

**THE EVOLUTION OF
THE IDEAL CITY**

**VAN DEN BROEK
AND
BAKEMA**

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Course

MSc 2
Architectural History Thesis
AR2A011

Institution

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Master of Science Architecture, Urbanism and Building Sciences
Julianalaan 134, 2628 BL Delft

Date

20-04-2023

ABSTRACT

The 20th century consists of technological improvements and societal changes due to industrialisation and the two World Wars. Architects, urban planners, artists, critics, and other professions sought to create a better future using different themes and available technologies to visualise an ideal city based on their ideals about people's needs. This research focused on Van den Broek and Bakema's ideal city and how it emerged over the course of the 20th century. The study investigated how the ideal city developed in their work from 1900 until 1965. The research identified that Van den Broek and Bakema's ideal city was formed through thoughts and outcomes discussed during meetings within different modernist groups. The period after World War II had a significant influence on how people perceived the world and how the living environment should operate. Van den Broek and Bakema attempted to combine these aspects in creating their ideal city, emphasising the importance of interactions and social communities through transitions between different layers in the living environment to counter individualism. The study also revealed that Van den Broek and Bakema's approach was in line with the principles of De Stijl, the C.I.A.M., and Team 10 which are discussed during this research.

Keywords

Van den Broek and Bakema, ideal city, utopia, het nieuwe bouwen, c.i.a.m., team 10, Pampus

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INTRODUCTION

In the late 19th century and during the 20th century numerous developments in social, cultural, and technological contexts brought major changes in lifestyle and living environment of people. In the 19th century, at the same time when industrialisation took place, people moved from the countryside to cities and urbanisation caused pressure on the housing stock and changed the urban organisation (Overy, 1991; Turner & Maryanski, 1979). Additionally, the global population grew and the rapidly developing technological innovations from the first airplane to pouring concrete to the invention of the television accelerated the process of change. At the same time, the mode of transport had changed due to the integration of public transport in cities. And lastly, World War I & II were the most influential events of the 20th century that accelerated technological solutions and created opportunities to reconstruct cities. As a result of these developments and events, the way of thinking about future living had adjusted and the living environment had to adapt with it.

In the 19th century, commercial reasons were the main factor in changing the urban environment and in conjunction with technological developments, people became more individualists due to the many leisure e.g. cinema and media to inform and entertain themselves (Bos & Oud, 1946). Additionally, the urban life during the Second World War and the destruction of the city caused a change of mindset of people, and humanity was looking towards a new future. To change the living environment and create a new future, future planning with new modern ideals and visions needed to be created. Numerous architects, urban planners and activists e.g. Le Corbusier, Berlage, Janes Jacobs, and Walter Gropius, were thinking about the modern future and created various utopias¹ with their visions of the ideal city. Many architects, urban planners, and other disciplines shared the same values and ideals and decided to work together and multiple modernist groups were formed. For example, Piet Mondrian a painter and Van Doesburg an architect founded the group The Stijl and W. Kromhout and M. Brinkman both architects, formed the group De Opbouw. As result, more modernist groups were founded during the 20th century and all with modernist ideas but with different thoughts on how to implement them in the living environment.

The modernists that were mentioned and many more used a functional approach, which was part of an international movement named functionalism², to create solutions for new design challenges and for creating ideal cities with modern technologies. The use of modern technologies expanded following the movement of modernism which was known all around the globe. Around 1900 this movement developed in the Netherlands under the name Het Nieuwe Bouwen (Bock et al., 1982). One of the most important figures in the period after the Second World War that were part of Het Nieuwe Bouwen were Jo van den Broek and Jaap Bakema. They had their architectural firm, Broekbakema which originated by Michiel Brinkman – father of Johannes Brinkman - and Leendert van der Vlugt who were part of a modernist group De Opbouw and had a long history of modernist architecture e.g. Van Nelle Fabriek (figure 01), and Bakema was the founder of the modernist group Team 10 and member of C.I.A.M.³ Like many architects, they developed their vision of the ideal city that tried to find solutions for events and developments that occurred at the time of creating them.



Figure 01 Van Nelle Fabriek (1930) by Johannes Brinkman and Leendert van der Vlugt

1930

¹ "Utopia is the sketch of an ideal society that should serve as an example to the existing society. It is thus a description of the ideal form of a society existing only in the author's imagination. The purpose of utopia is to demonstrate the drawbacks of the existing society" Ensie. (2015).

² "Architectural style in which the purpose of a building determines its form" WikiWoordenboek. (2018).

³ Congres International d'Architecture Moderne (C.I.A.M.), a movement of modern architecture and urbanism where social functions were emphasised in designs and functionalism was paramount in design Ensie. (2017).

Although Van den Broek and Bakema were active lately in the period of Het Nieuwe Bouwen, after the Second World War people's mindset had changed towards the way of living and what the living environment should look like. Together with the adjusted mindset due to the events and developments, changed the ideal cities that were created from the beginning of the 20th century. Van den Broek and Bakema, eventually, created an ideal city called Plan Pampus (1964-1965) where many of the visions created during the 20th century were incorporated which will be addressed in this research. To create an overview of the evolution of ideal cities from 1900 until 1965, this research focuses on the question: **How did the ideal city develop in the work of Van den Broek and Bakema in the period from 1900 until 1965?**

To narrow the scope of ideal cities, this research focuses on ideal cities that were developed by modernist groups important to Het Nieuwe Bouwen in the timeframe between 1900 and 1965, after the creation of Plan Pampus. To create an overview of ideal cities during this timeframe and how these cities formed a base for the ideal city of Van den Broek and Bakema the following sub-questions have been formulated:

- During the period of Het Nieuwe Bouwen, which modernist groups were significant and actively involved?;
- What were the ideal cities of modernist groups that were important for Het Nieuwe Bouwen between 1900 and 1965?;
- What was the ideal city of Van den Broek and Bakema?

In the period of Het Nieuwe Bouwen, many developments happened and several modernist groups were founded with numerous architects involved. To create an overview of all the groups that were important to Het Nieuwe Bouwen *Het Nieuwe Bouwen – Previous History* from Bock et al. (1982) is analysed. Additionally, architects wrote books and manifestos and shared them in magazines which was the best way to spread their ideas and persuade people, including other architects, about their vision for creating ideal cities. Bakema made a series, of the developed ideal city during his career, that resulted in a book *Van Stoel tot Stad* (transl: from chair to city) and it is about the relation between people and space and how the city reacts to people's living environment and vice versa (Bakema, 1964). More of these books and manifestoes together with reference projects are analysed to describe the ideal cities developed in the period of Het Nieuwe Bouwen. Most of the literature to describe the ideal city of different modernist groups are primary sources. These sources are mostly accessed by the library but some original drawings and plan explanations are consulted by the archive of Het Nieuwe Instituut also published *Open Bakema Celebration* by Van den Heuvel et al. (2014) providing an overview of the work and life of Bakema.

The first part of the research focuses on the history of Het Nieuwe Bouwen and who was involved in the development of ideal cities. The examination of Het Nieuwe Bouwen provides several modernist groups that were active during the period between 1900 and 1965. From here can the research go more in-depth into the visions and ideals of the different modernist groups that are formulated in the first chapter. When displaying these ideal cities, research can be conducted to explore the ideal city of Van den Broek and Bakema. The results that this research gains from the development of ideal cities can help to examine the base of Van den Broek and Bakema's ideal city. This research aims to provide an overview of important architectural developments during the period of Het Nieuwe Bouwen through the use of ideal cities of different modernist groups and resulting in the ideal city of Van den Broek and Bakema.

THE EMERGENCE OF HET NIEUWE BOUWEN

What is known in the Netherlands as Het Nieuwe Bouwen is internationally known as functionalism or the new architecture (Bock et al., 1982). It is hard to describe when functionalism emerged because it was never invented but it developed over time. However, multiple events and developments that took place during and after the two World Wars up to the second industrial revolution around 1950 are related to the rise of functionalism (Banham, 1970; Sharp, 2002). Before that, a theory from Spencer is discussed as quoted in Turner and Maryanski (1979): "comparisons between the individual and social organisms, Spencer began to distinguish between "structure" and "function." It is in this distinction that the essence of functionalism resides: Structures have functions for maintaining the social whole" (p. 11).

