

Evelien van Es [Guest Editor]

ISSUE 3

Van den Broek & Bakema

Vigorous protagonists of a functionalist architecture at the TH Delft



Inaugural Speeches in the Built Environment:
Global and Contextualised



Van den Broek & Bakema

TU Delft Open 2018



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**Inaugural Speeches in the Built Environment:
Global and Contextualised**

Series Editors: Herman van Bergeijk and Carola Hein
[Chair History of Architecture and Urban Planning, TU Delft]

ISSUE 3

Van den Broek & Bakema.

Vigorous protagonists of a functionalist architecture at the TU Delft

Guest Editor: Evelien van Es

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This small booklet contains the inaugural speeches of J.H. van den Broek and J.B. Bakema given on the occasion of their appointment as professors at the Technical College of Delft. The speeches provide novel insights into their respective teaching programs, and into the dynamics of their time. An analytical reflection of their work is given by architectural historian Evelien van Es.

The translation of the text of Bakema by Robyn de Jong-Dalziel was first published in Dirk van den Heuvel (ed.), Jaap Bakema and the Open Society, published by Archis, Amsterdam 2018. The curators of this volume have yet preferred to alter the title. The translation of the text of Van den Broek was made by Gerard van den Hooff. The text of Van Es has been edited in English by Hannah Mason.

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Inaugural Speeches in the Built Environment: Global and Contextualized

Inaugural speeches have long been unique moments in the careers of academics in many countries: As an important moment in the career they offer a moment to pause, to reflect, and to envision new approaches. Planners and architects in particular have used such speeches to tie together insights into design work and education and to offer a programmatic view on their own operating within the academic community. Prepared with great care for a university and general audience, inaugural lectures also offer later researchers insight into the thoughts of these scholars at a specific moment in time. Material gathered for and notes written on the occasion of these lectures can help such researchers understand the work habits and thought processes of their authors, perhaps even their relationships with colleagues and students. This series offers inaugural lectures - translated into English and contextualized with scholarly introductions - to unlock information for comparative research and set the stage for new investigations. For example, scholars can use these works to explore educational activities in the built environment or to study the dissemination of planning and design ideas. The series continues with inaugural words by two professors from the Polytechnic in Delft (today TU Delft) who were highly influential in the Netherlands and beyond: J.H. van den Broek and J.B. Bakema. They radically changed the course of architectural teaching in the postwar period and set up a new curriculum.

Herman van Bergeijk and Carola Hein

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FIG. 1 Van den Broek and Bakema with a model of the School of Civil Engineering.

Evelien van Es

Van den Broek and Bakema. Vigorous protagonists of a functionalist architecture at the TH Delft

Introduction

Though unlike in personality, functionalist architects Johannes Hendrik (Jo) van den Broek (1898-1978) and Jacob Berend (Jaap) Bakema (1914-1981) were inextricably bound up with each other both as partners in their Rotterdam office, Van den Broek and Bakema Architects, and as professors at the Technical College of Delft. [Fig. 1] Each represents a type of Dutch functionalism. Van den Broek was one of the founders of Nieuwe Bouwen, the modernist movement in Dutch architecture and construction after 1930; Bakema was among the enthusiastic architects of the post-war period moving modernist architecture in a new direction. Van den Broek and Bakema were two outstanding and outspoken characters, invariably typified in architectural historical literature as opposites: the analyst and the idealist, the pragmatist and the philosopher, the schoolmaster and the priest.

Van den Broek and Bakema Architects was a key player in the post-war reconstruction of the Netherlands. Despite the sheer size of the task and the shortage of manpower and building materials, the Netherlands had quickly mounted a large-scale operation to rebuild bombed areas with industrially manufactured mass housing and a new cityscape. Van den Broek and Bakema Architects was known for its large-scale building projects, its problem-solving ability, and it generated new ideas about architecture, urbanism, and society. After the war, both architects were appointed extraordinary professors at the Technical College of Delft; Van den Broek from 1947 until 1964 and Bakema from 1964 until his death in 1981. Each left his mark on both architectural education and the atmosphere of the Department of Architecture.

Because of the grand scale of construction in the first decades after the war, Van den Broek and Bakema asked themselves what the architect's role and responsibility were in an increasingly technology-dominated society. It is not surprising that this question was the main theme in their teaching and in their inaugural speeches. Van den Broek gave his inaugural speech in 1948; Bakema in 1964. These two dates mark more or less the start and the completion of the post-war reconstruction.

The Chair History of Architecture and Urban Planning publishes their inaugural speeches with a small critical apparatus, to discuss these professors at the Technical College and the work that they did with students; and to shed new light on a lesser known period in these men's careers, as well as to contribute to the history of the Technical College in Delft, in particular of its role in architecture and planning education in post-war society.

Van den Broek and Bakema as torchbearers of modernist architecture

The office of Van den Broek and Bakema has a long history. Architect Michiel Brinkman (1873-1925) started the office in 1910 and made his name with an experimental design for municipal housing in Spangen, Rotterdam (1919-1922). His son Jan Brinkman (1902-1947) and partner Leen van der Vlugt (1894-1936) 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. [Fig. 2] In 1937, a year after Van der Vlugt's sudden death, Van den Broek joined the office. He replaced the traditional hierarchical distinction between designers and engineers, and between design and the execution of a design, with the new concept of teamwork.



FIG. 2 The Van Nelle Factory in Rotterdam (Source: Het Nieuwe Instituut).

As Brinkman struggled with health problems, Van den Broek invited Bakema in 1947 to join the office. Van den Broek had met Bakema in the early 1940s while on the 'warpath for a new Rotterdam', as he described the project 'Woonmogelijkheden in het nieuwe Rotterdam' [Housing opportunities in the new Rotterdam].¹ Bakema accepted the invitation. After Brinkman died in 1949, Van den Broek formally went into partnership with Bakema. Together they reorganised the office structure in order to make it suitable for the post-war architectural goals of scaling up and mass production by perfecting the decentralised work method Van den Broek had introduced a decade earlier. In 1951 the office was renamed Van den Broek and Bakema Architects and in this configuration it made a significant contribution to the reconstruction of the Netherlands.

As the Netherlands was reconstructed, its society was rapidly changing. During the 1950s a modern society came into being, characterised by increasing wealth, a growing population, as well as the rise of a consumer culture and a taste for individualisation. The new conditions had far-reaching consequences for architecture and urban planning. To carry out the massive programme of post-war reconstruction the building industry had to modernize drastically. The Dutch government engaged actively in the reconstruction of the Netherlands, especially in the housing programme. The focus on housing required standardization of floor plans and elevations. To guide the standardization in the right direction a complex system of advisory committees set a large number of regulations for the design process. Moreover, the scaling up of trade and industry in this new society resulted in an increasingly complex structure of clients and other people involved in architecture and urban planning. Within a short space of time the building sector had developed into a huge machinery

1 Valedictory lecture by Van den Broek, 'Door drie decennien van doelmatigheid', HNI, Archief Van den Broek, BROZ 524.14.

of post-war reconstruction. In this climate of efficiency and standardisation, technocrats displaced the designing architect on any given project. In response, architects searched for precedents on which to found a new culture of design and found inspiration in the pre-war avant-gardes such as *De Stijl* and *Nieuwe Bouwen*; their search led to a widespread though one-sided interest in national architectural history. Architects and critics created a myth of a new architecture rooted in the experiments of the inter-war years.

Van den Broek: the analyst, the pragmatist and the schoolmaster

Van den Broek was one of the main protagonists of modernist architecture, though his conception of the modernist tradition was averse to any heroism. It came down to an open and pragmatic attitude towards modern construction methods, combined with a great sense of the social significance of the architectural profession.² His opinions were rooted in the social functionalism of pre-war architecture. Yet he pursued more 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: “Functionalism is a humanism”.³ He saw that an architect’s designs reflect his attitude to life; like professor M.J. Granpré Molière, Van den Broek was acutely aware of the almost religious dimension of design.

In 1924, he completed his training as an architect at the Technical College in Delft, where 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

2 Jean-Paul Baeten, *Een telefooncel op de Lijnbaan: De traditie van een architectenbureau* (Rotterdam: NAI Uitgevers, 1995), 15.

3 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.

based on architectural briefs that became progressively more complex and finally discussing different types of buildings in general. Academicism was conceived as a pragmatic planning doctrine which did not necessarily lead to one kind of architecture; it never disappeared entirely from Van den Broek's designs.⁴ He excelled in designing efficient and organizing floor plans; during the late 1920s and early 1930s he acquired an excellent reputation in the field of inexpensive and good quality housing. [Fig. 3]



FIG. 3 Interior of a flat in 'De Eendracht' building in Rotterdam, designed by Van den Broek, 1929-1935 (Source: Het Nieuwe Instituut).

4 Wouter Vanstiphout, *Maakeen stad. Rotterdam en de architectuur van J.H. van den Broek* (Rotterdam: Uitgeverij 010, 2005) 49, 193-194.

