
VAN DEN BROEK AND BAKEMA: TWO TYPES OF FUNCTIONALISTS – ARCHITECTURE AND PLANNING EDUCATION AT TECHNICAL COLLEGE OF DELFT IN POST-WAR SOCIETY

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Europe was damaged badly during the Second World War. Despite the sheer size of the task ahead, the significant destruction, and shortage of manpower and building materials, the Netherlands took up reconstruction expeditiously. With unprecedented resilience battered cities and villages re-emerged from the rubble. The reconstruction was a large-scale operation in which industrially manufactured mass housing and a new cityscape were pursued. During the reconstruction Van den Broek and Bakema Architects were one of the largest offices with influential designs such as the Lijnbaan Shopping Center, the new heart of the bombed city of Rotterdam. Both architects showed great social commitment. Because of the grand scale of construction output in the first decades after the war, J.H. van den Broek and J.B. Bakema asked themselves what the architect's role and responsibility were in an increasingly technology-dominated society. As both architects were professors at the Technical College of the Dutch university town Delft, it is not surprising that this question was the main theme in their teaching. That goes for their inaugural speeches as well. Addressed in 1948 and 1964 – marking the start and the completion of post-war reconstruction – they show that the architect's focus had shifted profoundly.

Keywords

post-war reconstruction, modern movement, architecture and planning education

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INTRODUCTION

After the Second World War Van den Broek and Bakema Architects formed a key player in the post-war reconstruction of the Netherlands. The office was known for its large-scale building projects and earned a reputation for its problem-solving ability. Simultaneously, the office acted as a generator of new ideas about architecture, urbanism and society. The office directors represent two types of Dutch functionalists. J.H. van den Broek (1898-1978) is regarded as one of the founders of *Nieuwe Bouwen*, the modernist movement in Dutch architecture and construction; J.B. Bakema (1914-1981) was among the enthusiastic architects moving modernist architecture in a new direction. Van den Broek and Bakema were two outstanding characters, invariably typified by architectural historical literature as opposites: the analyst and the idealist, the pragmatist and the philosopher, or the schoolmaster and the vicar. Both architects were appointed extraordinary professors at the Technical College of Delft; Van den Broek from 1947 until 1965 and Bakema from 1963 until his death in 1981. Each in their own way left their mark on both architecture education and the atmosphere of the Department of Architecture. Their inaugural speeches demonstrate great social commitment. The grand scale of construction output in the first decade after the war raised questions about the position and responsibilities of the architect in a technology-dominated society. Van den Broek gave his inaugural speech in 1948; Bakema in 1964. These two dates coincided with the period during which the reconstruction of the Netherlands took place.

VAN DEN BROEK AS PROTAGONIST OF MODERNIST ARCHITECTURE

Van den Broek and Bakema Architects has a long history dating back to M. Brinkman who started the office in 1910 and earned a reputation with an experimental design for municipal housing in Spangen, Rotterdam (1919-1922). His son J.A. Brinkman and his partner L.C. van der Vlugt took over the office in 1925 and subsequently produced much talked about designs such as the Van Nelle Factory in Rotterdam (1926-1930), the icon of the Dutch modernist movement. In 1937, a year after Van der Vlugt's sudden death, Van den Broek joined the office. Van den Broek replaced the traditional hierarchical distinction between designers and engineers, and between design and the execution of a design, with the new concept of teamwork. Since Brinkman struggled with health problems, Van den Broek asked Bakema in 1947 to reinforce the office. After the death of Brinkman in 1949 Bakema associated himself with Van den Broek. Together they reorganised the office structure in order to make it suitable for the post-war architectural climate of scaling up and mass production. In 1951 the office was named Van den Broek and Bakema Architects and in this constellation it made a significant contribution to the reconstruction of the Netherlands.