Structures and functions are separated in this theory by Spencer and Émile Durkheim went even further to include functionalism in social sciences. Durkheim's theory is about the organisation and the interrelation between social functions that are structured by a combination of numbers, people, patterns of differentiation, and the location of space and is also connected to structuralism (Maryanski & Turner, 1991). The Barcelona Pavilion of Mies (Figure 01) van der Rohe and Lilly Reich represents the aspects of Durkheim's theory and in addition, refers to the principles of De Stijl (Banham, 1970) which is one of the first modernist group which consists of functionalistic and futuristic architects and artists and is important to Het Nieuwe Bouwen. Functionalism is closely associated with modernism, which was a global movement of which Het Nieuwe Bouwen was the modernist movement in the Netherlands.



Figure 02 Barcelona Pavilion (1929) by Mies van der Rohe and Lilly Reich

1929

The emergence of Het Nieuwe Bouwen was also influenced by the Housing Act of 1901 in the Netherlands which improved housing conditions and eventually social housing programs were developed due to the crisis around 1907 (Bock et al., 1982). Various modernist groups shaped modernism in the Netherlands and developed numerous plans for social housing programs. Additionally, a new way of thinking about the living environment that played a major role in modernism through the technical advances in the cultural field emerged, making people more passive and individual and leading to spending their leisure time differently (Bos & Oud, 1946). The phase with expressionists around 1920 started with the functional approach and was later seen as the new architecture due to the recognition of continuous rational lines and clear architectural engineering structures (Sharp, 2002). Piet Mondrian, who mastered these design principles, founded De Stijl together with Theo van Doesburg in 1917 and wanted to use these design principles for creating a new living environment. A couple of years later, in 1920, another modernist group was founded by Willem Kromhout and Michiel Brinkman with the name 'De Opbouw' and the main purpose was to shift the predominant role that Amsterdam had in architecture, due to the prominent architecture style The Amsterdamse School⁴, more towards Rotterdam (Dietz et al., 1995).

The two modernist groups that shared similar visions towards an architecture that would publish magazines with each other are De Opbouw and the in 1927 founded group De 8. It was founded by six architects and because Jan Duiker and Jan Wiebenga, who had already designed and built important buildings e.g. sanatorium Zonnestraal (Figure 03), joined the group in 1928 and the group became more acknowledged (Dietz et al., 1995).

At the time, and before, Berlage was a highly influential architect in both Dutch and international architectural history. He felt that the functionalist movement was becoming too dominant and presented his ideas on the matter in a lecture: 'Der Staat und der Widerstreit in der moderne Architektur' at the first C.I.A.M. meeting in

⁴ "The Amsterdam School is a direction in architecture between 1913 and 1930, characterised by particularly plastic design and a lot of decoration" Ensie. (2019).



Figure 03 Sanatorium Zonnestraal (1928) by Jan Duiker with Bernard Bijvoet and Jan Gerko Wiebenga

1928 in La Sarraz. This group which consisted of several European architects and modernist groups such as De 8 and De Opouw, tried to create scientific evidence by comparing designs with the same scale to find solutions to improve living and work environments to create an ideal city within the principle of *Het Nieuwe Bouwen* (Mumford, 2019). Berlage on the other hand, advocated in his lecture that the architecture of Amsterdam should be the basis of national architecture but instead, the national architecture of the Netherlands shifted more towards modern architecture (Bock et al., 1982). Although not all architects are in the same line with this movement, like Berlage, C.I.A.M. grew in prominence and eventually became one of the most important architecture groups in history.

A couple of years after the emergence of C.I.A.M in 1928, the financial crisis struck the whole world that started with the stock market crash in 1929 on Wall Street. Due to this crisis, the architectural community rethought the position towards *Het Nieuwe Bouwen* and the first followers of functionalism (Zandstra in Bock & Kirkpatrick, 1989). Architects like Van Eesteren, Merkelbach, Van Tijen, and Oud were too focused on *Het Nieuwe Bouwen* and that Berlage's principles were forgotten and the crisis opened their minds again and their extreme positions adjusted (Bock et al., 1982). From this moment a new group arose by the name of Group '32 and had a less radical vision because the (mostly) young architects focused not only on '*Form Follows Function*' but also more on the aesthetics than the functionalists before (Back & Payman, 1998).

Around the same time, De Opbouw and De 8 worked together in publishing their architectural journal *De 8 en Opbouw*, arising from *Bouw en Techniek* according to Griffioen (2019). In this journal, De 8 and Opbouw published new building innovations and techniques that were advertised by companies. Additionally, in this journal, architects could publish manifests and statements e.g. Van Ravesteijn and Merkelbach arguing in *De 8 en Opbouw (1934 no.18)* after the death of Berlage about how Berlage had been an inspiration for *Het Nieuwe Bouwen* but because of the new design approaches and innovations that the young architects used, Berlage could not stay ahead of *Het Nieuwe Bouwen* (Bock & Kirkpatrick, 1989). Whereas Staal describes his impressions of his journey and how he envies Le Corbusier using the new technological innovations in *De 8 en Opbouw (1935 no.6)* (Bock & Kirkpatrick, 1989).

In the post-war Second World War, young architects had their doubts about the ideas of urbanism that gained out of the C.I.A.M. meetings (Komossa & Aarts, 2019; Mumford, 2019). A group of architects formed in 1956 a new group named Team 10 with Bakema as the leader. Team 10 plagued the return of 'normal' streets, housing, and cities along with a master plan that includes a vision of street life (Mumford, 2019). This was in line with the book by Jane Jacobs (1961) *The Death and Life of Great American Cities* where she argued against the modern urban planning in New York initiated by Robert Moses in 1950. Moses wanted to reorganise New York while focussing on traffic instead of the needs and desires of communities and ignored the concerns of the residents (Jacobs, 1961). On the other hand, the building industry was developing and using standardisation and prefabrication to meet the growing demand for housing programs and individualism increased due to this standardisation (Mumford, 2007).

MODERNIST GROUPS AND THEIR IDEAL CITY

The 20th century was a period where various architects within multiple groups tried to formulate and take a position in Het Nieuwe Bouwen which resulted in new ideas on architecture, conceptualizing architecture within the larger context of a city. The result was a shift towards thinking at a city-wide scale, which led to a thorough review of the urban system to work towards the creation of an ideal city. These ideal cities are the base, which is formed due to the interpretation of architectural ideals for living and design, to create an idealistic world (Güneri, 2018). However, according to Güneri (2018), an ideal city is a romanticised world that could only function if it is specified to cultural meanings. These cultural meanings are represented in the ideal cities that were developed in the history of Het Nieuwe Bouwen and every modernist group that was mentioned in the previous chapter had their interpretations of the ideal city. This chapter provides an overview of important ideal cities created within Het Nieuwe Bouwen, beginning with De Stijl who was the precursor of this movement. Secondly, the ideal city of C.I.A.M., of which De 8 and De Opbouw were also members of, developed through several meetings with different themes is explored. Finally, the ideal city of the modernist group Team 10 is discussed, who eventually separated themselves from C.I.A.M.

DE STIJL

1917

The first modernist group that was mentioned in the first chapter is De Stijl which was founded in 1917. In the period before, there were extensive changes in the urban organization due to urbanisation caused by industrialization and the agriculture crisis in Europe between 1870 to 1890 (Overy, 1991). As a result of industrialization, the objects produced by machines became more minimalistic and sometimes represented a machine by itself (Sharp, 2002) and this happened also with the architecture of the modernists. Le Corbusier's Dom-ino House from 1915, where a house becomes a machine to live in that was followed by what Reyner Banham phrased as 'indoor revolution' (in Sharp, 2002, p. 38) and a more cubistic housing design emerged.

