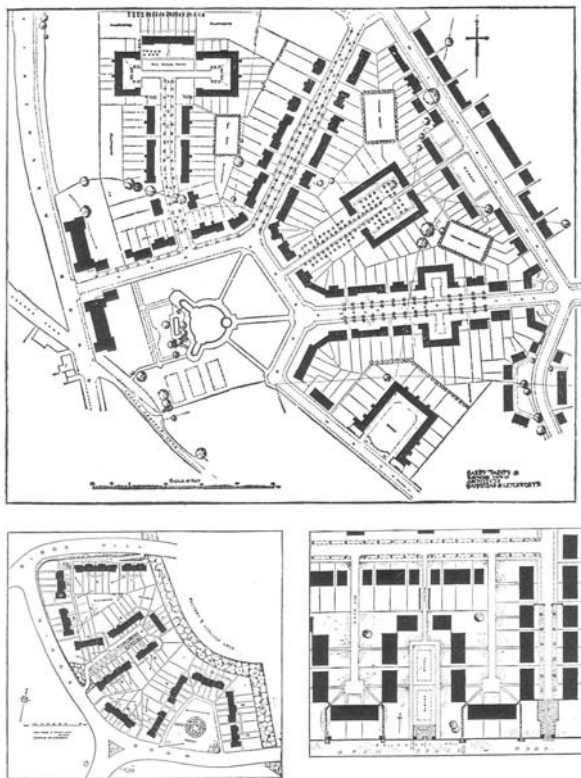

Figure 4: Hampstead garden suburb, plan details

Figure 5: The close: plan, section and view of typical close structure

The Amsterdam of Berlage

A next step in the transformation process of the urban block is illustrated by the development of the extension plan of Amsterdam of 1905 designed by Berlage (fig. 6). Just like in Paris, the Amsterdam block is built by a continuous perimeter of buildings that enclose a central open space. In the Spaardammerbuurt for instance (fig. 7), we still see a great difference between street and court façades: on the street side the elevation expresses urban order, sometimes even monumental, while on the back side the private gardens of the ground floor dwellings and the balconies of the upper floors are dominant. The courtyard is only accessed from the houses and closed from the street. Appropriation of the inner court space by the inhabitants takes place through the placing of objects, decoration, paving, flowers etc. in the private gardens or on the balconies and even the building of private greenhouses and garden or bicycle sheds.

In a second phase of the development of the Amsterdam extension plan collective elements are added to the court yards: a central path gives now access to the back gardens and a collective garden appears for the upper dwellings, which can even become a public square. The path has a collective access through a porch, which makes the interior of the block accessible from the street. The contrast between street and court side is in this scheme reduced and a more complex relationship of the perimeter is introduced (Panerai 2004; p. 84-88). Also, some facilities are integrated into the block. The courtyards are used for collective functions, like schools and playgrounds. This produces a mix of private gardens and balconies, collective functions and public access in the courtyard. Here, although still in a embryonic way, the public begins to penetrate into the interior of the block. This tendency is even more enhanced in a later block, the famous Zaanhof by architect Walenkamp of the Amsterdam School from 1919-21 (fig. 8). This large block is built of a double ring of buildings: an outer ring of high buildings on the street side and an inner ring of low buildings in the internal space, recalling the small houses of the Dutch and Belgium beguines tradition (idem). (Panerai 2004; p. 67)

Figure 6. Extension plan Amsterdam South by H.P. Berlage, 1905

Perimeter		Centre
Street facade	Internal facade and garden	
Continuous and special	Fragmented and ordinary	Continuous and organised
Accassible	Nonaccessible	Accessible and controlled
Urban reference	Reference to the dwelling	Reference to the block
Representation	Private life	Representation and collective practices
Displayed	Hidden and exposed	Exposed
The architect's input	The inhabitant's input	The architect's input