After the bombing of Rotterdam in 1940, Van den Broek became 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 to be an organisational problem in which diverging specialists and stakeholders had to be aligned. Because of his involvement with the technical and organisational aspects of building, he aspired to reshape post-war building practice. While people were still clearing debris, he helped initiate the project ‘Woonmogelijkheden in het nieuwe Rotterdam’ [Housing opportunities in the new Rotterdam] in which co-operating architects presented a realistic alternative to the official municipal Public Works reconstruction plan. The project is exemplary of his practical and activist method.

Later, Van den Broek focused on domestic and foreign networks 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. In 1946 he represented the Netherlands when the UIA (Union Internationale des Architectes) was first established, an international architects’ network for the exchange of knowledge about, among other things, reconstruction of cities after the war. By this time Van den Broek was a pivotal figure in the Netherlands, contributing to debates in articles in periodicals such as *Goed Wonen* [Good Living] and *Bouw* [Construction]. He was also one of the members of *Bouw*’s editorial board and often set the tone of the periodical.⁵

5 Bergeijk, H. van, “The Free Bird and its Cages: Dutch architectural magazines in the first decade after the Second World War”, in *Modernism and the Professional Architecture Journal. Reporting, editing and reconstructing in post-war Europe*, eds. T. Schmiedeknecht, A. Peckham (Oxford: Routledge 2018). Manuscript submitted for publication.

C.H. van der Leeuw - Dutch industrialist, former director of the Van Nelle Factory, and most importantly, curator of the Technical College of Delft (from 1946) - helped push for Van den Broek's appointment as extraordinary professor. Van der Leeuw had initiated a radical overhaul of the college's architectural education,⁶ and knew Van den Broek quite well. They were both professionally involved in the reconstruction of Rotterdam and they happened to be good friends. Besides Van den Broek, the closely connected urban planners C. van Eesteren and architect G.J. Holt were appointed extraordinary professors. These appointments were intended to counterbalance the traditionalist Delft School, an architectural movement led by charismatic Granpré Molière, professor of architecture at the Technical College of Delft since 1924. The well-known modernist architect J.J.P. Oud expressed his approval of the appointments in the periodical *De Groene Amsterdammer*. Oud considered Van den Broek and Van Eesteren influential and active protagonists of modern architecture and assumed that they would stand firmly and remain committed to their view.⁷

Despite Van der Leeuw's attempts at reform, the power of the old guard remained undiminished for several years to come. Modern architects still needed to justify their conviction and their way of working amidst the predominant traditionalist Delft School, which had also considerably influenced post-war planning and reconstruction and the educational practice of the Technical College of Delft.

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- 6 Bergeijk, H. van, Van Lohuizen and Van Eesteren. *Partners in Planning and Education at TH Delft* [Inaugural Speeches in the Built Environment: Global and Contextualised], p. 13.
- 7 J.J.P. Oud, "Three new professors in Delft" *De Groene Amsterdammer*, January 17, 1948.

However, the size of the task of reconstruction, the ascent of planning devices, and the standardization of the building sector were of such a scale that, in the eyes of Van den Broek, only modernist architecture could provide an adequate response.⁸

Amid the conflicts of style and ideology at the Technical College of Delft, Van den Broek unfolded his vision of pragmatic and inclusive architecture. His inaugural speech ‘Creative forces in the architectural conception’ is a classic speech in the tradition of inaugural speeches held by professors of the Technical College. It united the existing diversity of movements and trends - modernists, traditionalists, romanticists and classicists - in a national architectural discourse. Here 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 of society. The architect should not seek the creative forces of architectural thinking in a multitude of architectural styles, Van den Broek argued, but should let those styles be jointly present in the mind; he envisioned 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. But, he argued, modernist architecture was not an artistic expression of the architect alone, it was an activity of the community. By using contemporary means, that is not only by drawing on the past, modernist architecture expresses ‘conscious human life’. Therefore modernist architecture was not simply materialistic.

8 H. van Dijk, “Het onderwijzersmodernisme,” in *Hoe Modern is de Nederlandse architectuur?* ed. B. Leupen et al. (Rotterdam: Uitgeverij 010, 1990), 181-182.

The decisive element in the speech is Van den Broek's optimistic belief in the certainties of pre-war architectural culture. But he 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 movements 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 movements.⁹ Van den Broek juxtaposed the modernist architects' search for 'pure forms to fulfil pure needs' with the doctrine-based and hermetic aesthetics and morphology of the traditionalists. He wondered why the forms of modern architecture were not accounted for by traditionalist aesthetics, though they claimed to capture the established principles of architecture. That they did not account for modern forms meant that traditionalist aesthetics were not based on the absolute truth, but on value judgments, he concluded, and accordingly he proposed to change the principles of the aesthetic system and broaden aesthetic intellection. Subsequently he painted a picture of 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 culture confronted architects with complex typological problems.¹⁰

In 1955, Van den Broek became a full professor, succeeding N. Lansdorp and gaining more influence over the Department of Architecture. He now taught fourth-year students to design

9 E. Taverne, "Towards an open aesthetic. Ambitions in de Nederlandse architectuur 1948-1959," in *Hoe Modern is de Nederlandse architectuur?* ed. B. Leupen et al. (Rotterdam: Uitgeverij 010, 1990), 23-24.

10 Taverne, 25.

according to two 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, for example, the Van Nelle Factory in Rotterdam.

His lecture series was first named 'Grand design' and later 'Typology of buildings'.¹¹ Students worked individually on the design of a few building types, which they discussed during the various courses. After several conversations with his aides, students came by appointment to Van den Broek, who thoroughly engaged with their designs and gave the students suggestions and directions. Van den Broek stressed that the same brief could lead to a variety of forms. His students needed to understand that creative forces in the architectural conception derive from a number of sources. He discussed each student's final results in front of the other students during the notorious 'confrontation lectures'¹², so students could experience for themselves how different approaches to the same brief could lead to a variety of forms. Van den Broek put the value judgements of the Delft School into perspective. Architecture should not be measured by its beauty or ugliness, but by its function, construction, and form, he taught.

At all times Van den Broek presented architectural styles and methods from a synthetic point of view. Using slides, he gave an overview of 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.

11 Originally in Dutch: 'Groot ontwerp' and 'Typologie van gebouwen'.

12 Salomons, 53.

In February 1960, Van den Broek organized a ‘commentaarcollege’ (literally commentary lectures or commented talks), a series of lectures accompanied by discussion, in response to a recent lecture by Van Eesteren on the history and background of the CIAM (Congrès Internationaux d’Architecture Moderne). Although Van Eesteren had been the president of the CIAM from 1930 until 1947, he had never before dedicated a lecture to the CIAM. In turn, he was responding to the latest issue (7 September 1959) of the periodical *Forum*, led by a young group around architect Aldo van Eyck, had prompted him to clarify the meaning and intentions of the CIAM. That issue coincided –not coincidentally, as Van Eyck was one of the CIAM members who suggested to end CIAM – with the abolition of the CIAM. Van Eesteren believed that the new editorial team of *Forum* had failed to do justice to the CIAM and to reality itself. The special lecture turned into a fierce clash between two generations.

It was also the first of many such events, which became an important institution in the Department of Architecture. During these regular lectures, professors, visitors, and students discussed topical issues and fundamental problems relating to architecture. The lectures focussed on ideation, discussing concrete examples. Relevant practitioners were invited to elaborate on their work and students got the opportunity to question them about their ideas. Van den Broek invited architect Mart Stam, whom he knew from the time they both worked at the office of Granpré Molière and P. Verhagen, to talk about pre-war art and architecture. Stam told the students about his encounter with dadaist Kurt Schwitters and his experiences in the USSR. The artist Constant Nieuwenhuys was asked to present on New Babylon, his dystopian project within the Situationist International. [Fig. 4] New Babylon responded to the shortcomings of existing cities. As an experimental idea for the future mass society, it offered a perspective for *homo ludens* (after the publication of the same name by cultural historian J.



FIG. 4 Commentary lecture with Van den Broek and Constant Nieuwenhuys, 1962 (Source: H. Ibelings, Van den Broek and Bakema, Rotterdam 2000).

Huizinga, meaning ‘man at play’). Later, Van den Broek let urban planners of the Amsterdam Urban Development Department display their design for the Bijlmer area of Amsterdam. He also seized the opportunity to showcase his own design for the new building of the Department of Architecture, and questioned the future of architectural education and the professional practice of the architect.¹³

Students considered the commentary lectures highly exciting and engaging. They reported on them in the periodical *Delftse School*, edited by progressive students trying to renew and enliven the architecture discourse in the Netherlands. Van den Broek served as an advisor for the periodical.

13 Salomons, 50.

Before Van den Broek left the Department of Architecture, he wrote a letter to his colleagues A. van Kranendonk, J.F. Berghoef, C. Wegener-Sleeswijk, and H. Brouwer, outlining what he considered to be the foundation of architectural and planning education¹⁴: it should not only train architects and foster their capacity for design, but also address the social task of creating an environment for humankind as well. Van den Broek noted he had presided over the committee that had studied architecture and planning education for years for the Bond van Nederlandse Architecten [Society of Dutch Architects]. As the number of students increased steadily, Van den Broek suggested forming study groups coached by aides or lecturers.