"A great epoch has begun. There exists a new spirit. Industry, overwhelming us like a flood which rolls on towards its destined end, has furnished us with new tools adapted to this new epoch, animated by the new spirit. . . . If we eliminate from our heart and minds all dead concepts regarding the houses and look at the question from a critical and objective point of view, we shall arrive at the "House-Machine," the mass-production house, healthy (and morally so too) and beautiful in the same way that the working tools and instruments which accompany our existence are beautiful." (Le Corbusier, 1986, p. 227, original work published 1923).

From this moment the artists Theo van Doesburg and Piet Mondrian started the journal *De Stijl* and shortly after the artists Vilmos Huszár and Bart van der Leek and the architects Gerrit Rietveld, Robert van 't Hoff and Jacobus Oud merged with Van Doesburg and Mondrian into a group which is known as De Stijl. The group's main goal was to change the position of The Amsterdam School of architects and designers within the European Art Nouveau (transl: new art) from the more monumental art and architecture towards more geometric and linear based art and architecture (Overy, 1991).

To advocate the ideals and the ideal city of De Stijl and create a modern (inter)national style, Van Doesburg made use of the neutral position that the Netherlands had during the First World War and that focused after the War on repairing bonds between countries part of WOI (Overy, 1991).

The manifesto (Figure 04), published at the end of the First World War, used the 'old' and 'new' consciousness to indicate the time before and after the war which is 'connected with the universal'. It called for a change in art, 'the new plastic art', which connects 'internal and external life' and created a balance between 'the universal and the individual'. To create this balance and connection between interior and exterior Van Doesburg (1924) wrote in *Tot Beeldende Architectuur* (transl: Towards a Plastic Architecture) that the new architecture replaced the closed walls with pillars so an open floor plan is created where interior and exterior merge. The new architecture according to Van Doesburg (1924) does not consist of repetition and symmetrical street walls and this was done by a balanced ratio of proportion, size, and positions of building components. Defining the ideals and the ideal city of De Stijl starts with *MANIFEST I OF „THE STYLE”, 1918*.

MANIFEST I OF „THE STYLE”, 1918.

1. There is an old and a new consciousness of time.
The old is connected with the individual.
The new is connected with the universal.
The struggle of the individual against the universal is revealing itself in the world-war as well as in the art of the present day.
2. The war is destroying the old world with its contents: individual domination in every state.
3. The new art has brought forward what the new consciousness of time contains: a balance between the universal and the individual.
4. The new consciousness is prepared to realise the internal life as well as the external life.
5. Traditions, dogmas and the domination of the individual are opposed to this realisation.
6. The founders of the new plastic art therefore call upon all, who believe in the reformation of art and culture, to annihilate these obstacles of development, as they have annihilated in the new plastic art (by abolishing natural form) that, which prevents the clear expression of art, the utmost consequence of all art notion.
7. The artists of to-day have been driven the whole world over by the same consciousness, and therefore have taken part from an intellectual point of view in this war against the domination of individual despotism. They therefore sympathize with all, who work for the formation of an international unity in Life, Art, Culture, either intellectually or materially.
8. The monthly editions of „The Style”, founded for that purpose, try to attain the new wisdom of life in an exact manner.
9. Co-operation is possible by:
 - I. Sending, with entire approval, name, address and profession to the editor of „The Style”.
 - II. Sending critical, philosophical, architectural, scientific, literary, musical articles or reproductions.
 - III. Translating articles in different languages or distributing thoughts published in „The Style”.

Signatures of the present collaborators:
THEO VAN DOESBURG, Painter.
ROBT. VAN 'T HOFF, Architect.
VILMOS HUSZAR, Painter.

ANTONY KOK, Poet.
PIET MONDRIAAN, Painter.
G. VANTONGERLOO, Sculptor.
JAN WILS, Architect.

Figure 04 MANIFEST I OF „THE Style”, 1918

1918

Agreeing with Van Doesburg, Mondrian (1926) published *De Woning – De Straat – De Stad* and argued that people were becoming more individualistic and placing less emphasis on collectivism, leading to a greater focus on defining the interior of their homes rather than the exterior. Eventually, the design of the city was influenced because the street became for traffic and the park for a walk and home for the individual (Mondrian, 1926). To conclude he stated: 'For this reason, even in our days, one has to be individual while seeking and developing the universal within' (Mondrian, 1926, p. 12).

Not many buildings were realized with the principles from the style but Figure 05 shows an example from J.J.P. Oud, who was a member of De Stijl although Oud positioned the architect and artist differently from each other than Van Doesburg did. According to Oud, artists were subordinate to architects and had to be complementary and supportive of the architect's design (Bock et al., 1982). Although, Oud was part of De Stijl and built housing blocks (destroyed during WWII) in Rotterdam where individual elements are connected with the collective (the whole) so the (individual) blocks with the (collective) city, the (individual) façade with the (collective) street, the (individual) dwellings with the (collective) blocks, etc. (Overy, 1991).

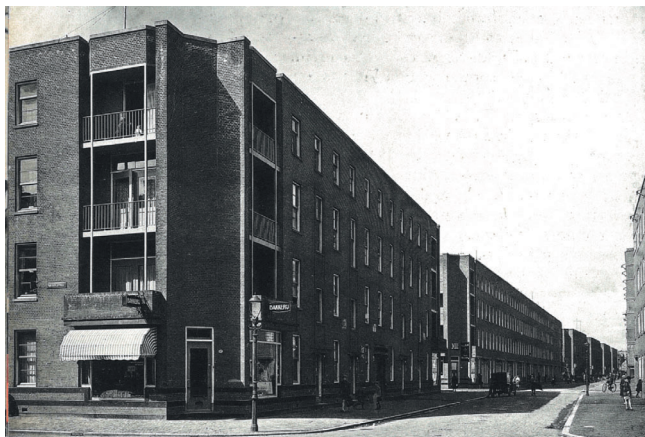


Figure 05 Housing Blocks - Oud (1921)

1921

Another design (Figure 06) is a shopping arcade designed by Van Eesteren which represents the ideas of De Stijl although it was never built.



Figure 05 Shopping arcade - Van Eesteren (1924) colored by Van Doesburg

1924

Thus, De Stijl focused on a new era after the First World War that destroyed individualism and wanted to create a balance between universal and individual. Through geometric shapes and proportions, architects, urban planners, artists, and painters tried to establish a relationship between the individual and the collective (Figures 05 & 06), with different disciplines working together to achieve the right result.

C.I.A.M.

1928

De Stijl was thus concerned with defining the ideal city and searching for the new architecture from which Mondrian (1926) eventually published *De Woning – De Straat – De Stad* in which he tried to define the balance between individual and collective. This same search for the ideal city is done by C.I.A.M., which was founded in 1928 by the initiative of H el ene de Mandrot, who was a Swiss wealthy artist with compassion for “decorative and fine arts, music, and literature” (Simon, 2022). Mandrot invited various international architects to her medieval chateau La Sarraz Switzerland, and this group became the internationally oriented modernist group C.I.A.M. In the declaration of La Sarraz, the description of urban planning was only the beginning of the several congresses C.I.A.M. would have to shape the formulation of town planning (Woud et al., 1983). C.I.A.M. strived for urban planning with “the organization of the functional conditions of collective life” (Woud et al., 1983, p. 122), and that focused more on functionality than aesthetics.

The first C.I.A.M. congress theme is the home, the street, the city, and it has similarities with Mondrian’s publication of *De Woning – De Straat – De Stad* (transl: *The Dwelling – De Street – The City*) that was also about the search to connect the increasingly individualistic society again with the collective society. The construction of the first conventions, making the individual home into a city, is comparable to the film by Eames Office (1977) in which Charles and Ray Eames put the individual about the universe in *Powers of Ten and the Relative Size of Things in the Universe*.