While the Netherlands was reconstructed, its society changed rapidly. During the fifties a modern society came into being which was characterised by increasing wealth, population, individualisation, democratisation and the rise of a consumer culture. These new conditions had far-reaching consequences for architecture and urban planning. Institutionalisation and industrialisation of the building sector and the focus on producing more houses developed into a huge reconstruction machinery. The Dutch government interfered actively with the housing programme. The design process was bound by a large number of regulations set by a complex system of advisory committees. Moreover, the scaling up of trade and industry resulted in an increasingly complex structure of clients. In this climate of efficiency and standardisation technocrats displaced the designing architect. In response, architects searched for references to enable a new culture and found inspiration in the pre-war avant-gardes as *De Stijl* and *Nieuwe Bouwen* which led to a widespread interest in national architectural history. Architects, critics and historians created the inspiring myth of a new architecture that was rooted in experiments of the inter-war years.

Van den Broek was rooted in the social functionalism of pre-war modernist architecture. His conception of the modernist tradition was averse to any heroism and came down to an open and pragmatic attitude to modern construction methods, combined with a great sense of the social significance of the architectural profession.¹

He pursued another goal than mere efficiency. He thought about the meaning of these functions within society and summarised his belief in a statement derived from his philosophical and theological studies: “Der Funktionalismus ist ein Humanismus”.² He realised that an architect’s designs reflect his attitude to life; Van den Broek was acutely aware of the almost religious dimension.

In 1924 Van den Broek completed his training as an architect at the Technical College in Delft. At that time the curriculum was based on the model of the *École des Beaux-Arts*. Architectural education included lectures on the history of architectural styles, design exercises based on architectural briefs that became progressively more complex and finally discussing different types of buildings. Conceived as a pragmatic planning doctrine, which did not necessarily lead to one kind of architecture, academicism never disappeared entirely from Van den Broek’s designs.³ He excelled in designing efficient floor plans; during the late twenties and early thirties he acquired an excellent reputation in the field of cheap and good quality housing.

After the bombing of Rotterdam in 1940 Van den Broek became heavily involved in the reconstruction of the city. His approach and experience attuned seamlessly to the necessary mode of production for its reconstruction. As a housing specialist, he considered the design process as an organisational problem in which diverging specialists and stakeholders had to be aligned. Because of his involvement with the technical and organisational aspects of the building process, he aspired to reshape the post-war building practice. Exemplary of his practical and activist method is the partly by Van den Broek initiated project ‘Woonmogelijkheden in het nieuwe Rotterdam’ [Housing opportunities in the new Rotterdam] (1941), in which co-operating architects presented a realistic alternative to the official reconstruction plan of the municipal Public Works, while clearing of debris was still ongoing. Van den Broek focused his activities especially on the network of institutes and organisations in which governments, architects and building contractors were looking for an efficient approach to housing, trying to realise as many goals as possible. Both at home and abroad: in 1946 he represented the Netherlands when the UIA (*Union Internationale des Architectes*) was first established, the international architects’ network for the exchange of knowledge about, among other things, reconstruction of cities, which had been affected by the war.

VAN DEN BROEK AT DELFT

Van den Broek’s appointment as extraordinary professor at the Technical College in Delft was initiated by C.H van der Leeuw, former director of the Van Nelle Factory and curator of the Technical College since 1946. Van der Leeuw and Van den Broek were both professionally involved in the reconstruction of Rotterdam and they happened to be good friends as well. Besides Van den Broek, the kindred spirits urban planner C. van Eesteren and architect G.H. Holt were appointed extraordinary professors. Their appointment was intended to counterbalance the traditionalist Delft School. The well-known modernist architect J.J.P. Oud expressed his approval in *De Groene Amsterdammer* [The Green Amsterdammer], pleased as he was with the appointment of the three new professors. Oud considered Van den Broek and Van Eesteren as influential and active protagonists of modern architecture and assumed that they would stand firmly and remain committed to their view.⁴ Modern architects needed to justify their conviction and their way of working amidst the predominant traditionalist Delft School, which had been able to secure leading positions in post-war planning and reconstruction and at the educational practice of the Technical College in Delft. The size of the task ahead, the ascent of planning devices and industrialisation of the building sector were of such a scale that basically only modernist architecture could provide an adequate response.⁵