Van den Broek reached retirement age in October 1963, which meant he had to leave the Department of Architecture. Students of the student association Stylos petitioned the department to let him stay on as a professor, or at least as an extraordinary professor. They feared that his departure would leave a huge gap.¹⁵ Despite these efforts, Van den Broek left the department in 1964. His student Dirk Frieling interviewed him for the periodical *Delftse School* and published the article as ‘A farewell to a missionary’. In the article Van den Broek stressed that he had always considered it his mission to teach his students that creating an architectural environment is above all a social activity.¹⁶ His partner at the Rotterdam office, Bakema, who was appointed professor in 1964, would preach the same high-minded ideal.

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- 14 Letter by Van den Broek to A. van Kranendonk, J.F. Berghoef, C. Wegener-Sleeswijk and H. Brouwer, HNI, Archief Van den Broek, BROZ 524.103.
- 15 Petition signed by students of Stylos, HNI, Archief Van den Broek, BROZ 524.52.
- 16 Frieling, D.H., ‘Afscheid van een zendeling’, in *Delftse School* (1964) 11, pp. 247-249.

Bakema: the idealist, the philosopher and the priest

Bakema did not experience the heroic period of the modernist movement personally, as Van den Broek did, though Bakema had been taught by Stam and gained practical experience with Van Eesteren and Van Tijen. In fact, Bakema only dealt with the legacy of the modernist movement. Drawing the focus of attention to the history of the modernist movement, as it was partially recorded in the archives of Van den Broek and Bakema Architects, was an inherent 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; he used the cultural prestige of buildings such as the Van Nelle Factory to position the office he shared with Van den Broek at the centre of Dutch modernist architecture.¹⁷

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 he could develop inspiring models for a new society.¹⁸ These models were realistic utopias: seductive images of a near future, exploring the boundaries of technical and social feasibilities.¹⁹

17 Baeten, 17-19.

18 Baeten, 23.

19 Baeten, 27.

At the time of Bakema's appointment as extraordinary professor, in 1964, modernist architecture was completely assimilated into the machinery of post-war reconstruction and had become dogmatic. His inaugural speech 'Towards an architecture for society' bears witness of his discontent with this development.²⁰ Bakema criticised the system of this machinery for privileging administrative, distributive, and commercial provisions over the building of spatial structures. Thus he broke with the post-war generation of architects and urban planners.

Bakema's speech expressed a holistic view of the world. It is constructed around four abstract concepts: space, form, structure, human. The simultaneous use of which in architectural design leads to concepts such as home, workplace, church, and school. The interdependence of these concepts is of the same importance as each individual concept. His concept of space had its origin in the neo-plastic 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. The house designed by G. Rietveld, in 1924, is the best example of the *De Stijl*'s neo-plastic aesthetic as the outer walls dissolve into free-standing planes and the first floor exists of an open transformable plan. Bakema developed the artistic idea of neo-plastic space into a societal concept of 'total space'. He continued refining this idea of the all-embracing space for the rest of his life.

Understanding space started in the enclosures of prehistoric caves and culminated in astronauts seeing planet earth as their focal point in the expanding space of the universe.²¹ According to

20 Bakema gave his inaugural speech *Naar een samenlevingsarchitectuur* originally in Dutch on January 15, 1964.

21 Manned space travel was a highly topical event at the time of Bakema's speech.

Bakema, thinking about space was strongly related to thinking about life.²² Architectural design is primarily formulating the hidden tasks of society and becoming familiar with unknown clients. Only after unveiling these tasks could architects develop structures; only then could the unknown clients identify with 'total space'. It made no sense to teach architectural design without accepting responsibility for the impact of the built environment on people, humans and humankind. Therefore Bakema suggested a basic course, preparatory to learning how to design and construct, to teach students to understand the greater context of life in which the architectural form operates.

In comparison to earlier publications of historic inaugural speeches, this one features a new kind of layout and also contains sketches, which was rather unusual. Bakema's illustrated speech was highly influenced by the visual rhetoric of the periodical *Forum*, designed by graphic designer Jurriaan Schrofer. [Fig. 5]. The distinctive typography, boldfaced words, and sketches structure Bakema's speech. In fact, the sketch had a special meaning to Bakema. Traditionally the sketch is the most direct manifestation of the artistic design process. Bakema wielded the sketch consciously and imbued it with new meanings as a symbol of autonomous power. Bakema sketched to explain his ideas and visions to his audience, and he had a very distinctive visual language. When his employees consulted him, they never got a cut and dried solution but an inspiring story buttressed with sketches. He also published his sketches in books and periodicals, which made the sketch even more than a cursory instruction.

22 Evelien van Es, "The miracle of total space, in which everything is and becomes," *Architecture Bulletin* 03 (2007), 58.

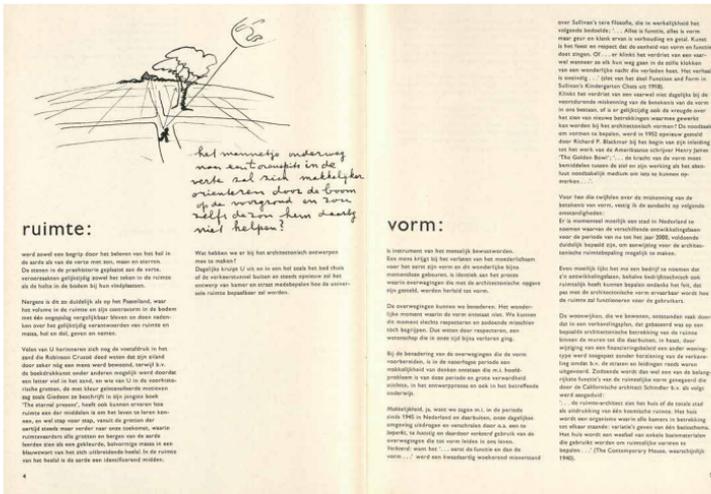


FIG. 5 Spread of the Speech. (Source: Bakema's inaugural lecture.)

By consciously creating an image, Bakema was trying to recover the artistic prestige of the architect, which had been lost in the post-war reconstruction machinery. He actually repurposed some of the sketches illustrating his inaugural speech from his earlier work on a 1962 television series, 'Van stoel tot stad' [From chair to city]. [Fig. 6] He appeared on screen as a prophet of a new era and presented collages of diverse architecture media: drawings, models, photos, and movies. The collages formed a composite world, where images of reality passed seamlessly into images of plans and projects, punctuated by footage of Bakema sketching on a classroom blackboard as a traditional professor.²³

Bakema's inspiring television performance was similar to his presence in the office his work in the CIAM, and his teaching in Delft. (Van den Broek had invited him to Delft in 1960 for a

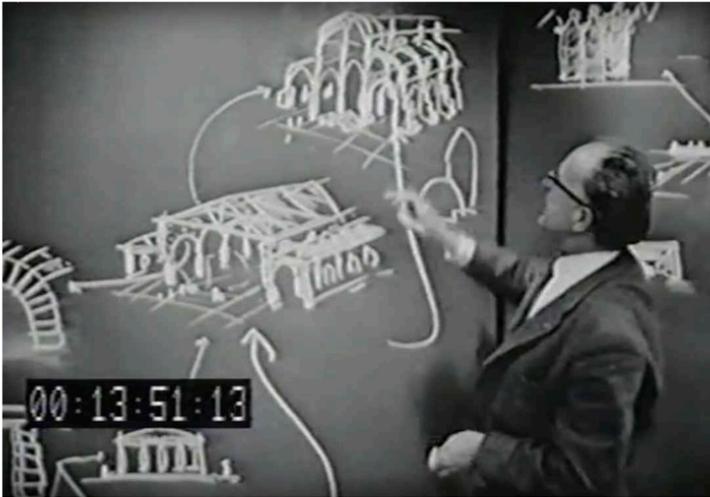


FIG. 6 Still of the television series 'From chair to city', broadcasted in 1962.

commentary lecture, and Bakema used the event to criticise the CIAM for its doctrinaire approach). He was an activist in his strong commitment to transforming the CIAM, his contribution to Team 10 (a group of young architects within CIAM), and his editorial work for the periodical *Forum*. In every domain, he refused to compromise. With the same active attitude and inexhaustible energy, he took over the Department of Architecture at Delft.

In his architect office, Bakema had created spatial visions of the future in order to indicate the direction in which he believed future society could or should develop, like the Pampus plan which Bakema typified as a realistic utopia. [Fig. 7] One of the first assignments for his students at Delft was to envision the future of the Euro Delta (Rotterdam-Antwerp-Cologne), but that proved too ambitious.

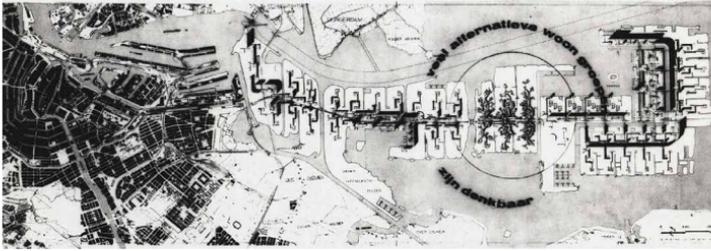


FIG. 7 Pampus Plan, a realistic utopia for an extension of Amsterdam by Van den Broek and Bakema Architects, 1964 (Source: Het Nieuwe Instituut).