Another theme that came to the attention of C.I.A.M. was due to a shortage of housing for the new middle classes created by industrial capitalism and C.I.A.M II was dedicated to designing the minimum dwelling (Korbi & Migotto, 2019). The conference that followed was about the stacking of these minimal dwellings of which, according to Mumford (2019) the Bergpolderflat (1932-34) van Van Tijen, Brinkman and Van der Vlucht (Figure 07) served as a prime example. Brinkman and Van der Vlucht were well known architects and had their architectural firm name was changed in 1951 to Broekbakema by the joining of Van den Broek in 1937 and Bakema in 1950 and the passing of Brinkman in 1949 and Van der Vlucht in 1936.

The most famous and also the most important congress on the search for the ideal city was C.I.A.M. IV in 1933. The theme: *The functional city*, discussing the Amsterdam General Extension Plan (AUP), which, through its clear grid, oriented the roads and plots North-South and East-West, that allowed the buildings to be functionally partitioned which fits in with *Het Nieuwe Bouwen* (Woud et al., 1983). This conference resulted in the book *La Charte d’Athens* and was known as Le Corbusier’s work because he presented his plan Ville



Figure 07 Bergpolderflat (1932-34) by Van Tijen, Brinkman and Van der Vlugt

1932-1934

Radiuse, however, it is the work of the overall outcomes of C.I.A.M. that Le Corbusier translated into a book. Van Eesteren argued that an efficient transportation system should organize functional programs for the city about housing (Mumford, 2019). This is in line with the main principles found in *Ville Radiuse*, carefully determining the location and size of areas for working, living, recreation, and traffic and establishing the relationship between these areas (Woud et al., 1983). Le Corbusier's design (Figure 08) clearly shows the organisation of this structure where traffic flows are separated.

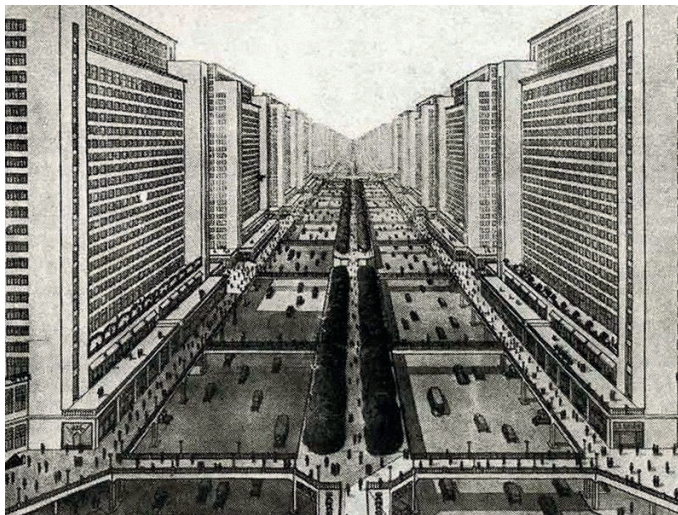


Figure 08 Ville Radiuse (1930) by Le Corbusier

1930

C.I.A.M. continued its search for the ideal city during and after the Second World War. After the Second World War, members of C.I.A.M. set out to find out how bombed cities during the Second World War could be rebuilt as quickly as possible with the help of separating functions and traffic flows. However, this also led to negative reactions by making street life less attractive and the image people had of the ordinary street blurred and in C.I.A.M. XI, *Reconstruction of Cities*, the needs of people on the streets and the social aspects of this were formulated (Woud et al., 1983). Despite this change of thought within the C.I.A.M., reactions against the modernist group piled up, as in 1961 Jane Jacobs published her book *The Death and Life of Great American Cities: The Failure of Town Planning* in response to the plans of Robert Moses to transform the inner city of New York monotonous cities with no life on the streets (Mumford, 2019; Woud et al., 1983). Additionally, this book could also be seen as a reaction to the urban plans C.I.A.M. promoted earlier e.g. *Ville Radiuse*.

Not only was there criticism from outside the C.I.A.M. but within the group were several young architects who disagreed with the C.I.A.M.'s urban planning and argued more for the use of the traditional house, street, neighbourhood, and city (Bakema & Van den Heuvel, 2018; Mumford, 2019). Additionally, the vision of *Het Nieuwe Bouwen* of the 1920s, radical functionalism as a goal, was also criticised by a group of young architects, and as a result Group '32 emerged with functionalism as a means of making architecture (Back & Payman, 1998; Bock et al., 1982). Group '32 only existed for 18 years and eventually, a new group of young architects within the C.I.A.M formed a modernist group named Team 10 in 1956 and sought an answer for reconstruction cities after the Second World War and criticized the welfare state and consumerism that emerged (Risselada, 2005). Both groups took a more nuanced attitude towards *Het Nieuwe Bouwen*, which provided functional solutions while paying attention to architecture.

Bakema was the founder and leader of Team 10 and together with Aldo van Eyck, Allison and Peter Smithson, Giancarlo de Carlo, Georges Candilis, and Shadrach Woods, they formed the 'inner circle' of Team 10 (Risselada, 2005). That Bakema was the true leader of Team 10 comes from the fact that after he died in 1981, the group was disbanded. Team 10, which first contributed to the C.I.A.M. meetings, also organised meetings after the dissolution of C.I.A.M. where it searched for answers with a variety of themes and this resulted in several manifestos and essays compiled by Smithson (1963) that come together in *Team 10 Primer 1952-63* to articulate the principles of Team 10.

"The object of this primer is to put into one document those articles, essays, and diagrams that TEAM 10 regard as being central to their individual positions. In a way it is a history of how the ideas of the people involved have grown or changed as a result of contact with the others, and it is hoped that the publication of these root ideas, in their original often naive form, will enable them to continue life" (Smithson, 1963, p. 349).

In 1955, during the 10th Congress of C.I.A.M, under the name C.I.A.M X, Team 10 (then Team X) went in search of a new meaning of 'Habitat' that was needed due to the change in the internal relationship between 'people and things' and 'people and people' and caused a more individualistic lifestyle (Bakema et al., 1955). Therefore, Team 10 focused on creating more social interaction at the doorstep, what they believed was the divider of the private realm and the public realm, to contribute to the community (Bakema & Van den Heuvel, 2018; Van den Heuvel et al., 2014).

Bakema wrote in a letter to members of Team X that by separating traffic routes, room for future development is created (Bakema, 1956). In addition, Bakema (1956) describes that with growing affluence, the individual needs more shelter from the weather and only one building cannot solve this but urban planners and architects must work together to obtain this, the 'Habitat'.

"If one lives in a community one should be able to understand its structure, This is more than a matter of being able to find ones way about, it is a matter of feeling that you are somebody living somewhere" (Bakema, 1956, p. 2).

It was mentioned earlier that the separation of roads gives room for development and Van Eyck argued:

"The most important thing about roads is that they are physically big, and have the same power as any big topographical feature. . . and in consequence social, divisions. To lay down a road . . . is fundamentally changing the structure of the community" (Van Eyck, 1958, p. 361).

Team 10 not only wanted the roads future-proof but also looked for ways to integrate them without forming social disconnections and according to Highmore as cited in Risselada (2005): "Team 10 sought practical solutions to some of the most intractable problems that resulted from the promotion of vital human associations." (p. 274). At the same time, Team 10 focuses on creating modernisation, concepts, and strategies to establish a relationship between the individual and the collective and the individual and the city (Risselada, 2005).

THE IDEAL CITY OF

VAN DEN BROEK AND BAKEMA

One of the most influential architectural firms in the post-war Second World War was Broekbakema. Bakema was known for his involvement in C.I.A.M. and the founder of Team 10 and Van den Broek of the first auto-free shopping boulevard, The Lijnbaan. Van den Broek and Bakema had a clear vision of how future living would look like and developed two large urban plans, one called Pampus in Amsterdam and one for a new city centre in Tel-Aviv. Based on these two urban plans and the Lijnbaan, the ideal city of Van den Broek and Bakema is explored.