Amid the style and ideology conflicts at Delft, Van den Broek unfolded his pragmatic and inclusive architecture vision. His inaugural speech *Creative forces in the architectural conception* united the existing diversity of movements and trends in a national architectural discourse.⁶ In the multitude of architectural phenomena Van den Broek distinguished the modernists, traditionalists, the romanticists and the classicists. Hereby the

romanticists and classicists were primarily driven by their expressive or objective sense of beauty; the modernists and traditionalists moreover, by a certain lifestyle and view towards society. The creative forces of architectural thinking should not be sought in a multitude of architectural styles, Van den Broek argued, but should be jointly present in the mind of the architect as a creative artist. The unity of those creative powers should manifest itself primarily as a cultural movement. Facing his predominantly traditionalist colleagues Van den Broek weakened their prejudices. Modernist architecture and construction were not *a priori* and automatically interlocked. Modern architecture should emphatically be considered as art, and not as engineering. On the other hand, modernist architecture was not an artistic expression of the architect, but an activity for the community. By using contemporary means, modernist architecture expresses 'conscious human life'. Therefore modernist architecture was not sheer materialistic.

The decisive element in the speech is his optimistic belief in the certainties of pre-war architectural culture. But Van den Broek was certainly not blind to the practical problems of reconstruction and large-scale planning. In view of this complexity, he appealed to the intellectual content of the various tendencies within Dutch architecture. Van den Broek did not find these certainties in the history of the modernist movement only, but in a much more nuanced and pluralistic historical image of contemporary architecture in which ample space was created for a wide range of architectural tendencies.⁷ Van den Broek juxtaposed the modernist architects' search for 'pure forms to fulfill pure needs' and the doctrine-based hermetic aesthetics and morphology of the traditionalists. He wondered why the forms of modern architecture were not covered by the traditionalist aesthetics, which pretended to capture the established principles of architecture. Not the absolute truth, but a value judgment was based on the traditionalist aesthetics, he concluded and proposed to change the principles of the aesthetic system and broaden aesthetic intellection. Subsequently he painted an experimental building, which in all aspects responded to the ambitions of such an aesthetic system. Van den Broek's speech is a vigorous attempt to re-determine Dutch architecture at a time when the emerging consumer society confronted architects with complex typological problems.⁸

Van den Broek started as extraordinary professor of Architectural Design and it was not until 1955 that he became a full professor by succeeding N. Lansdorp and getting more influence on the Department of Architecture. He taught fourth-year students to design according to the main principles: function and technique. Modernist architecture by Alvar Aalto and Le Corbusier set the example and Van den Broek took his students on excursions to the Van Nelle Factory in Rotterdam. His series of lectures were first named 'Grand design' and later 'Typology of buildings'.⁹ Students worked individually on the design of certain building types, which were discussed during the various courses. After several conversations with his aides, students came by appointment to Van den Broek, who thoroughly engaged in their designs and gave them directions. He discussed the final results in front of the other students during the notorious so-called 'confrontation lectures'.¹⁰ In 1960 Van den Broek initiated the so-called 'commentary lectures', which soon became an important institution in the Department of Architecture. During the commentary lectures relevant practitioners were invited to elaborate on their work and students got the opportunity to question them about their ideas. The artist Constant Nieuwenhuys presented the future of human society in *New Babylon*, a project within the *Situationist International*. Urban planners of the Amsterdam Urban Development Department displayed their design for the Bijlmer [area of Amsterdam]. And Van den Broek seized the opportunity to show his design for the new building of the Department of Architecture or he questioned the future of architectural education and the professional practice of the architect.¹¹

At all times Van Den Broek presented the various coexisting architectural styles and methods from a synthetic point of view. Using slides he gave an overview of the various architectural movements and positioned engineering and architecture in the development of modern society, which originated in the Industrial Revolution. He discussed the various building types and laid the foundations for a functionalist approach to architectural design.