As expected, Bakema encouraged his students to pursue educational innovation and democratisation of the Department of Architecture. But when in May 1969 the revolution arrived in Delft, he remained critical because of the size of the revolt. The section meeting of the Department of Architecture carried three motions questioning the ruling hierarchy in governance and education. Bakema abstained from voting, although the expectant atmosphere of solidarity and equality did please him. He asked employees who still addressed him with his academic title to call him by his first name Jaap, which sums up the new situation succinctly.²⁴ [Fig. 8]. After 1969, the social relevance of architecture and the role of the architect in society became the centre of interest at the Department of Architecture. Architecture became an interdisciplinary profession in which society played an important role. The new political aims and objectives of the reformed department 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 (with students from multiple disciplines) and vertically (with students from different academic years) and took place in study groups.

24 Salomons, 54.



FIG. 8 Bakema evaluating student's designs during the Internationale Sommerakademie für Bildende Kunst in Salzburg, 1969 (Source: Het Nieuwe Instituut).

The Verticale Atelier [Vertical Studio], an initiative of Aldo van Eyck (extraordinary professor since 1966), had students from different academic years working in one design studio. The contrast with the previous authoritarian system of year professors could hardly be greater. Previously, each year had been supervised by one professor of architecture, that is to say a full professor, not an extraordinary professor. This professor formulated the design exercises for the year and left supervision of the exercises to staff members. At the end of the design work, the professor evaluated the projects. Then, with the project-based education of the Vertical Studio, the year professors lost actual control over the

evaluation of students' work.²⁵ Now the development and results of the projects were discussed in front of other students on a regular basis. Bakema himself attended the lively intermediate and final discussions. Given the hierarchical system of year professors, it had been highly unusual for professors to attend intermediate discussions. But Bakema 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 department chair '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. [Fig. 9]

25 Heuvel, D. van den, "The spaces between \ encounters", in *Lessons: Tupker \ Risselada. A double portrait of Dutch architectural education 1953 \ 2003*, eds. D. van den Heuvel, M. Steigenga, J. van Driest (Amsterdam: SUN 2003) 122-123.

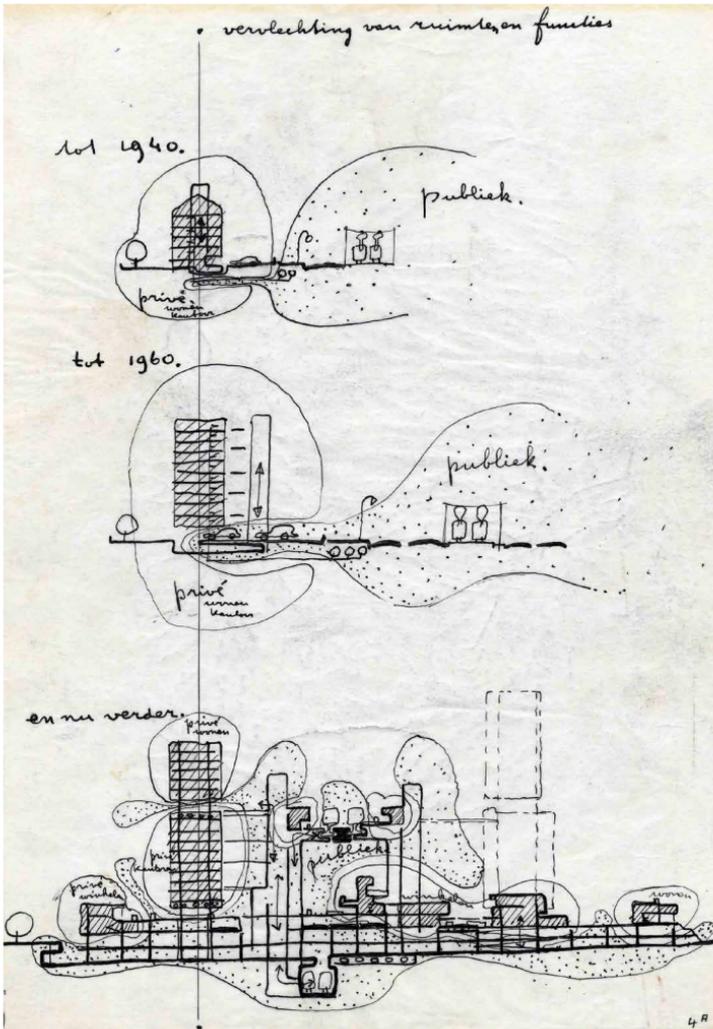


FIG. 9 Bakema illustrating the concept of interweaving spaces and functions.

In his lectures, Bakema told his students what he had experienced as an architect in the world and about his encounters with Rietveld, Mart Stam, and Le Corbusier. He wanted to inspire the future designers of the built environment to imagine a concrete vision for a world with an increasing population and urbanisation.

He taught his students about the process of the increasing scale of practically every aspect within contemporary society and made an appeal to them not to abandon this process but to make plans to address it, as Van den Broek and he had done so often.²⁶

When Van den Broek passed the torch to Bakema in the mid-sixties, the ground breaking power of the modernist movement had waned. Due to the large scale of post-war reconstruction, the movement had become completely institutionalised and bureaucratised. However, questions remained about the position and responsibility of the architect in an increasingly technology-dominated society. In a period 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. 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.

Van den Broek and Bakema were torchbearers for Dutch modernist architecture. Even in a changing society both men remained leaders of the architectural vanguard. Their successful office linked them to the daily practice of the building trade and their membership of the UIA and Team 10 provided them with relevant insights. For that reason the Department of Architecture asked

26 Salomons, 56.

them to teach young people what architecture is about and what it means to be an architect. Both men were tremendously popular with their students, and were very approachable. Van den Broek and Bakema appealed to students' sense of social commitment. Van den Broek was a true innovator; his commitment had a strong pragmatic sense. Bakema was a motivator; his commitment had a rhetorical tendency. They taught students to be architects who understood their role in the building process, their responsibility in society and the creative force of imagination.

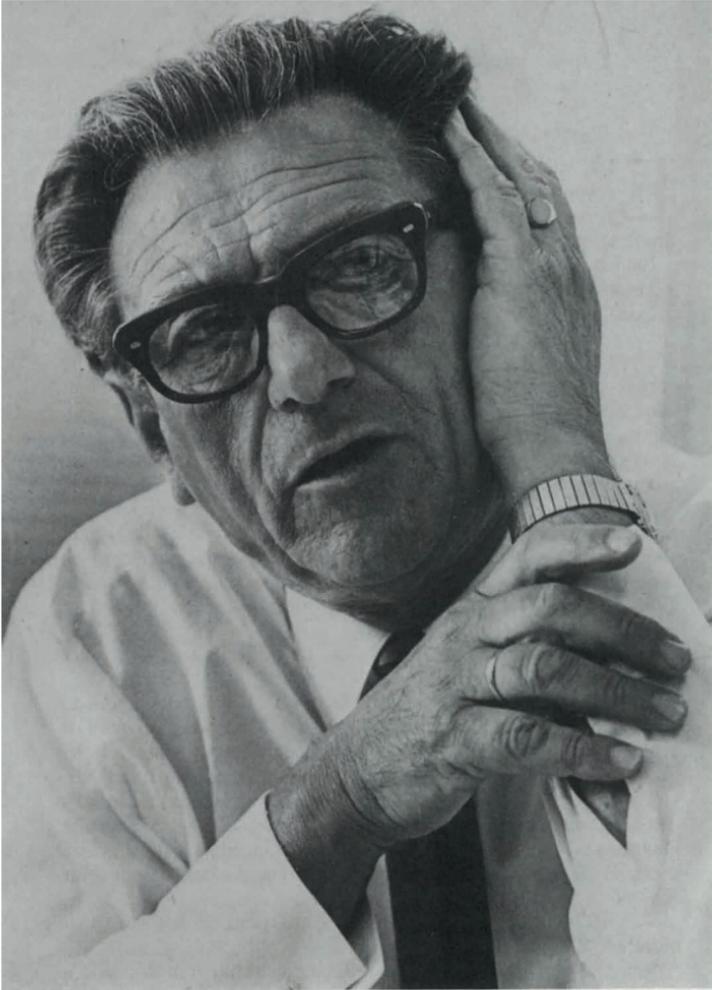


FIG. 10 J.H. van den Broek (Source: Het Rotterdams Jaarboekje, 1982).

J.H. van den Broek B. Sc

Creative forces in the architectural conception

Speech delivered by J.H. van den Broek, B. Sc., on the occasion of his accession to the office of extraordinary professor of architecture at the Delft Institute of Technology on Wednesday 28 January

Esteemed listeners,

In his third year the student of architecture is for the first time faced with the same assignment that, I hope, he will be working on many more times as a professional architect, i.e., to fashion a constructional programme into an architectural design. If he fares like I did at the time, he will be silent for a while and perceive the abrupt transition in his developmental process: until that point of time he has primarily received, whereas from that moment onwards he will also be obliged to give. He has previously mastered – or at least attempted to master – all those little pieces of knowledge and science that are deemed quintessential for the architect's professional expertise: mathematics and mechanics, a knowledge of building materials as well as drawing skills, the theory of construction and the theory of form. And now, using this alphabet, he will have to speak a language, join those pieces of knowledge together into one whole, or rather, absorb them and shape them into a dormant potential of skills, with which he will now have to mould one entity.