Lijnbaan - Rotterdam

1953

The Lijnbaan (Figure 09) is perhaps one of the most famous shopping promenades in the world and especially in the Netherlands, designed in 1953 specifically for pedestrians as cars are banned which was never done in the world before. Rotterdam's bombed historic centre symbolized the end of Dutch society as Wagenaar (1993, p. 91) stated: "the destruction of Rotterdam's inner city symbolically marked the radical end of Dutch society of the interwar period". This shopping centre was supposed to symbolise the reconstruction of Rotterdam, and Van den Broek and Bakema (ca. 1953) write about the mall's mission: 'Assignment, this was symbolically amplified on Reconstruction Day 1951 at the Kamer van Koophandel by Mr K.P. van der Mandele' (p. 1). Additionally, the shopping promenade in the bombed-out centre of Rotterdam had to provide new space for the aggrieved shop owners, who were in temporary premises allowing the shops to continue (Van den Heuvel, 2017).



Figure 09 Lijnbaan (1953) by Van den Broek and Bakema

The two-storey retail promenade created an intimate public space carefully enclosed by a canopy (Bakema & Van den Heuvel, 2018). Van den Broek and Bakema had thought about how the area could be reached and at the same time the Lijnbaan separates different functions and traffic flows from each other and the reason for this separation is, according to Van den Broek and Bakema (ca. 1953): "a clear function split thus, which became necessary due to the mechanisation of traffic since 1850" (p. 2). Additionally, Van den Broek and Bakema (ca. 1953) described that after 100 years, the separation of pedestrians on two sides of the street, created by the mechanisation of traffic, was brought back by a more connecting space that is between the two pedestrian streets.

The shop assembly is diverse but formed a coherent overall picture and Van den Broek and Bakema tried to give the individual the feeling of existence within the total space as Bakema (1964) described: "The deve-

lopment of constructions only makes sense if it can promote greater understanding of total space (in which everything is and becomes)" (p. 3).

Van den Broek and Bakema wanted to distinguish between the public space and the shopping street but still with a certain coherence, and using a clear grid of 1.10 metres, the floor plans, facades, and public space were designed (Van den Broek & Bakema, ca. 1953).

City Centre - Tel-Aviv

1962

A plan with a whole other scale than the Lijnbaan is the creation of a new city centre in Tel-Aviv where Van den Broek and Bakema searched for new concepts for urban organisation and dwellings. This plan included ideas on the relationship between traffic routes and public space that were developed in Lijnbaan and applied on a bigger scale. The new city centre should connect the ancient port town Jaffa and the suburbs around it called 'Bauhaus-City' (Andreas et al., 1976; Risselada, 2005). These areas were connected by two main roads and this new city centre is on the intersection and the roads are the 'energy lines' and "the space radiating from these energy lines are designed on planned levels so that the city core is recognisable from its informative silhouette" (Bakema as cited in Risselada, 2005, p. 144).

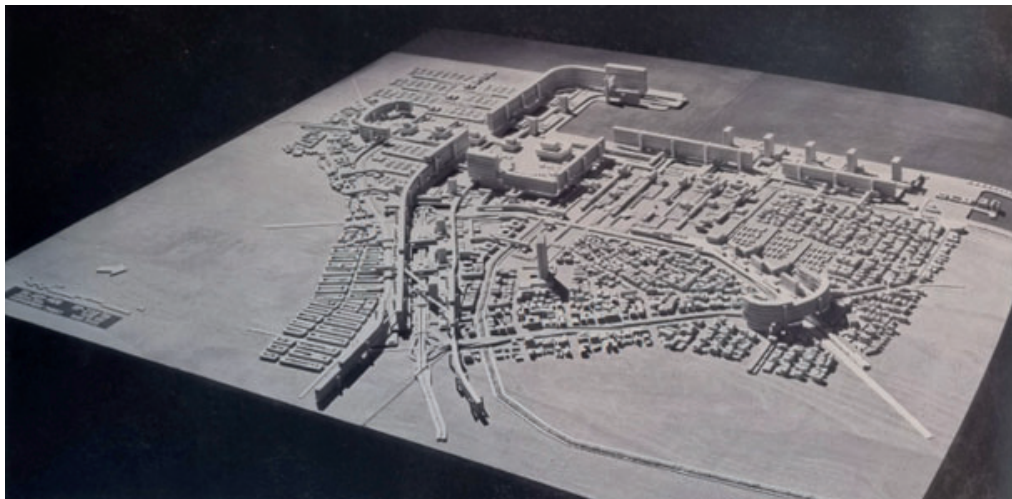


Figure 10 Areal view of the model new City Centre Tel-Aviv by Van den Broek and Bakema

The most significant element in the urban plan is the core wall alongside the main road and the elevated public spaces (Figure 10). This core wall produced a silhouette that made the city a comprehensible whole, seeing it from a distance (Risselada, 2005). Bakema needed to form an urban environment where the inhabitant could identify himself as Bakema stated in Andreas et al. (1976):

"The shaping of the built environment – by means of which man tries to protect himself against the natural environment and at the same time to form a relationship with it – is part of a decision-making process. Of the three essential questions of life: What am I? – Who am I? – Where am I? the last is largely determined by the built environment, which is also a means of identification" (p. 18).

On the intersection of the 'energy lines' (Figure 11) an open elevated plaza with cultural and civil institutions is situated. Looking at the Lijnbaan, the separation of traffic flows created a more connection space for pedestrians and this intervention was also used in Tel-Aviv. Additionally, the plaza formed a transition space between the sea and the city and vice versa (Bakema, 1964).

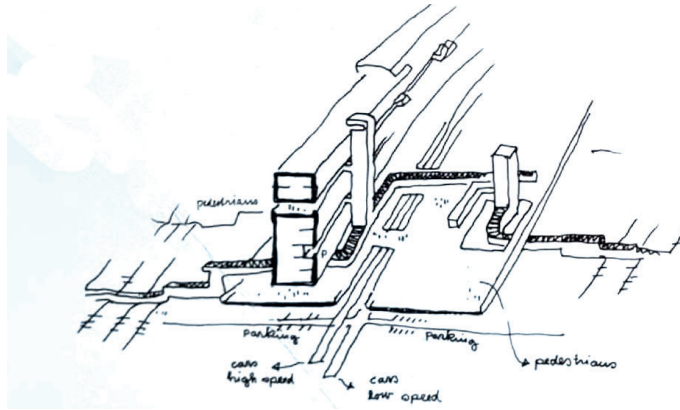


Figure 11 Diagrammatic section of the core-wall building with the different 'energy lines'

Plan Pampus - Amsterdam

1964-1965

An extension of Amsterdam by Van den Broek and Bakema, plan Pampus (1964-1965) was a further developed plan of Tel-Aviv. In the presentation book Van den Broek and Bakema (1964-1965) described the idea of a "Linear city in a recreational area" where "there are sufficient opportunities near the home to spend weekends there" (pp. 1-3) which is a response to increasing traffic congestion in the city by residents on their way to recreation. The focus of the urban plan was on the thoroughfare (city), enclosed neighbourhood spaces (village), and open spaces (nature) (Van den Broek & Bakema, 1964-1965).

The urban structure is based on a continuation of a polder structure (Figures 12 & 13) and "the core-wall buildings accentuate the transition to the landscape of polders" (Bakema, 1965, as cited in Andreas et al., 1976, p. 26). The core-wall buildings also enclosed the community centre and created a separation between the thoroughfare and the neighbourhood space. This traffic artery acted as a connecting factor as Van den Broek and Bakema (1964-1965) describe: "the traffic routes are no longer the dividing element, but rather the binding element between the residential units" (p. 8). The connecting factor of the thoroughfare was further emphasised by the separation of different traffic flows (Figure 14) and on the intersections of Van den Broek and Bakema, as in Center Tel-Aviv, plazas were created as public space where residents could meet and interact. Additionally, this separation of traffic flows provided more space for social interaction that was also created on the promenade of the Lijnbaan.