FIGURE 1 Van den Broek (left) and Constant Nieuwenhuys (right) during a commentary lecture, 1962



FIGURE 2 Van den Broek (right) and Bakema (left) at their office with a model of the new building for the Department of Architecture at Delft, 1960

BAKEMA AND THE LEGACY OF THE MODERNIST MOVEMENT

The start of Bakema's career coincided with the start of the reconstruction of the Netherlands. Although he had been taught by Mart Stam and gained practical experience with Cornelis van Eesteren and Wim van Tijen, he didn't experience the heroic period of the modernist movement personally in the same way as Van den Broek did. The activation of the architectural history of the modern movement, as it was partially recorded in the archives of Van den Broek and Bakema Architects, was a natural part of Bakema's design approach. He suggested a continuous line of development from M. Brinkman, making his own work look like a logical consequence of previously developed ideas. In this way he used the cultural prestige of buildings such as the Van Nelle Factory to position Van den Broek's and his own office in the centre of modern Dutch architecture.¹²

Because of his professorship Van den Broek had withdrawn from direct design practice. Bakema took over the daily management of the office, moving it into a more dynamic and expressive direction. He believed that a building should be more than just functional; it must have expressive power as well. The form of the building must show its meaning in society and demonstrate how society works. He considered architecture and urbanism as means of expressing society's idealism. It was all about the appearance of ideas and spreading a mentality. To Bakema the office was a laboratory where inspiring models for a new society could be developed.¹³ These models were realistic utopias: seductive images of a near future, exploring the boundaries of technical and social feasibilities.¹⁴

At the time of Bakema's appointment as extraordinary professor, modernist architecture was completely assimilated to reconstruction and had become dogmatic. His inaugural speech *Towards an architecture for society* bears witness of his discontent with the post-war reconstruction machinery.¹⁵ Bakema criticised the system of the machinery in which administrative, distributive and commercial provisions were decisive, whereas the building of spatial structures had become quite subordinate. Thus he broke with the post-war generation of architects and urban planners.

Bakema's speech reflects a holistic view of the world. It is constructed around four concepts – space, form, structure, man – and explains how the simultaneous use of these concepts in architectural design leads to concepts such as home, workplace, church or school. For designing the interdependence of these concepts is of the same importance as the characteristics of each individual concept. He spoke consistently of 'space' and 'the built environment'. A thread running through his theorisation was his concept of space. The conception had its origin in the neo-plastic spatial concept of *De Stijl*, which treated space as a continuum. Bakema had his first encounter with the spatial continuum in the mid-1930s when he visited the Rietveld-Schröder House in Utrecht. He developed the artistic idea of neo-plastic space into a societal concept of 'total space', and continued refining this idea for the rest of his life.¹⁶

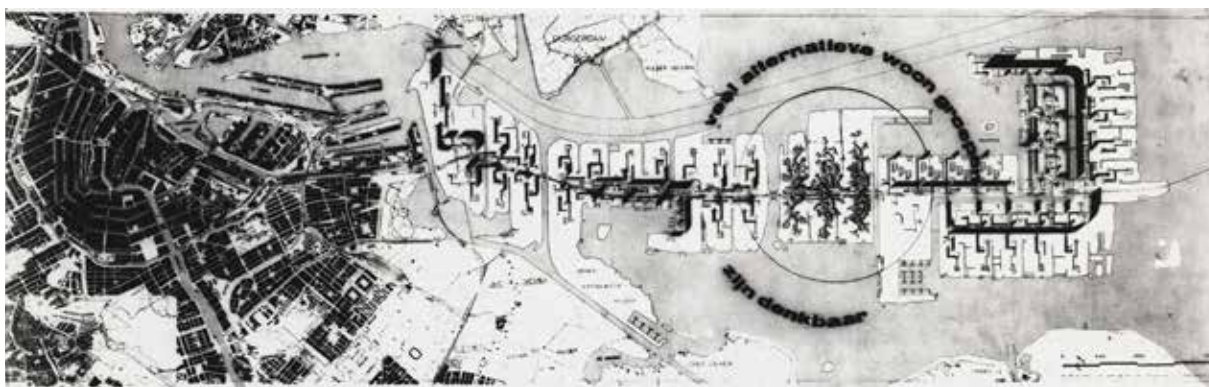


FIGURE 3 Pampus plan, a realistic utopia for an extension of Amsterdam by Van de Broek and Bakema Architects, 1964