In the history of architecture he will have come across beautiful examples of this and have the ambition to create reflections of them in his work. This is also the time when he will look round

in his own time and environment, at what contemporaries have done and, possibly, mean to him. And initially he will fare like the layman who says in plain terms that he is no longer able to find his way in the abundance of architectural phenomena of our time and country, let alone have a feeling or express appreciation for it. It is, after all, so much easier to find one's way in Greek, Romanesque, Gothic, Renaissance or Baroque architecture, which are all displayed and explained meticulously in our companions to the history of architecture in their manifestations, variations and departures. How much simpler it would have been for the sake of easy reference if one could confine oneself to the monuments of the fine art of architecture, whereas today all buildings, including those of so-called civil architecture and humble public housing, have the presumption to be an architectural highlight. However, being a future professional with a certain amount of expertise, he will be able to make distinctions in that multitude which we can define as modernists and traditionalists, romantics and classicists.

These distinctions are non-scientific and the bases of the two pairs are different; romantics and classicists are predominantly actuated by their sense of beauty, and modernists and traditionalists also by a certain outlook on life, *Weltanschauung* and view of society. They do not constitute separate sectors which together comprise the whole of our national architecture, nor can each architect be assigned his own place in it. It would be a subject in itself to demonstrate the characteristics of the distinctions made, the similarities and differences, the tangents and interfaces, and to reflect on them in a satisfactory manner – a subject, however, too extensive to deal with here and now.

Nevertheless we must turn our attention to it to a certain extent to make sure that we know what we are talking about. However much profoundness may be hidden in the background in terms

of attitude to life and Weltanschauung, it will always come to the fore when it comes to material, technology and form; they must therefore be borne in mind.

The easiest to understand are the romantics, even though among themselves they show relatively little similarity. In any case they are the easiest to forgive, because they are the artists *pur sang*, the gifted ones, “God in the very depth of their thoughts” – according to Kloos, when referring to the poets – giving vent to their brimming emotions in extravagant or austere forms, irrespective of the commission they are charged with, on principle indifferent to the material and technology they aim to use for those forms. They form the baroque opulence of the Scheepvaarthuis, the carefully moulded forms of the Bijenkorf in The Hague, the rich and lively rows of houses of De Klerk, with their unparalleled warm colours, unaffected by time – or, indeed, the entire Amsterdam School, which for a brief while turned our country into the Mecca of architecture, and in which brick and metallized concrete, tiles and glass, grotesquely shaped windows and horizontally applied bricks are used not as a constructive material, but as a plastic clay, with which the free forms of this ecstatic expressionism are moulded. But they also include the cubic masses with which Dudok occasionally shaped his spaces, and the concrete and glass and tiles and glazed bricks, discovered by the modernists in their idiosyncratic value, but used by the free artist in the Beurs and Bijenkorf in Rotterdam for their lustre and their refinement as materials. Also among them must be ranked some of the now rich and then austere, but always sophisticated forms by Eschauzier and, I am sorry to say, also the puzzling shoddy work and artificiality of the uncomprehending followers, who have provided the Netherlands with a mass of misshapen villas. So, free forms of any material that was available, only governed by the free laws of natural beauty. Herein lies the difference with the classicists.

Not because they use classical forms, but because they feel that beauty is determined by what they call the autonomous laws of architecture in terms of proportion and rhythm, surface and mass, rather than by the intuition of the free artist. Impressed by the beauty of Renaissance and baroque, they attempted to strive for the same well-considered, more or less mathematical monumentality. It is a relatively young school with Staal Jnr, Sijmons, Holt, Komter, Duintjer; with parallel movements in Switzerland (e.g., Honegger), Denmark and Sweden (Asplund), usually from the group of modernists that I will discuss later, and exclusively or primarily aiming for objective beauty. In no way do they tie themselves down when it comes to material and technology. What is typical in this context is their design in concrete, which aims to be ornamental in character rather than make the most of the material's sophisticated tension possibilities. In that sense this is in keeping with the conscientious work of Frank Lloyd Wright in this field and that of old Perret in his churches in Raincy and Montmagny and with the Arsenal in Toulon.

Where, in fact, the romantics and the so-called classicists betray little complexity in their strivings for beauty, the convictions of the so-called modernists and traditionalists are more deeply rooted. It is true that basically they are concerned with beauty – as in architecture in general – but in their case it has a very specific relationship with material and technology, and in the last instance also with their outlook on life, *Weltanschauung* and view of society. Literally modernists are they who seek new forms, which are different from those that were hitherto universally accepted.

So in this sense all styles, particularly the primarily formal ones, were once modern compared to their predecessors. Although, obviously, the fundamental reasons are rooted far more deeply, viz., in technology and culture, a natural artistic drive for new things plays a major role. The painter Dürer frankly said:

“daß gewöhnlich alle die etwas Neues bauen wollen, auch gern eine neue Form dazu haben mögen, die zuvor nie gesehen wäre”.

In this sense the romantics referred to are likewise modernists and their work was, and is still, called “modern architecture”. And this is also why the decorative style that Van der Velde tried to found in the early years of this century was called an “art nouveau”. What we would like to describe as the modernists, the “avant-garde”, the “New Objectivity”, the “New Building”, are they who are seeking the own form-in-itself, its own roots, in technology, society and culture, for the sake of their own architecture in their own time. It is advisable, therefore, not to call this modernism “art nouveau”, but rather “esprit nouveau”, the idea being that with this foundation it is in keeping with all great forms of architecture, which were after all based on these fundamental values.

What exactly is it that the modern “New Objectivity”, the “Architecture nouvelle” or “Esprit nouveau” aims at?

First of all it is remarkable that in its historical development it repudiates the naturalist form and the naturalist plane. An added oddity is that this modern architecture, often reproached with a lack of formal structure, was so strikingly associated with the pictorial when it concerned its origin. Being Dutch we will be interested to know that in Paris, round the year 1920, a group of countrymen consisting of Van Eesteren, Van Doesburgh and Mondriaan, together with kindred spirits, tackled the issue in painting and architecture whether emotion in art ought to go hand in hand with a naturalist representation (in painting) or material and massive forms (in architecture and sculpture).

If we adopt the metaphysical view of art that the creative artist reveals his individual strengths in his work, which actually represent the relationship of his soul with God, man and world,

and that this work evokes similar emotions in the beholder, then the important question presents itself whether this effect and consequences can only be achieved through the visualization and contemplation of naturalist forms – or whether this elevation of Artist and beholder from humanity to that “harmony with infinity”, which is the strength of all religion, all love and all art can also be accomplished – and perhaps even more directly – with more or less abstract forms of line, plane, colour and mass and their mutual effect. A topic that requires a very thorough discussion in itself, which would lead us too far afield in the present context, but which proves itself thoroughly worthy of the conscious human mind, without being at all decadent. One might add that, although in such an abstraction the actual artistic effect ought to become apparent in the most direct manner (and which is why the group of artists mentioned above deemed this abstract art the true form for people in general, as a means of achieving spiritual liberation), it did not meet with universal appreciation with the public at large. The rare appreciation of abstract art may be regarded as a confirmation of the fact that the masses fail to notice the very things that constitute the quality that is by nature the most cognizable, i.e., their being, and that only few are capable of the inner contemplation that is to lead to that direct recognition. In the initial stage of this modern architecture we observe an abstraction of the material manifestation: the walls are losing the massiveness of cemented bricks, are plastered or made of concrete and in colour, irrespective of the tectonic material. The building is not pictured as a closed-off mass in space, but is shaped, as if a number of partitions or side wings, moving from one plan to the other, are placed in the infinite world space and, indeed, demarcate its own space.

It is generally felt that the work of Oud, Wils and Rietveld is typical of that time and that the Schröder-Rietveld residence in Utrecht is particularly instructive.

Architects in various countries, albeit small in number, took to the idea of abstraction. And whatever name may be attached to this movement, this fact alone makes it “international architecture”. However, its character should be called universal (being a spirit-related term) rather than international (a place-related designation). Anyhow, its forms are remarkably similar, even though they are found in a variety of different locations, which is indicative of the power of its idea: the idea becomes more important than the creative architect.

This withdrawal of the individual architect in favour of the idea of the building is gradually becoming a socio-cultural basis of this new building, the “Neues Bauen”. Its thesis is that building is not an opportunity for the architect to give vent to his artistic expression, but an activity of the human community, so the building is not an ornamental object but an activity for the benefit of that community. The architect’s concept is not directed toward the representation of the building in relation to the world, but toward its function therein. This adequately explains the designation “functionalism”.