Figure 12 Relationship between residential area and traditional polder landscape



Figure 13 Model of urban plan Pampus Amsterdam by Van den Broek and Bakema

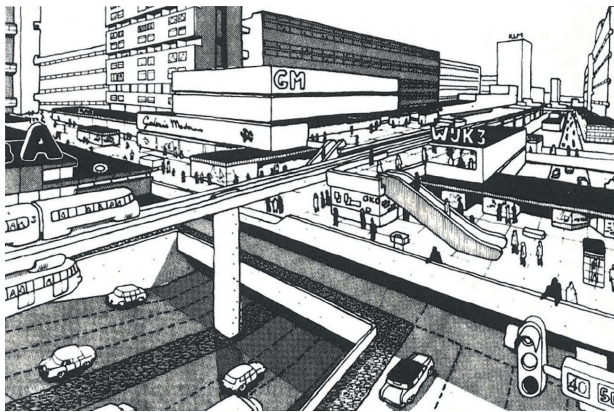


Figure 14 Separation of traffic flows in Plan Pampus

The residential units Van den Broek and Bakema write about consisted of a composition of different building blocks varying in height and where there were no streets with building blocks facing each other. The space created between these buildings had a strong relationship with the city's living environment and the buildings could relate to each other (Figure 12) (Bakema, 1964). According to Van den Broek and Bakema (1964-1965), building rows of houses opposite each other ensured a low level of privacy and by not doing so created: "on one side of the house the 'open space' (the 'outside' living) and on the other side the seclusion of the neighbourhood space." (p. 7). The open space could function as community gardens, sports fields, and allotments while neighbourhood spaces featured churches, schools, community centres, and parking facilities.

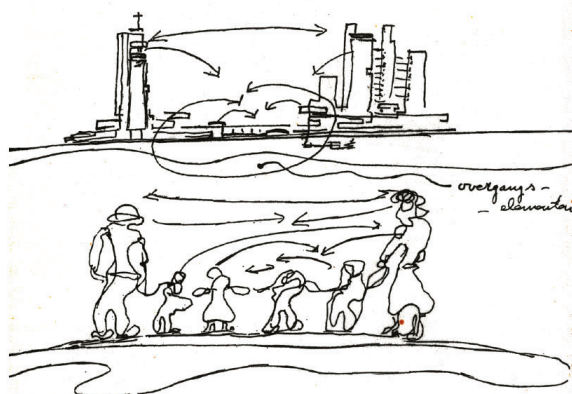


Figure 15 Architecture as human behaviour

The building blocks mentioned in the previous paragraph were not volumes in the urban plan but were groups of individual living spaces that formed building blocks and thereby became part of the built environment (Bakema, 1964). To become part of the living environment Van den Broek and Bakema focused on creating groups with multiple transitions because: "Feeling at home" in space, requires groupings where that need has been thought about through design. . . There is also a need to see how relations are to the grouping called city or region" [these groupings can differ] "from table, chair and bed to those with motorways or shopping malls" (Bakema, 1964, p. 76). So using these transitions Van den Broek and Bakema wanted to create a living environment where interaction and social communities could emerge. Looking at Figure 17, the transition and connection between the public space and the buildings complex were visualised whereas on the one side car traffic and wide walkways for pedestrians, and on the other side the open space, with the building in the middle as a transition space.

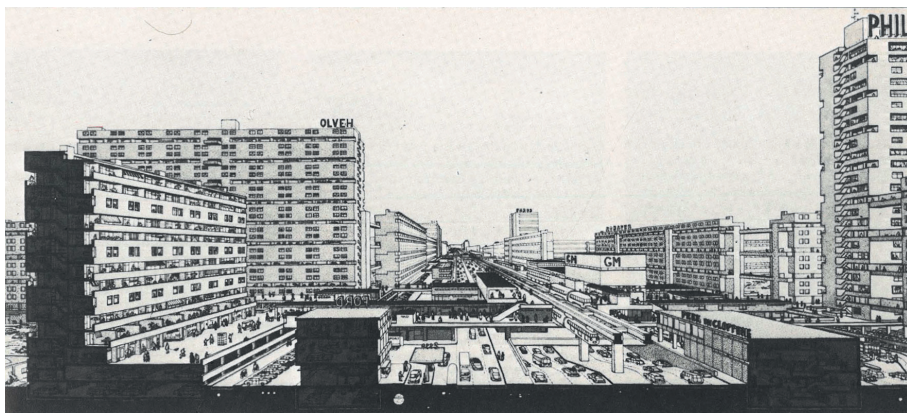


Figure 16 Organisation of traffic flows and relation between public and private space

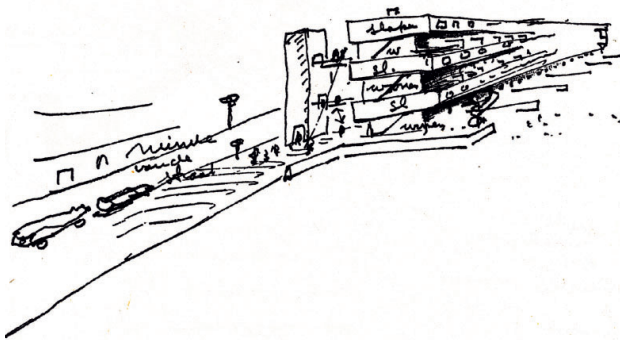


Figure 17 Transition from public space to the individual living environment

During this research, Van den Broek and Bakema's ideal city was examined and through the ideals from several modernist groups and three reference projects by Van den Broek and Bakema, the creation of this ideal city was investigated. This study examines, among others books, the books *Van Stoel tot Stad* and *Jaap Bakema and the open society* both (co-)written by Jaap Bakema who was highly active in the post-war period of the Second World War in visualising and describing his search for the ideal city, and less literature has been used from Jo van den Broek.

In addition, although this study focused on the functionalist stream of the Netherlands, Het Nieuwe Bouwen, foreign influences also played a role in Van den Broek and Bakema's ideal city. Johannes van Loghem, for example, who was a member of De 8 spent an extended time in Russia where capitalism had a great influence on architecture and a more equitable society (Zwier in Overmeer, 2017). In addition, Van Loghem was more focused on improving the individual position in society than that of the collective as Van Loghem (1920) described in *Genootschap Architectura et* (1893-1926):

"the great force of the heyday of the capitalist system is beginning to deform to slowly give way to the cooperation of those who have common interests, which cooperation is not from a social interest point of view, but from self-defence in the first place, then to favour one's circle at the expense of the community" (p. 189).

Van Loghem eventually took this way of thinking back with him to the Netherlands.

Other foreign architects and urbanists' thoughts on the ideal city also influenced Van den Broek and Bakema. Risselada (2005) described that Kevin Lynch's *The Image of the City* (1961) influenced the design of City Centre Tel-Aviv and where Bakema responded to the quote: "a legible city would be one whose districts or landmarks or pathways are easily identifiable and are easily grouped into an over-all pattern" (Lynch, 1960, p. 3).

Not only architects and modernist groups influenced the ideal city of Van den Broek and Bakema, but looking again at Figure 16 multiple international companies, Philips, General Motors, Ford, and Olveh (today AEGON), are represented in the drawings of Pampus. Perhaps these international companies influenced the design principles of Van den Broek and Bakema, for instance, Ford and General Motors aimed to promote automobiles and therefore pushed the design to develop good and efficient road systems. As Jacobs (1961) argued, big corporations aimed for standardization in the production process which led to sterile and unliveable environments and this could also be seen in Plan Pampus where big standardised groups of building blocks were created.

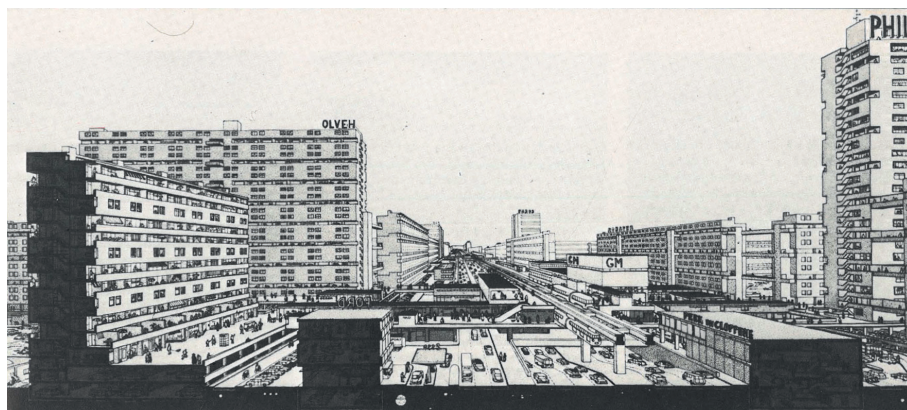


Figure 16 Organisation of traffic flows and relation between public and private space

1964-1965

To form a more complete picture of Van den Broek and Bakema's ideal city, more research could be done where the literature of Jo van den Broek is addressed. Additionally, more research could be conducted about the influences of international-orientated modernist groups, the influence of corporations, and activists like Jane Jacobs.