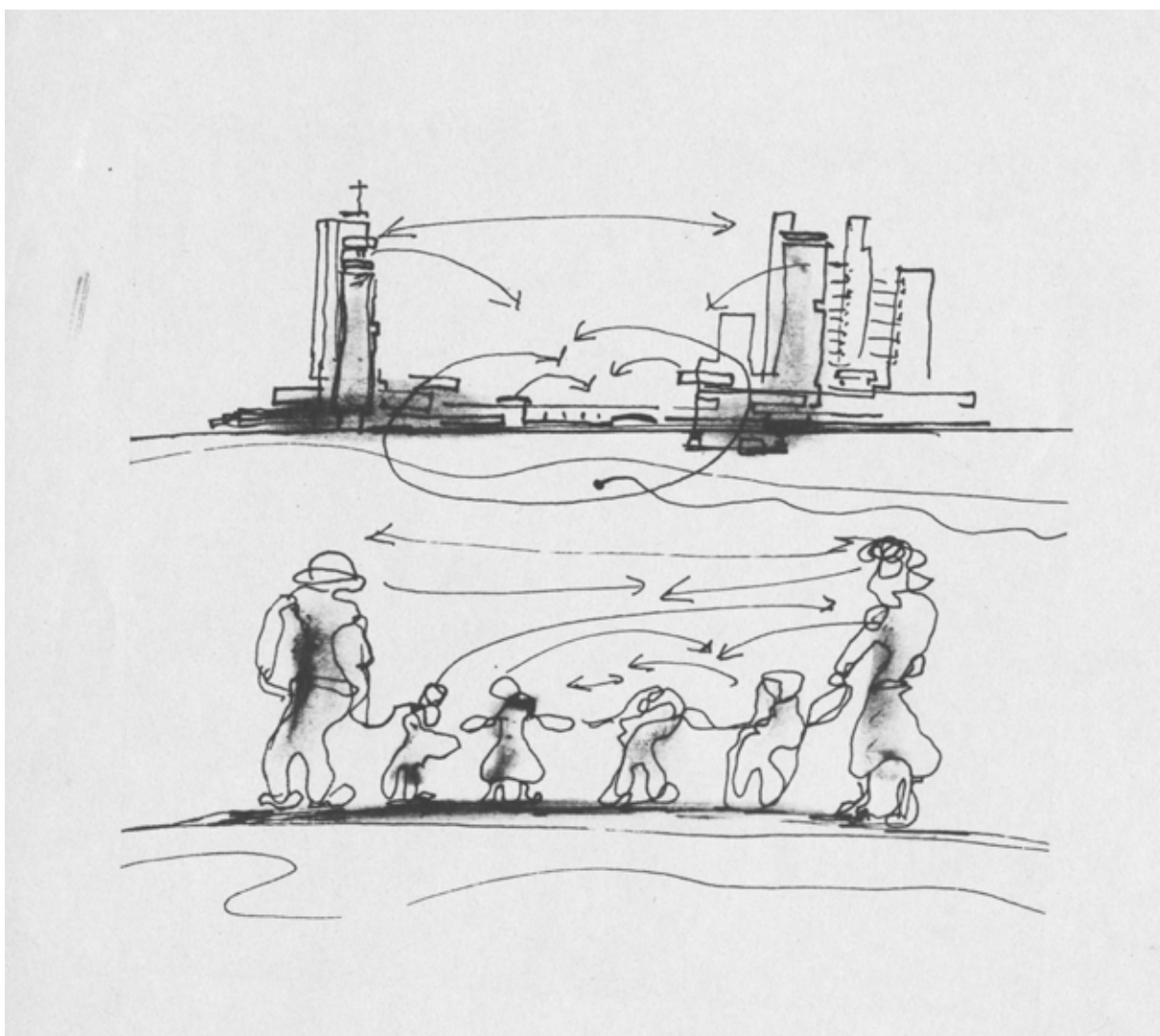


FIGURE 4 With the 'friendship diagram' Bakema demonstrates how architecture can be an expression of human behaviour, 1961-1962