Figure 7. Amsterdam, Spaardammerbuurt, area plan
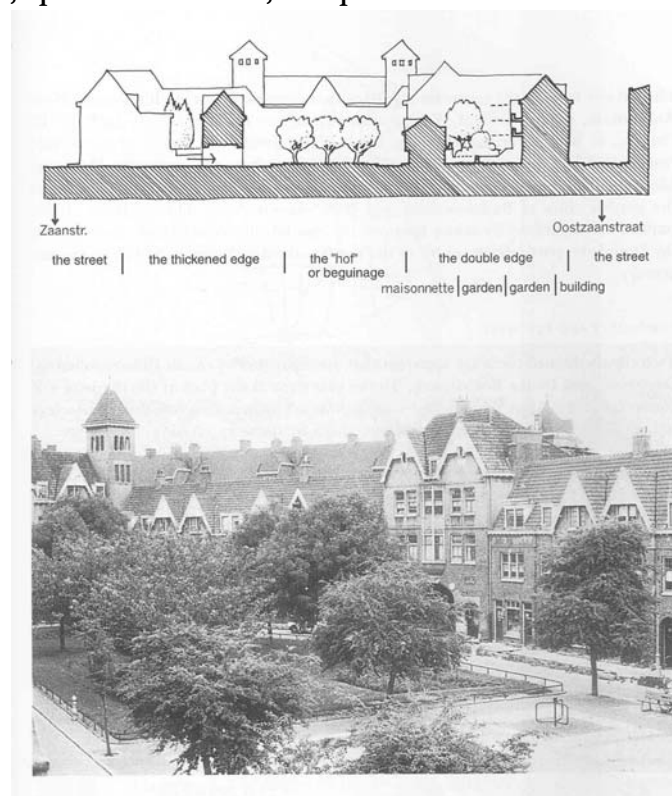

Figure 8. Block in Spaardammerbuurt by Walenkamp: overall section and view in the interior space

Frankfurt of Ernst May

In Frankfurt under the guidance of city architect Ernst May the experiment with the urban block was taken even further. Here the block finally disappears and is replaced by a different type of urban form. In Frankfurt the growth of the city is controlled by the same planning model practiced in London: the satellite city. Although also here the two storey single family row house is predominant, new typologies for building forms are introduced. These new typologies are directly derived from the traditional closed perimeter block, which step by step is opened, reduced and rationalized. In Siedlung Römerstadt (1927-28) two storey family row houses are orientated towards the street and enclose an inner space with private gardens. A clear distinction between street and court façade still exists. In Siedlung Westhausen (1929-31) a further rationalization of the block takes place (fig. 9). The block is now formed by two parallel buildings or rows with the same orientation, and the back of each row faces onto the front of the next one. The result is a complete confusion between back and front, and creates an ambiguous situation. The central space of the block becomes ambiguous with regard to the use of space: it is both a socializing space, a theatre for collective appropriation, as a purely representational space in which forms of individual expression are also possible (fig. 10). This can be observed through the signs these different uses leave in the spaces (Panerai 2004; p. 98-110, 130)
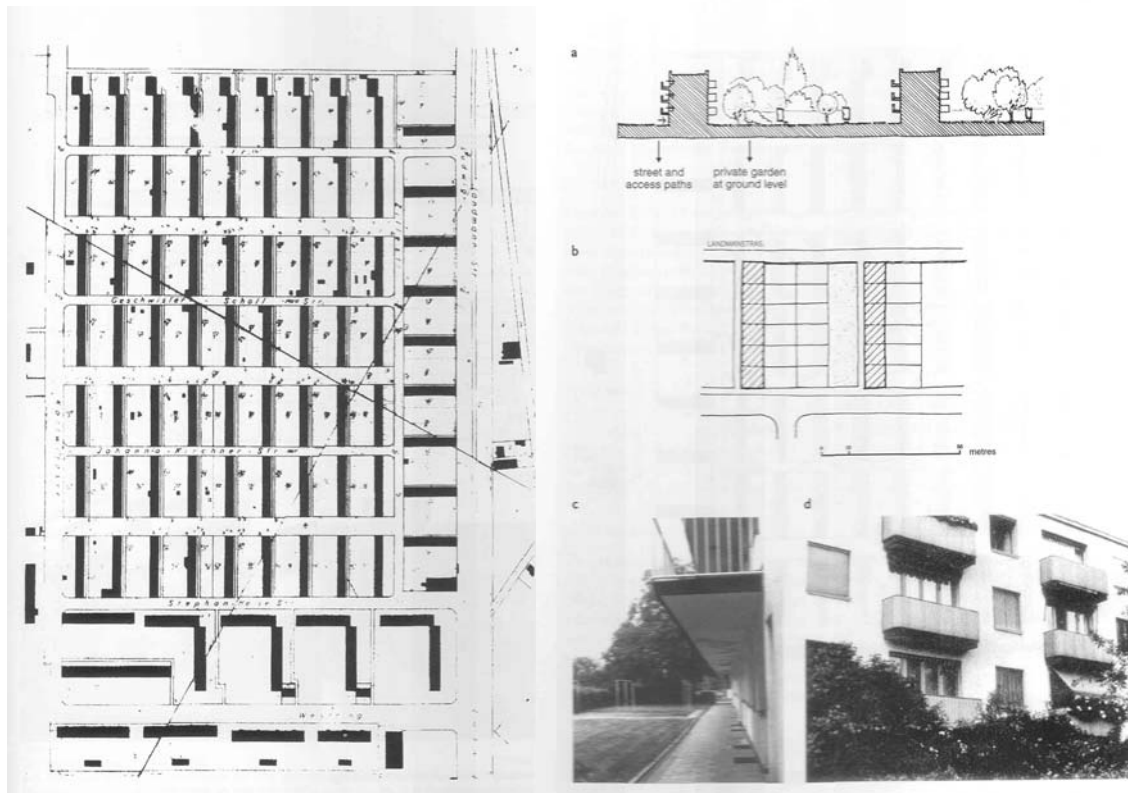