This “functionalism” refers to two things: Firstly: the building is to be an organism in itself rather than a monument, and secondly: the building commission is not to be interpreted as an individual need on the part of the client, but as a factor of mankind. This view necessitates a thorough analysis of the building commission; firstly to get to know the organism as such, and secondly because of its place in human society, to which end the building commission must be subjected to a critical study and its meaning explored in depth: not to look upon a residence as an individual facility, but as a part of human housing; the factory and the office not as means to commercial profits but as means to satisfy the needs of the human organization, and the public building not as a monument to power but as a public asset.

This position, and this analysis of the building commission, will lead the architect to a team of workers who each in their way serve the organism of human society: urban and rural planners, sociologists, economists, structural and other engineers, artists. Those who have a grasp of this “esprit nouveau”, will identify themselves with the “new building” and feel a deep bond with these architects. Conversely, for them it is impossible to imagine architecture without this social, or rather humanist solidarity, which for them has become a deep and heartfelt conviction.

This attitude – the consciousness of building as an activity of human living together – enables us to understand that from the very beginning public housing was a centre of interest of this movement. Their free organization, the C.I.A.M. (Congrès Internationaux de l'Architecture Moderne) devoted its publications “Die Wohnung für das Existenz-minimum” (1929), “Rationelle Bebauungsweisen” (1930), “Die funktionelle Stadt” (1933) to it. It reflected on the reasonable foundations of housing and human settlement, the accompanying needs in terms of living and spirit, and values for family, neighbourhood and urban communities. We are not now in a position to elaborate upon their mutual relations and different forms; it suffices to conclude that in many cases the maxims for the many reconstructions, which, regrettably, are needed all over the world, have generally been accepted as the basic principles.

Apart from the described pictorial and social roots of modern architecture, the technical foundation must be mentioned as a third factor: the use of material and construction. It is characterized by a firm conviction that – similar to all great eras of architecture – it can be seen no different than being based on contemporary technology. The close relationship between these sources in the developing process of life, as well as the baneful consequences if it is lacking, have been studied in detail by Giedion in his work: “Time, Space and Architecture” (Cambridge

U.S.A. 1946), in the same way as his predecessor Jacob Burckhardt in: “Kultur und Kunst der Renaissance in Italien” (1860) and his preceptor Heinrich Wölfflin in “Renaissance und Barock” (1889), “Klassische Kunst” (1899) and “Kunstgeschichtliche Grundbegriffe” (1915). What is particularly important to us is that the development in technology and production in the 19th century was not incorporated into architecture as a matter of course, but was referred back to the purely utilitarian domains: the art of engineering, the warehouses, the market halls and other halls, at the very most as astounding examples of human capability on the world exhibitions, of which the Eiffel Tower and the Chrystal Palace (imitated in the form of the Paleis voor Volksvljijt, the Palace of National Industry, in Amsterdam) have survived.

This reflection on the foundations of contemporary architecture had been primarily confined to the brick technique in the case of Ruskin, Viollet-le-Duc and Berlage. Whenever iron and reinforced concrete became involved, it concerned the decorative working and detailing in particular: Berlage in the building of De Nederlanden in The Hague, and Perret and Wright in their work mentioned above. Nevertheless some examples exist in which the characteristic constructional possibilities of reinforced concrete were expressed architecturally at an early stage, e.g., the first American skyscrapers by Sullivan (Chicago 1899-1904) prior to eclectic architecture, the roof covering of Perret’s church in Raincy, Tony Garnier’s projects in his “Cité industrielle” of 1901-1904 and his “Etude pour la construction de villes” of 1917. Incidentally, in the manifest of la Sarraz of 1928, signed by some twenty modern architects including Dutchmen Berlage, Rietveld and Stam, the economic and technical development of human society was categorically designated the essential foundation of contemporary architecture, in terms of both construction and industrial production and material, as well as a consciously controlled economy in the human sense. In this context iron and concrete construction were especially in centre stage.

In recent years, however, indigenous materials such as wood (in Switzerland, Sweden and Finland) and brick in its natural state have increasingly been used again, appreciating that these too are contemporary materials. In many buildings and projects, however, iron and reinforced concrete have been applied as positive architectural elements, in our country by Duiker (Sanatorium Zonnestraal, Open air school Amsterdam) and Van der Vlugt (Technical school Groningen, Van Nelle Factory and Stadium in Rotterdam), in particular. In the well-known residence of Mies van der Rohe in Brunn the magnificent freedom of the self-supporting walls in relation to the structure is demonstrated, later frequently resulting in splendid spatial shapes.

And at this point we have arrived at design proper. As has been noted above, this “new architecture” took the position that its primary task was not to create an artistic monument, but an organism in its own right. It had initially kept to what its analysis had learned from that organism, displaying it open and freely in its entire composition: its true being is first and foremost revealed by its bare manifestation. In consequence it is not a stranger to a certain explicitness and sometimes a degree of intellectualism in the abstraction of the forms (Gropius’ Bauhaus and some of Le Corbusier’s projects) or the showing of the technical possibilities in Russian projects of circa 1930.

From the beginning it felt that the organic central idea, the building as a function, could be given its own ensuing beautiful form expressing just that (a new meaning to the concept “functionalism”). Not that this should a priori be connected with the technical construction, no more than all good engineering work will automatically evoke feelings of aesthetic wonder in addition to technical admiration. But it can nevertheless do this if the designer is capable of working in a not merely constructive but also truly creative and expressive fashion.

That the thus named “New Objectivity” should consider the technical-organizational theme sufficient for the beauty of a form of architecture, is a common misconception that is usually based on a lack of understanding if not a lack of willingness to understand. This is possibly due to the name “Neue Sachlichkeit”, which was once used as the title of an exhibition of visual art in the “Kunsthalle” in Mannheim. I am not sure what the nature of the relevant exhibits was; it is perfectly feasible that one had attempted to find the most elementary form of the objects and that behind that objectivity the compiler was instinctively aware of the artistic quality that was essentially and basically present. On the other hand it may well have been no more than a suggestive name for the exhibition.

In any event we have to make clear that the “New Objectivity” in architecture is more than merely posing the clinical fact: imagine a factory building that unlike other building commissions is accurately specified in terms of requirements and dimensions, while the commissioning manufacturer attaches no importance to the outward appearance. It is quite conceivable that all the architect in question (if such a troublesome is involved in the project in the first place) will do or is even allowed to do, is to give it its constructive shape, obtain the building permission and have it executed by the building contractor. These factories raised in steel skeleton constructions with half-brick filling are seen all too often. That would be objectivity par excellence. But what is going to happen if some value is attached to the creative skills of the architect? In such a case the architect’s efforts may result in monumentality, sometimes even significant monumentality, and then the famous Turbinenhalle by Peter Behrens is created for the AEG in Berlin, for example. The “New Objectivity”, however, will attempt to reform the specifications into a true organism in its own right (there is still much that is lacking on the part of industrial clients, who have already figured out the plan, so that

the architect only needs to take care of the exterior), but also into an exponent of human creative skill, of the community spirit of the firm's workers, of respect for the building in the public space, of unambiguous relations in the cohesion of the constituent parts, of liberation and inspiration towards further development.

And this is how "Van Nelle" comes into being, since the essence of the "New" in the "New Objectivity" is that objectivity alone does not suffice, but it aims to express the deeper idea of the building as an intended organism. "Denn die Idee des Bauwerks ergibt sich eben aus seinem tiefer verstandenen Zwecke". With the stress on deeper. It is the most beautiful word that I can find to characterize this goal of the new architecture and it is with some embarrassment that I admit that these words were not spoken by an architect, but by a German clergyman, in 1906, viz., Pfarrer Brathe in his "Theorie des evangelischen Kirchengebäudes", who was totally unaware that much later something like "New Objectivity" would come into being.

Ifelt I had to devote a fair number of words to these modernists, and on the one hand I am perfectly willing to accept this responsibility on the basis of my personal preference. On the other hand they were necessary for a clear understanding of this architectural movement, which cannot be appreciated and understood as easily as others. In his "Nieuwe Bouwkunst in Holland en Europa" (New Architecture in Holland and Europe), (Driehoek 1935), Oud provides the following brief typification: "looking for pure forms for pure needs, which have been purely articulated", each word of which has its express meaning."Looking for", i.e., "devoid of all pretension of having found", so inclusive of any further developmental potential; "pure forms" meaning more organically bound than formally, "purely articulated needs" meaning material as well as spiritual conditions that are reasonably justified, i.e., in terms of human values (which also implies "Divine" value).

Compared to the “New Objectivity” the so-called traditionalism is definitely easier to understand, since its familiar forms are in keeping with what is already known to us. In a negative sense it is sometimes understood as conservatism of a former style of living or historic forms, but this is definitely not its principle, even though poor expressions of this kind occur. In the most positive sense it is based on the fundamental precepts of technology and form that have not only proved their worth in the tradition of building, but must be considered essential for building: the protection of the house, the enclosure of the walls, the encasing of the space. In the socio-cultural domain, too, it aims to pose traditional values as crucial: the family as an autonomous unit with its own intimacy, and society as a hierarchical entity.