According to Bakema's holistic view, thinking about space was strongly related to thinking about life. Understanding space started in the enclosure of the prehistoric caves and culminated in astronauts seeing planet earth as their focal point in the expanding space of universe.¹⁷ Architectural design is primarily learning to formulate the hidden tasks in society and become familiar with the anonymous clients. Only then spatial structures could be developed; only then the anonymous clients could identify with 'total space'. It made no sense to teach architectural design without accepting responsibility for the impact of the built environment on mankind. Therefore Bakema suggested a basic course, preparatory to learning how to design and construct, in order to teach students to understand the greater context of life in which the architectural form operates.

BAKEMA'S INSPIRING PERFORMANCES

The publication of his inaugural speech contains sketches, which was rather unusual. The sketch had a special meaning to Bakema, as traditionally it is the most direct manifestation of the artistic design process. As a symbol of the autonomous power he wielded the sketch conscious and provided it with new meanings. Bakema sketched to explain and had a very distinctive visual language. They were not personal notes, but attempts to convey a message. When his employees consulted him, they never got a cut and dried solution. He told them an inspiring story buttressed with sketches. He published his sketches in books and magazines, which characterised his position as an architect. By consciously creating an image, Bakema was trying to recover the cultural prestige of the architect, which was lost in the midst of the reconstruction machinery. Some of the sketches illustrating his inaugural speech, Bakema had made earlier for the television series 'From chair to city', broadcasted in 1962. He appeared on screen as a prophet of a new era and presented collages of diverse architecture media: drawings, models, photos and movies. It was a composite world where images of reality passed seamlessly into images of plans and projects, alternated by Bakema sketching on a blackboard as a traditional professor.¹⁸

Bakema's television performance was similar to his presence in the office, his functioning in the CIAM (*Congrès Internationaux d'Architecture Moderne*) and his teaching in Delft. Van den Broek invited him for a commentary lecture in 1960. In his first lecture in Delft Bakema criticised the CIAM. His activist stance was reflected in his strong commitment to transforming the CIAM, his contribution to Team 10 and his editorial activities for the journal *Forum*. He refused to compromise. With the same active attitude and inexhaustible energy he took over the Department of Architecture.

In the office Bakema created spatial visions of the future in order to indicate the direction in which he believed future society could or should develop. One of the first assignments for his students was creating such a vision for the Euro Delta (Rotterdam-Antwerp-Cologne), but that proved too ambitious.

As expected, Bakema encouraged his students in their pursuit of educational innovation and democratisation of the Department of Architecture. But when in May 1969 the revolution landed in Delft, he remained critical because of the size of the revolt. The section meeting of the Department of Architecture carried three motions in which the ruling hierarchy in governance and education was questioned. Bakema abstained from voting, although the expectant atmosphere of solidarity and equality did please him. Employees who still addressed him with his title were asked to call him by his first name, which sums up the new situation succinctly.¹⁹