Figure 9. E. May, Siedlung Westhausen, cadastral map

Figure 10. E. May, Siedlung Westhausen, section across the rows, plan showing the use of space, and rear and front facades.

The transformation of the urban block summarized in four steps

The development of the urban block in Europe around 1900 can be summarized in four stages:

1. The nineteenth century block, dense and compact, the interior is private and hidden (Haussmann). 'Completely isolated from the street, the internal space is a place for trees and silence, allowing for individual use.'

Street	Building	Courtyard	Courtyard	Building	Street
Public	Private		Private		Public

2. The hollowing of the centre and reorganization of the block's perimeter, introducing collective gardens or small gardens connected by a collective path (Amsterdam). 'The opening of the block and the creation of collective gardens, accessible and visible from the street, lessened the differentiation between fronts and backs and sterilized the central space.'

Street	Building	Garden	Building	Street
Public	Private	Collective	Private	Public

3. Opening of the ends and lowering of the density, ending up a back-to back combination of two rows framing gardens (Römerstadt). The rows become autonomous, planned to allow for maximum of sunlight, serviced by lanes perpendicular to the streets. Of the traditional block, only two principles remain: a) a clear relationship between building and its context, b) a differentiation of fronts and backs. However, the relationship with the street and connection with the city are abandoned.

Street	Building	Small garden	Lane	Small garden	Building	Street
Public	Private		Collective	Private		Public

4. The last step is the suppression of the private gardens in favor of a collective lawn, combined with a weakening of the differentiation between facades. The private spaces are reduced to the inside of the dwelling and the balconies, while the less and less differentiated public space occupies the whole of the unbuilt terrain (Panerai 2004; pp. 112-113) [diagrams p. 112]

Lane	Building	Lane	Lawn	Lane	Building
Public	Private		Public	Private	

These four steps show a process of opening the block which, seen form the perspective of the use of space, results in a mixing of fronts and backs, private, collective and public space and as such creating a ambiguous space. (Panerai 2004; pp. 129-133)

The Unité d'Habitation

The fifth and last phase in the development of the urban block takes place around the middle of the last century, and according to the authors illustrates the final disintegration of the traditional urban tissue. (Panerai 2004; p. 114) The Unité d'Habitation by Le Corbusier is a vertical slab, conceived in isolation with its natural surrounding; it has no ground, it rejects it, withdraws from it, by standing on 'pilotis' (fig. 12). The traditional elements of the block are cut up, rethought and rearranged in a new unit, a vertical urban block, where all traditional relationships are inverted and contradicted. The street has disappeared and turned into a 'rue corridor', an internal street. This spatial reorganization also involves a complete modification in the way of life of the inhabitants. (Panerai 2004; pp. 116-118) In this model the old tissue has been dissolved (fig. 11): the traditional sequence of street/edge/courtyard/end of plot has disappeared, the contrast of sides does not exist any more an possibilities for individual appropriation and modification are nonexistent or confined to the interior of the dwelling. The Unite d'Habitation appears to the authors to as 'the negation of the city and the last metamorphosis of the block. (…) Cut off from any context, here the image of the ship attains all its meaning and the Unite d'Habitation expects from the inhabitant a complete change in his way of life.' (Panerai 2004; pp. 121)