Its character is particularly manifest in the use of material and technology, viz., both valued in terms of the traditional expertise of the building profession: the stacked brick, the constructed carpentry. It rejects iron and reinforced concrete for other than purely constructive purposes, or at any rate it denies their autonomous architectural significance. It entertains a deep respect for the tectonic character of building, the human dignity and the craft-related job satisfaction. It displays understanding and sophistication in the processing of material, and balance between form and mass. It is active in resisting the unstable technical development as well as the “internationalization” of building styles. Its love of indigenous materials and building forms receives support from a resurgent nationalism versus the internationalism that – in its view – is becoming superficial. However, the fact that it is all too easily embraced by the public, exposes it to the danger of the kitsch in a kind of “old-Dutch” architecture. For traditional ways of building it finds possibilities in brick especially, and this has resulted in splendid examples: majestic in the case of Kromhout, massive in the case of Kropholler, Kolderwey and Van Moorsel, refined by Eschauzier and Granpré Molière, while at the same time a large group of young people is at present working in this direction.

In the spirit of this universal typification the forms of the whole as well as the parts are carefully justified. To this end the Dutch traditionally-oriented architects, at least, have at their disposal completed subjects such as aesthetic and theory of forms, based on a certain philosophical existential theory.

Of course this aesthetic has the pretension of being universal. But although it covers the romantic and classicist forms, this is not true of the so-called modern ones. The fact is that it does not consider them art, but merely technique. First and foremost it rejects reinforced concrete and iron as being artificial and ignoble materials, as opposed to brick. I fail to understand why the manufacture of iron and cement should be less natural than that of brick. In the Greek-Roman era, however, brick was regarded as an ignoble material - good enough, perhaps, for the despised early Christian architecture, or to be plastered in the Roman and traditional colonnades and coffered (Pantheon). And so it remained throughout the ages, even in the Low Countries, where people built "in brick". It was not until the latter half of the 19th century that its essential value as a material was discovered. In a similar way the slender and white concrete constructions in Rotterdam, as it is rising from its ashes, will be covered with brick coats, until eventually their essential architectural value is fully discovered.

Secondly it mourns over the unbridled development of technology, which, however, is often expressed as a rejection of technology per se. That the unrestrained commercial-economic development is rejected, does not meet with antagonism on the part of the modernists; on the contrary, it is part of their basic principles. But technology itself can hardly be blamed for being used wrongly or being in the wrong hands.

Among engineers, some very human views are cherished in this context. However, technology as a human phenomenon cannot be disposed of in a few words; In his “Philosophie der Technik” (Bonn, 1927) Dessauer even claims his own experiential domain (das vierte Reich) beside Kant’s domain of human sensibility (die reine Vernunft), the ethical (die praktische Vernunft) and the aesthetic domains (Urteilkraft), which means that technology is separate and autonomous and is not controlled by these mental forces. Many philosophers have turned their thoughts to the task, the position and development, and the socio-cultural influence of technology. For this reason all I can say is that one must not jump to the conclusion that technology should be repudiated because an improper way to use it should create gratuitous needs or even put an end to job satisfaction. Setting aside the question whether our society would be practically viable, even for a minute, without technology (neither electric light, nor Mumford’s petroleum would exist without technology), and that in consequence our appreciation is merely based on the gradual condition, it is not at all certain, firstly, that all technology kills job satisfaction (least of all the reasonable-organized variety) and secondly it is not certain that joy of life would be inconceivable without job satisfaction.

Far more serious than the rejection of the modern material and modern technology is the reproach of this traditionalist philosophy that modern architecture would only be bent on material needs, rejection of form, and adoration of matter and deification of man. After what I have tried to explain to you about this, you will not be in the least surprised that the consciously modern architect does not recognize his insight and aspiration in this description. It once more demonstrates the truth of St. Augustine’s wise words that “one should not let one’s objectors interpret the Scripture, since this is not the way to attain objectivity”.

Against this typification, modern architecture therefore maintains that it aims to pose not just material needs, but rather universal-human needs with reason and love (as opposed to rational), that – with all contemporary means – it seeks a form that is organically defined (which is more than merely pragmatic), that it regards this form as an expression of and sign of conscious human living, and that it sees this as a development or revelation of life that can be experienced religiously (which is more than deification of man). In sum, this is an evocative responsibility, based on the understanding of a certain cosmic relation and experience that appeals to and if possible inspires parallel emotions in the user and beholder alike. Fundamentally it is also an “Auseinandersetzung mit dem Unendlichen” (as Worringer calls it in his “Abstraktion und Einfühlung”), pursuing that “harmony with infinity”, that is, after all, goal and essence of all art. For this reason the “New Objectivity” emphatically wishes to be regarded as art, and not as constructive technology.

How then can it be that its phenomena are not covered by traditionalist aesthetics, which after all professes to record the firm principles of architecture? This must be attributed to its deductive method, which implies that a fundamental truth is experienced as evident through inner contemplation, after which new truths are proved through deduction which are used to judge the phenomena of art. However, this method is only effective if the fundamental truth would indeed be an absolute and unvarying fact.

This, however, cannot possibly be demonstrated on account of art theoretical objections. After all, the knowing all is tripartite: the known, the knowing and the way of knowing. The known (the absolute fundamental truth that is sought) can here be imagined as an autonomous entity, but just known as a relationship, having practical value only in that relationship. So the fundamental truth as a point of departure is also dependent on the knowing: “the

metaphysical viewpoint is determined by the stage of knowledge, tradition and emotional need”, was Heymans’s forthright conclusion in his “Einführung in die Metaphysik”. Thus put, the famous first principle of St. Augustine: “To be is better than not to be”, for example, can be diametrically opposed to the Buddhist philosophy, which teaches: “not to be is better than to be”. To our Western minds that first principle of St. Augustine may seem a perfectly acceptable, obvious absolute truth, but in reality it is a mere value judgment, allowing any kind of other view.

So we have to be careful taking these fundamental truths as criteria for further evaluation. There is no criterion for the “truth” of the fundamental truth: the so-called “inwardly contemplated evidence” is as subjective as the “evidence of reason” of Descartes. As inadequate in terms of epistemology is a religious criterion like traditionalism, of e.g., De Bonald, that says: “God alone is our teacher, who has revealed all we know to our ancestors, who have passed down this knowledge through tradition”. Because we must assume that God adjusts his revelations according to what He deems necessary for His creatures, in the same way that we give to our children only what is necessary and desirable in a particular phase. He has expressly kept Himself unknowable as absolute Truth, through the words of Isaiah: “ For as the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts” and calling Himself by the proud name of Iaweh: “I AM WHO I AM”.

Nor can absolute truth be attained along religious paths with a view to assessing phenomena; on the contrary, the absolute can only be known in the phenomena. And so we arrive laboriously at the same conclusion as the old Chinese piece of wisdom: “He who knows the meaning of changes and manifestations, knows the works of the gods”, as was written three thousand (some say five thousand) years ago in the “I Ching”, “The Book of Changes”.

Is not, by taking the unattainability of an absolute truth as a point of departure, our value judgment deprived of all invariability? No, because however relative the fundamental truths are, basically, and changeable in terms of space, time and individual, for that particular moment and individual they have absolute value. So our subjective conviction is no less unflinching for it. But we must always be prepared that other phenomena can present themselves in the development of life, that other insights will break through, multiply, convince others and lead to other fundamental truths. Therefore one might do well not to be led by Tertullian's authoritarian words: "As a rule faith is: faith that has been passed down, i.e., revealed, nor by Iranians: "Where the Church is, is truth; outside the truth are they who are outside the Church", as one will have to think – as did the understanding and realistic St. Augustine – that "many seem to be outside who are inside and vice versa". And therefore one should not too hastily call that which is different from what is prevailing in art, wrong or inferior, sick or decadent, because what if it should turn out to be a mutation!

Even if the above contemplations are allowed to rest where they are, it remains a practical fact that the aesthetic sense and the appreciation of beauty may vary considerably in terms of place and time, custom and tradition. Any aesthetic system will have to change its basic principles accordingly, respectively seek to mark off its limitations in order to encompass the variety. Consequently I would like such a system, for example when dealing with the upper edge of the facade, to mention not just the gutter board or the cornice, but also the wafer-thin balustrade or the fine drip rail along the plastered modern facade. And in addition I would like to point out that not only is this edge a phenomenon of form but first and foremost has a functional root: the roof as an attic storage space, the merlons as a parapet for the soldiery, the balustrade enclosing the open roof terrace. I would definitely like to see the roof mentioned as a means to measure the depth of the house

with the eye, but also the legs under the house-in-the-air by Le Corbusier, which offer the same possibilities; and, again, not to forget the functional origin!