CONCLUSION

The 20th century was dominated by innovations through technological improvements due to, among other things, industrialisation, which started in the 19th century, and through the two World Wars the society changed completely. Not only cities had been destroyed during World War II, but also the belief in a better future. Architects, urban planners, artists, critics, and other professions looked for ways to create a better future using different themes and available technologies to visualise an ideal city based on their ideals about people's needs. This research focused on the ideal city of Van den Broek and Bakema, who were both prominent figures in the post-World War II period, and how it emerged over the course of the 20th century. For examining Van den Broek and Bakema's ideal city, the following main question was addressed: **How did the ideal city develop in the work of Van den Broek and Bakema in the period from 1900 until 1965?** To get a picture of the developments that took place in the 20th century about Van den Broek and Bakema's ideal city, an overview has been created of important Dutch modernist groups that were part of Het Nieuwe Bouwen, each of which had an ideal image of what society should look like.

The final chapter described how Van den Broek and Bakema could create interaction and social communities through transitions between different layers in the living environment to counter individualism. Among other things, Bakema presented his vision in the series *Van Stoel tot Stad* (transl: *From Chair to City*), and this subject was also introduced during the De Stijl period by Mondrian (1926) in the manifest *De Woning – De Straat – De Stad* (transl: *The Dwelling – The Street – The City*) in which Mondrian addressed the fact that humans were becoming more individual and the relationships between the individual and the collective needed to be re-established. Not only De Stijl was engaged in this principle, but also the C.I.A.M., which dedicated its first congress to creating the individual home into the city. This same approach had Team 10 creating better relations between the individual living spaces and the public space which was divided through the doorstep. Van den Broek and Bakema reflect this issue in the urban plans for Center Tel-Aviv and Plan Pampus (Figures 11, 16 & 17) in which there were clear yet nuanced transitions between traffic arteries, neighbourhood spaces, and open spaces.

Additionally, Mondrian (1926) noted that the street gave way to traffic instead of social interaction and Van Eesteren advocated for an efficient transportation system. This was emphasised by Le Corbusier's plan *Ville Radieuse* (Figure 08) presented during C.I.A.M. IV. in which Le Corbusier separated working, living, recreation, and traffic but with interrelationships to each other. Van den Broek and Bakema also apply this principle in Center Tel-Aviv and Plan Pampus.

However, after the Second World War, which was a time when thinking about how the living environment should function changed completely, radical plans such as *Ville Radieuse* and Robert Moses were criticised by Jane Jacobs, among others. Jacobs (1961) noted that this separation would negatively change life on the streets. Van den Broek and Bakema, on the other hand, were already trying to improve street life as in the design for *Lijnbaan* (Figure 09) which became a car-free shopping promenade where space was created for meeting and social interaction. In addition, in the Center Tel-Aviv design, open elevated plazas were created at the intersection of the 'energy lines' with cultural and civic institutions that served as public incubators. To conclude, Van den Broek and Bakema formed their ideal city through thoughts and outcomes that were discussed during meetings within different modernist groups. Additionally, the period after the Second World War had a great influence on how people perceived the world and how the living environment should operate and Van den Broek and Bakema tried to combine these aspects in creating their ideal city. Van den Broek and Bakema attempted to combine these aspects, emphasising the importance of interactions and social communities through transitions between different layers in the living environment to counter individualism. Unfortunately, Van den Broek and Bakema's ambitious Plan Pampus, which embodied their vision of an ideal city, was never realized although it gives architects, urban planners, students, me, etc., inspiration on how an ideal city could look like.

" If one lives in a community one should be able to understand its structure, This is more than a matter of being able to find ones way about, it is a matter of feeling that you are somebody living somewhere" (Bakema, 1956, p. 2).

BIBLIOGRAPHY

- Andreas, E., Joedicke, J. r., & Architectengemeenschap Van den Broek en, B. (1976). *Architektur-Urbanismus = Architecture-urbanism = Architecture-urbanisme*. K. Krämer.
- Back, A. e. d., & Payman, A. L. v. (1998). "Herinneringen aan de roemruchte Groep '32" : "eigenlijk de laatste architectengroep" = "Recollections of the illustrious Groep '32" : "really the last architectsgroup". Publicatieburo Bouwkunde ;Stichting Dienstbodenhuis De Koepel.
- Bakema, J. B. (1956). CIAM X/99237 (accessed by Het Nieuwe Instituut: BAKE.110386721).
- Bakema, J. B. (1964). *Van stoel tot stad : een verhaal over mensen en ruimte*. W. de Haan.
- Bakema, J. B., & Van den Heuvel, D. (2018). *Jaap Bakema and the open society*. Archis Publishers.
- Bakema, J. B., Van Eyck, A., Howell, W., Smithson, P., Candilis, G., & Gutman, R. (1955). *Habitat* (accessed by Het Nieuwe Instituut: BAKE.110386721).
- Banham, R. (1970). *Theory and design in the first machine age* (1st MIT Press paperback ed.). MIT Press.
- Bock, M., Bock, M., & Nederlands Dokumentatiecentrum voor de, B. (1982). *Het Nieuwe bouwen : voorgeschiedenis = previous history*. Delft University Press, Nederlands Dokumentatiecentrum voor de Bouwkunst.
- Bock, M., & Kirkpatrick, J. (1989). *De 8 en Opbouw : 1932-1943 : tijdschrift van het nieuwe bouwen = periodical of new architecture*.
- Bos, A. s., & Oud, P. J. (1946). *De stad der toekomst, de toekomst der stad : een stedenbouwkundige en sociaal-culturele studie over de groeiende stadsgemeenschap*. Voorhoeve.
- Dietz, K., Van Hulten, B., & Altes, H. J. K. (1995). *Het Nieuwe Bouwen in Nederland en Slowakije 1918-1940*. Van Dijk, Van Soomeren en Partners (DSP).
- Eames Office. (1977). *Powers of Ten and the Relative Size of Things in the Universe* <https://www.youtube.com/watch?v=OfKBhvDjuyO>
- Ensie. (2015). *Utopia*. The definition according to Ensie Encyclopedie. Retrieved April 19 2023 from <https://www.ensie.nl/redactie-ensie/utopia>
- Ensie. (2017). *C.I.A.M.* The definition according to Lexicon Voor De Kunstvakken. Retrieved April 19 2023 from <https://www.ensie.nl/lexicon-voor-de-kunstvakken/ciam>
- Ensie. (2019). *Amsterdamse School*. The definition according to Historische Collectie Nederland Begrippenlijst. <https://www.ensie.nl/collectie-nederland/amsterdamse-school>
- Genootschap Architectura et, A. (1893-1926). *Architectura : orgaan van het Genootschap Architectura et Amicitia*.
- Griffioen, R. (2019). *Van Bouw en Techniek naar de 8 en Opbouw. De twee tijdschriften van ondernemer J. van Creveld*. *Bulletin KNOB*, 118(3), 2-16. <https://doi.org/10.7480/knob.118.2019.3.3961>
- Güneri, G. D. (2018). *Reading Architectural Utopia(nism)s: A Proposal*. *Metu Journal of the Faculty of Architecture*. <https://doi.org/10.4305/metu.jfa.2018.2.5>
- Jacobs, J. (1961). *The death and life of great American cities*. Random House.
- Komossa, S., & Aarts, M. (2019). *The Legacy of CIAM in the Netherlands: Continuity and Innovation in Dutch Housing Design*. *Urban Planning*, 4(3), 90-101. <https://doi.org/10.17645/up.v4i3.2123>
- Korbi, M., & Migotto, A. (2019). *Between Rationalization and Political Project: The Existenzminimum from Klein and Teige to Today*. *Urban Planning*, 4(3), 299-314. <https://doi.org/10.17645/up.v4i3.2157>
- Le Corbusier. (1986). *Towards a new architecture* (F. Etchells, Trans.). Dover Publications. (Original work published 1923)
- Lynch, K. (1960). *The image of the city* (21 ed.). MIT Press. (1960)