|	Traditional tissue	Le Corbusier
Access to dwelling	On the façade and in the open air	In the centre and the dark
Shopping	On street ground floor	Upper floor in a gallery
Facilities	On street ground floor or at the end of plot	At the top (nursery) or elsewhere
Open space	Internal and hidden (the courtyards)	External and in view (under the pilotis)
The street	Outside	Inside
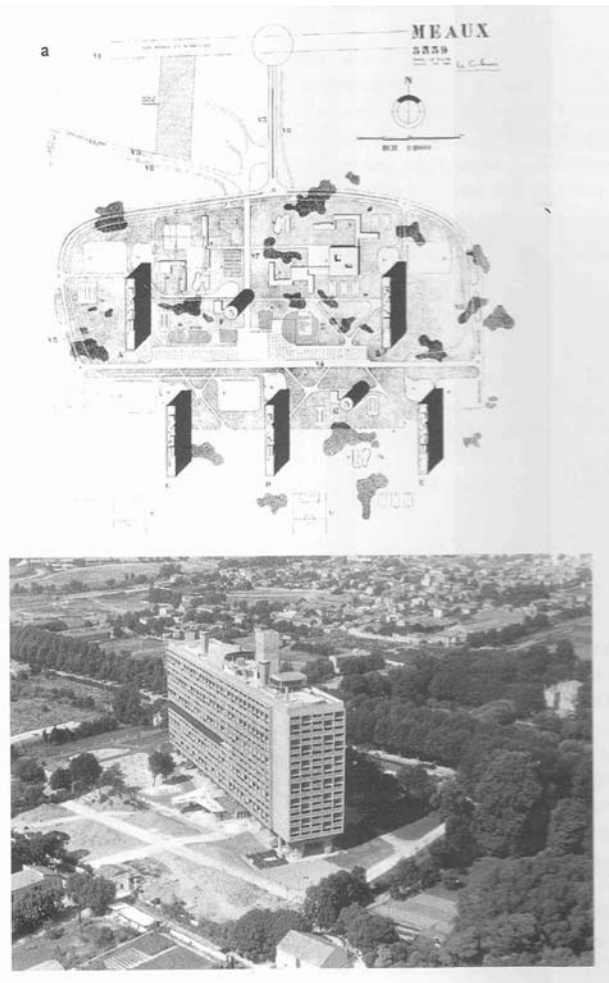
Figure 11. Le Corbusier, section from the Cité Radieuse plan

Figure 12. Le Corbusier, the Marseille Unité d'Habitation

Conclusions

In its negative critique of the modernist building forms the study of Panerai, Castex and Depaule may seem somewhat outdated. The straightforward attack on the Unité could even be called unjust, as we now that in particular the building in Marseille is the only one that does function successfully in both a social and urban sense. We should however not forget that in its critique the book is a sign of its time: written in the late 70's it fits in the flow of rising critique on modernist urban planning. The translation in English of the book 30 years later however coincides with a revival of the urban block in planning and urbanism in both European and American cities. For that purpose this study could again function as a source of knowledge and help architects to design better functioning and more sustainable housing quarters in our cities, for both new living quarters as the redevelopment of existing ones. A fusion of a sociological and a typo-morphological understanding of urban space is a prerequisite for such an ambition. Such a double approach should point out to designers the need for a clear spatial distinction between public, collective and private spheres in and around housing unities and with that the need for leaving space for private appropriation by inhabitants. Urban space is not one dimensional, but a multi layered phenomenon of which the differences are produced by the differences in use of spaces by its inhabitants.

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Figure credits:

All illustrations are taken from: Panerai c.s. (2004)

Street	Building	Garden	Building	Street
Public	Private	Collective	Private	Public

Lane	Building	Small garden	Lane	Building	Small garden
Public	Private		Public	Private	

Typo-morphological research makes a plea for acknowleging the logic of the physical dimension of space, next to economic, social and political aspects that are of influence on the form of the city. In stead of quantative data like inhabitant figures, economic statistics etc. they make a classification of settlements based on a study the physical structure of the city (Engel 1984; p. 278).

The dwelling is part of the routines and rituals of everyday life. All these together with the general dwelling ideals can be traced back to the leading cultural model, which is different for every culture (good and bad manners, relationship forms, education, eating habits, sexual costumes etc.). These cultural models do change in the course of history, although very slow (Engel 1984; p. 286).