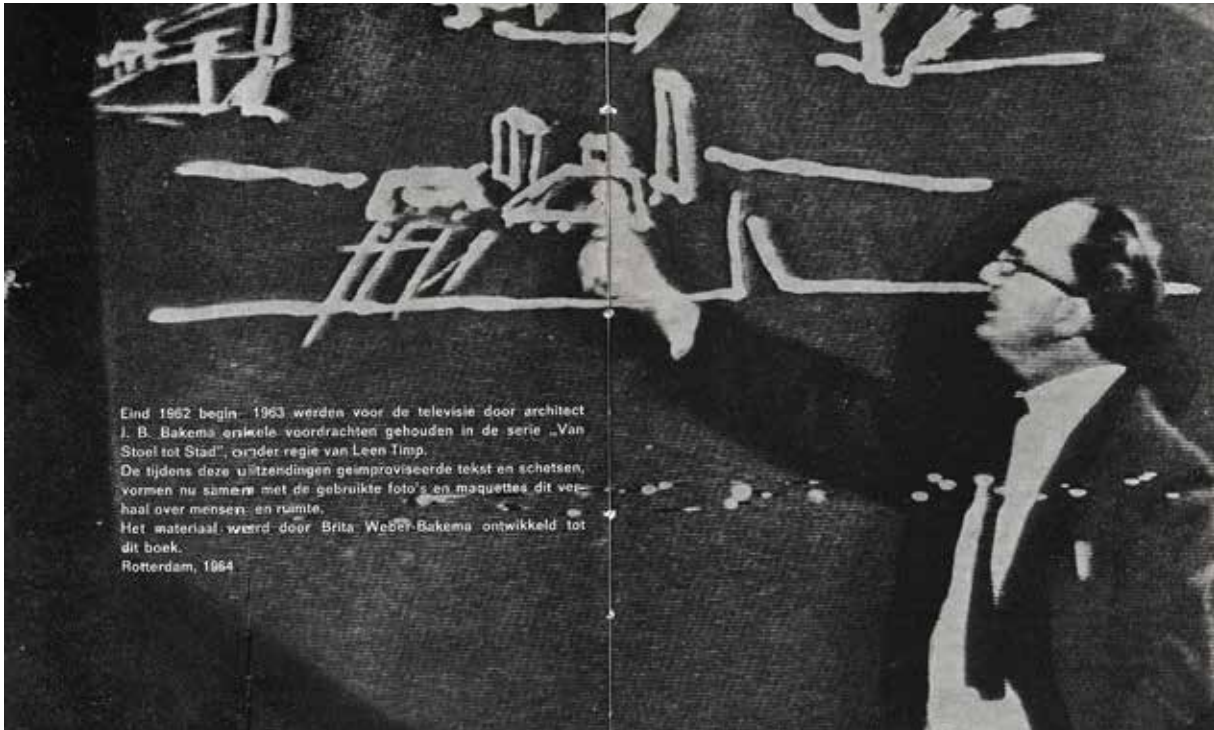


FIGURE 5 Television still of the television series 'From chair to city', broadcasted in 1962

Since 1969 the social relevance of architecture and the role of the architect in society had become the centre of interest. Architecture became an interdisciplinary profession in which society played an important role. The new political aims and objectives formed the foundation for the introduction of project-based education, where students and professors could work together on architectural problems with social relevance. Project-based education was organised both horizontally (multiple disciplines) and vertically (different years) and took place in study groups. On a regular basis, the development and results of the projects were discussed in front of other students. Bakema was present at the intermediate and final discussions, which were lively meetings. He regarded the meetings with students as an essential part of their education. He was concerned with what someone could do within the collective, using everyone's talents to the extreme. Bakema usually showed a slide of Antoine de Saint-Exupéry's *Le Petit Prince* to underline his statement: every person on earth has to take care of his own rose; and must do what he is able to cope with and for that matter use the talents which are at his disposal.

Bakema participated actively in the developments within the Department of Architecture and his 'Chair 8 Housing and Living Environment'. The name of this chair, which was created after the reorganisation of the department in 1973, recalls the Forum world of ideas: architecture and urban development are inextricably interlinked, and housing had become one of the main forms of architecture of the twentieth century. Bakema focused his attention on the possible meaning of architecture and urban planning for the individual and society and on the responsibility of the designers of the built environment. The chair acted promptly as an alternative chair for urban planning, which alarmed the chair of urban planning.