- Maryanski, A., & Turner, J. H. (1991). *The Offspring of Functionalism: French and British Structuralism*. *Sociological Theory*, 9(1), 106-115. <https://doi.org/10.2307/201876>
- Mondrian, P. (1926). *De Woning - De Straat - De Stad*. *Internationale Revue i 10*. (accessed by DBNL (KB, nationale bibliotheek))
- Mumford, E. (2007). *CIAM urbanism after the Athens charter*. *Planning Perspectives*, 7(4), 391-417. <https://doi.org/10.1080/02665439208725757>
- Mumford, E. (2019). *CIAM and Its Outcomes*. *Urban Planning*, 4(3), 291-298. <https://doi.org/10.17645/up.v4i3.2383>
- Overmeer, M. (2017). *Bouwen in het land van beloftes*. NEMO. Retrieved 2023-04-13 from <https://www.nemokennislink.nl/publicaties/bouwen-in-het-land-van-beloftes/>
- Overy, P. (1991). *De Stijl*. Thames and Hudson.
- Risselada, M. (2005). *Team 10, 1953-1981 : In search of a utopia of the present* (Druk 1. ed.). NAI.
- Sharp, D. (2002). *Twentieth-century architecture : a visual history* (Millennial ed.). Images Pub.
- Simon. (2022). *Hélène de Mandrot (1867-1948) Swiss Designer and Arts patron*. *Encyclopedia of Design*. <https://encyclopedia.design/2022/01/13/helene-de-mandrot-1867-1948-swiss-designer-and-arts-patron/>
- Smithson, A. (1963). *TEAM 10 PRIMER 1953-62*. *Ekistics*, 15(91), 349-360. <http://www.jstor.org/tudelft.idm.oclc.org/stable/43616184>
- Turner, J. H., & Maryanski, A. (1979). *Functionalism*. Benjamin/Cummings Pub. Co.
- Van den Broek, J., & Bakema, J. B. (1964-1965). *Stad op Pampus - Studie van een lienaire stad in recreatiegebied* (accessed by Het Nieuwe Instituut: BAKE.110386721).
- Van den Broek, J., & Bakema, J. B. (ca. 1953). *Toelichting bij "Winkelpromenade Lijnbaan" Rotterdam* (accessed by Het Nieuwe Instituut: Brox w-907).
- Van den Heuvel, D. (2017). *The Lijnbaan in Rotterdam: A sound urban form against city disruption*. In. <https://doi.org/10.5040/9781474267397.ch-005>
- Van den Heuvel, D., Oosterman, A., & Cormier, B. (2014). *Open A Bakema Celebration*.
- Van Doesburg, T. (1924). *Tot een beeldende architectuur. De Stijl 2*. (accessed by DBNL (KB, nationale bibliotheek))
- Van Doesburg, T., Van 't Hoff, R., Huszár, V., Kok, A., Mondrian, P., Vantongerloo, G., & Wils, J. (1918). *MANIFEST I OF „ THE STYLE“*. *De Stijl*, 2(1). (accessed by DBNL (KB, nationale bibliotheek))
- Van Eyck, A. (1958). *Mobility in the urban context*. *Forum*, 7(6), 361-363.
- Wagenaar, C. (1993). *Welvaartsstad in wording : de wederopbouw van Rotterdam, 1940-1952* NAI [Uitgevers]. WorldCat.org. Rotterdam.
- WikiWoordenboek. (2018). *Functionalisme*. The definition according to WikiWoordenboek. Retrieved April 19 2023 from <https://nl.wiktionary.org/wiki/functionalisme>
- Woud, A. v. d., Wardle, P. k., & vert. (1983). *Het nieuwe bouwen : internationaal = international : CIAM volkshuisvesting, stedebouw = housing, town planning*. Delft University Press ; Rijksmuseum Kröller-Müller.

ILLUSTRATIONS

Figure 01 Brinkman, L., & Van der Vlugt, L. (n.d.). Van Nelle Fabriek (1930) by Johannes Brinkman and Leendert van der Vlugt. BroekBakema. <https://www.broekbakema.nl/projecten/van-nellefabriek/>

Figure 02 Flickr User: Gondolas. (2011, February 8). Barcelona Pavilion (1929) by Mies van der Rohe and Lilly Reich. Archdaily. <https://www.archdaily.com/109135/ad-classics-barcelona-pavilion-mies-van-der-rohe/5037fe3d28ba0d599b0007e3-stringio-txt>

Figure 03 Roderburg, K. (2009). Sanatorium Zonnestraal (1928) by Jan Duiker with Bernard Bijvoet and Jan Gerko Wiebenga. Rijksdienst Voor Het Cultureel Erfgoed. https://beeldbank.cultureelerfgoed.nl/rce-mediabank/?mode=gallery&view=horizontal&q=20422171&rows=1&page=1&sort=order_s_objectnummer%20asc

Figure 04 MANIFEST I OF „THE Style“, 1918 – Van Doesburg et al., 1918 reprinted from “De Stijl” by Overy, P., 1991, p.47, Thames and Hudson.

Figure 05 Shopping arcade - Van Eesteren (1924) colored by Van Doesburg reprinted from “De Stijl”, by Jaffé, H. L. C., Bock, M., & Friedman, M., 1982, p.199, Phaidon

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Figure 07 Flickr User: Van Helleman, J. (2013, February 12). Bergpolderflat (1932-34) by Van Tijen, Brinkman and Van der Vlugt. Flickr. <https://www.flickr.com/photos/janvanhelleman/8467543283/>

Figure 08 Le Corbusier. (2018, February 23). Ville Radieuse (1930) by Le Corbusier. <https://99percentinvisible.org/article/ville-radieuse-le-corbusiers-functional-plan-utopian-radiant-city/>

Figure 09 Stadsarchief Rotterdam 4273_L-6215. (ca. 1960). Lijnbaan (1953) by Van den Broek and Bakema. Platform Wederopbouw Rotterdam. <https://wederopbouwrotterdam.nl/artikelen/winkelcentrum-de-lijnbaan>

Figure 10 Aerial view of model new City Centre Tel-Aviv reprinted from “Team 10, 1953-1981 : In search of a utopia of the present”, by Risselada, M., 2005, p.146, NAI

Figure 11 Diagrammatic section of the core-wall building with the different ‘energy lines’ reprinted from “Team 10, 1953-1981 : In search of a utopia of the present”, by Risselada, M., 2005, p.146, NAI

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Figure 13 Model of urban plan Pampus Amsterdam by Van den Broek and Bakema reprinted from “Stad op Pampus - Studie van een lienaire stad in recreatiegebied” by Van den Broek, J., & Bakema, J. B., 1964-1965, p.6, accessed by Het Nieuwe Instituut: BAKE.110386721)

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Figure 15 Architecture as human behaviour reprinted from “Van stoel tot stad : een verhaal over mensen en ruimte”, by Bakema, J. B., 1964, p.48, W. de Haan

Figure 16 Organisation of traffic flows and relation between public and private space reprinted from “Architektur-Urbanismus = Architecture-urbanism = Architecture-urbanisme”, by Andreas, E., Joedicke, J. r., & Architectengemeenschap Van den Broek en, B. J., 1976, p.27, K. Krämer

Figure 17 Transition from public space to the individual living environment reprinted from “Van stoel tot stad : een verhaal over mensen en ruimte”, by Bakema, J. B., 1964, p.21, W. de Haan