During his lectures Bakema told his students what he had experienced as an architect and about his encounters with Gerrit Rietveld, Mart Stam and Le Corbusier. Those stories were intended to inspire the future designers of the built environment, to make them think about a concrete vision for the future world with an increasing population and urbanisation. He taught his students about the upscaling within contemporary society and made an appeal to them not to walk out of it, but to make plans, such as Van den Broek and he so often had done.

CONCLUSION

Van den Broek and Bakema were among the torchbearers of Dutch modernist architecture. For that reason they were asked to teach young people what architecture is about and what it means to be an architect. When Van den Broek passed the torch to Bakema in the mid-sixties, the groundbreaking power of the modernist movement had waned. Due to the large scale of the post-war task the modernist movement had become completely institutionalised and bureaucratised. However, the question about the position and responsibility of the architect in an increasingly technology-dominated society remained valid. In modern society, the architect could no longer occupy a central place in the building process. From now on he was part of a much larger and more social process. In the space of time equal to a generation, the focus of the modernist architect had shifted from the quantity of housing to the quality of the built environment; and from the collective community to the community of anonymous individuals. Mission accomplished: the reconstruction of the Netherlands was completed.

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Notes on contributor

Evelien van Es studied art history at the Vrije Universiteit of Amsterdam. She was curator for the collection at the Netherlands Architecture Institute. In 2003 she founded a Rotterdam-based research bureau and works for various clients. She advises in the field of cultural heritage, publishes articles on a wide range of topics, and is guest tutor at the Department of Architecture at the Delft University of Technology. Recent projects include the editing of *Atlas of the Functional City. CIAM and Comparative Analysis*.

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- 1 Jean-Paul Baeten, *Een telefooncel op de Lijnbaan: De traditie van een architectenbureau* (Rotterdam: NAI Uitgevers, 1995), 15.
- 2 Izak Salomons, "De analyticus en de idealist. Lessen van Van den Broek en Bakema," in *Van den Broek en Bakema 1948-1988. Architectuur en stedenbouw. De functie van de vorm*, ed. H. Ibelings (Rotterdam: NAI Uitgevers, 2000), 49.
- 3 Wouter Vanstiphout, *Maak een stad. Rotterdam en de architectuur van J.H. van den Broek* (Rotterdam: Uitgeverij 010, 2005) 49, 193-194.
- 4 J.J.P. Oud, "Three new professors in Delft" *De Groene Amsterdammer*, January 17, 1948.
- 5 H. van Dijk, "Het onderwijzersmodernisme," in *Hoe Modern is de Nederlandse architectuur?* ed. B. Leupen et al. (Rotterdam: Uitgeverij 010, 1990), 181-182.
- 6 Van den Broek gave his inaugural speech *Creatieve krachten in de architectonische conceptie* originally in Dutch on January 27, 1948.
- 7 E. Taverne, "Towards an open aesthetic. Ambities in de Nederlandse architectuur 1948-1959," in *Hoe Modern is de Nederlandse architectuur?* ed. B. Leupen et al. (Rotterdam: Uitgeverij 010, 1990), 23-24.
- 8 Taverne, 25.
- 9 Originally in Dutch: 'Groot ontwerp' and 'Typologie van gebouwen'.
- 10 Salomons, 53.
- 11 Salomons, 50.
- 12 Baeten, 18.
- 13 Baeten, 23.
- 14 Baeten, 27.
- 15 Bakema gave his inaugural speech *Naar een samenlevingsarchitectuur* originally in Dutch on January 15, 1964.
- 16 Evelien van Es, "The miracle of total space, in which everything is and becomes," *Architecture Bulletin* 03 (2007): 58.
- 17 Manned space travel was a highly topical event at the time of Bakema's speech.
- 18 Baeten, 31.
- 19 Salomons, 54.

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- Figure 3: Het Nieuwe Instituut in Rotterdam, Archive of Van den Broek and Bakema Architects.
- Figure 4: Het Nieuwe Instituut in Rotterdam, Archive of J.B. Bakema.
- Figure 5: Bakema, J.B., *Van stoel tot stad. Een verhaal over mensen en ruimte*, Zeist 1964