I would like to demonstrate the rhythm not only in the case of bays, but also with the modern residence. I would like to see the “post-and-lintel system” accepted as a force in architecture, as well as the “spanning”, not only when building vaulted structural systems but also in reinforced concrete. Likewise I would like to see the building as a boundary of space mentioned not only as a kind of enclosure, but also as a penetration of the space, religious in the form of porticoed temples and colonnades, but cosmic in the modern building, as if demarcated in space with staggered side wings. I would like to see the closeness of the house explained from a need of physical protection, spiritual contemplation, perhaps as an awareness of being bound to earth, but also the exaggerated openness as a need of being one with earthly nature and the cosmic space. I would like to see man’s hidden tendency toward permanence and alignment in a “well-constructed” house mentioned, but also his urge to keep roaming in a tent, as the only demarcation from infinity, and the farmer’s instinct as opposed to the nomad’s. And finally I would like to see discovered that so many different insights and varieties in form have common roots on the one hand, but can only be explained on the basis of differences in temperament, attitude to life and Weltanschauung on the other.

This is also why I prefer to conceive the aesthetic line of reasoning so broadly – so that, now that the philosophical-aesthetic way of educating would-be architects is rather fashionable (e.g., in the courses of Higher Architecture), it is sufficiently universal to give free rein to the development of their potential creative forces, instead of being the justification of a particular view.

And now I have come to a point where I would like to explain why I have set forth those controversies in terms of insight and procedure, movements and counter-movements, common grounds and interfaces in our world of architecture, which may be as interesting as they may be somewhat wearisome. I did not do so with a view to helping the student take a particular side when he sets out to the conception of a project, but to helping him and you to recognize those phenomena as the results of the latent creative forces in the process of architectural creation that are active, albeit hidden, in every architect. It is for this reason that the romantics are so important for him, to make him aware of the vibrant personal artistic urge toward free forms and playfulness that seeks its way in his conception, the creative force of beauty not bound to rules but nevertheless explained by them.

And therefore the new classicists are equally important for him to recognize the laws of mathematics, when it comes to proportion and rhythm, as a source of beauty, and to recognize the value of this artificial beauty that ignores nature.

These two, the romantic or natural, and the personal, mathematical, or artificial beauty, may still be called direct forces. But for this reason the traditionalists are important in order to find out that in addition, as an indirect creative force, all that has been revealed and acquired is active in him and wherein fundamental truths lie hidden that prevail to the present day, as well as instincts of reservedness versus what is new, of the tendency toward living in aloofness, contemplation and reflection. And therefore the modernists are important for him, to remind him of the fact that man is a “homo rerum novarum”, with the urge toward innovation, toward realization of all that is contemporary, that within him a force is active of further human development toward spiritual freedom, which can be experienced in unity with all and everything, which is slumbering in his personal awareness of

human and cosmic connection. The creative forces in the various schools of the architectural philosophy are not separate, but merge in the mind of the creative architect. It is not to be surprised, therefore, that the eventual conception, evoked mysteriously from the subconscious to the conscious, cannot be attributed to just one of these but to their joint activity and mutual influence. This is why more often than not the architect's work cannot be pigeon-holed. But still: even if these creative forces are perceived in the mind as a unity, even if a profound insight into life becomes leading, using other forces for its benefit or perhaps rejecting them, the creative forces – individually or in time – are part of a continuum, of which one wave supports or suppresses the other. When the forces have been recognized, it is not hard to discern the crosses, the reinforcement, and often also the watering-down of the original idea in the buildings of our days.

Finally one might ask whether the unity of these creative forces could manifest itself not only in the mind of the designer, but also in the world in the form of a similar unity and more specifically as a cultural unity. One might expect a negative answer to such a question, now that we have found that the various styles are so hugely different: it is the familiar platitude that our time with all its confusion displays such a lack of strong conviction and such a clash of opinions, that an unequivocal style is virtually impossible. Concurrently with the growing community, a greater sense of collectivity may well arise in the architectural form, either through natural growth or through a particular prevailing style. During the war, the Dutch architects, following a general psychological urge, have tried to achieve greater collectivity, both through an increasing mutual appreciation and through mutual influences, together with attempts to reform, which were based on a sense of superiority of their own views. This fell through, because the differences in outlook on beauty and more particularly on life turned out to be prohibitive; in consequence

they spoke on different levels, thought only of their own values and remained impervious to the emotions of others. In the professional architectural practice the very same difficulties present themselves when it comes to the mutual adjoining of adjacent premises, and the work of architects in town planning, which is likewise founded on a certain form conviction. In the required dialogue of supervisors and architects one sometimes comes across the same way of influencing or reform with a view to achieving the unity one is aiming for. Perhaps we are all too easily impressed by the stories in our art historical companions that style implies a certain equality in form conviction and must therefore be posed as a *sine qua non*. This may have true of times when the architect learned his profession by making art-oriented trips to famous brothers in art and to art centres, returning home with a new form scheme, and when architecture consisted of monuments and not the total of what had been built.

Maybe this pursuit of that common form is no more than a desire to write history forward. However, I rather recognize the character of our time in the consciousness with which we know, or think we know, the things in all their diversity. And this is the reason why I have attempted in the above to alert us to the diversity of the creative forces in our architectural conception. The being aware of these forces implies the understanding and controlling them, as well as understanding others, but nevertheless entails the need to maintain it – which is not the same thing as the freedom of art, for which a passionate plea has always been made. It is the pure understanding of multiformity as unity and as culture, more precisely as culture for our time. It does not imply the harmony that we recognize of former stylistic eras – for the time being it is just totality, perhaps distinctive totality in the long run. It is useful to know in this context that the possibility of the “free choice of life”, which has been mentioned frequently of late, arises spontaneously and may lead to a multiform wealth of life. In

any case it may be instant spiritual totality, if we are profoundly aware of the forces that move us and our professional colleagues and if we respect everyone's self-confident performance in its individuality, or rather seek to give him a place since we realize he is indispensable as a mutual complement in this culture of multiformity. One would do well – a precondition rather than an impediment – to stand side by side for all the world to see with the brother in art, each with his own conviction in his work, like Luther before the Diet in Worms: “May God help me, I can do no other”. It will bring the precious divine appreciation described in the Bhagavad-Gita: “Whichever path people choose to serve me, along that path I shall fulfil their yearnings, as it is my path, o Pártha, which people tread on their many paths”.

Esteemed Governors,

First and foremost, I may be permitted to express my gratitude to Her Royal Highness the Princess-Regent for appointing me extraordinary professor at the Institute of Technology. And subsequently to you, having been prepared to propose me for this office. By appointing a practising architect, you aimed to build a bridge next to the existing one between the professional practice and this educational institution. And therefore I have attempted today to phrase some words whose topicality may be of some value to either. I assume that you have also submitted my name on account of a certain conviction, and I have therefore taken the liberty to bear testimony of it, but at the same time give it a place in our present cultural scope.

To you, esteemed and learned Van der Leeuw, I wish to express my appreciation for the importance that you have for the recent modern architecture, when you let Van der Vlugt and his assistant Stam perform not only the work for you in this conviction, but also supported and stimulated them in this context. In addition I wish

to express the appreciation of kindred spirits among architects for the mental support that you lend to their views even today, as well as my personal gratitude for the friendship in which I have worked for you and Rotterdam after you knew where you were with me.

Esteemed Professors,

You have already accepted me in your midst and I am so bold as to see this meeting as a new confirmation of this and repeat my gratitude for the honour of having been admitted, however modest my place will be.

Esteemed Professors of the Department of Architecture, esteemed colleagues, What particularly struck me in your company when I commenced my work, was the surprising and satisfying spirit of co-operation in which you fulfil your duties for the Department of Architecture. I look forward to being active with the same spirit and, with your support, to serving the interests that have now also been entrusted to me. I regret that I cannot address my own masters to thank them for what they have taught me. It is with great respect that I honour the memory of Professors Itz, Sluyterman, Klinkhamer and Gips. I expressly wish to bear testimony, however, to my deeply felt gratitude for the late Professor van der Steur, who helped me in such an exceptional manner during the difficult times of my studies, and which gratitude I omitted to express during his life, due to a certain amount of awkwardness. Also I would like to commemorate the memory of Professor Schoemaker, whose acquaintance I made in the military, with whom I had the honour to co-operate in such an excellent fashion and who so tragically laid down his life for his country.

Dear Granpré Molière,

The last few colleagues who made speeches from this place have honoured you as their master, to whom they owe much wisdom. You were not among my teachers, but if we do not completely share the same conviction, there is no need for you to regret that unlike the proverbial son I am not entirely like the father in science. Nevertheless you have taught me a number of things. When, during my college days, I wanted to do some practical work for the first time, I looked up the addresses of architects in Rotterdam in the telephone directory. I chose the name: Granpré Molière, Verhagen and Kok, partly because it had such a good Dutch and partly noble sound. I had no idea at the time that, as Dr. Jan Kalff once quoted from a 12th-century Latin letter book, the architect must be a “nobleman”. You have taught me some of that nobility, when you corrected the ungainly forms of a bay window that I had drawn for one of the cosy houses in the unsurpassed garden village of Vreewijk. I believe there is also an electricity substation there, of which I am guilty. Your room in the office was decorated with myths referring to you, together with Verhagen’s hat and Kok’s militancy. One of those myths was that you were said to want a house in Wassenaar, which you had to build, painted white, and that this was incompatible with the planning authority’s aesthetic sense. I was told that Kok then rushed to Wassenaar to discuss this with the authorities, and lost his temper to such a degree that he tore up the entire instruction, shouting that such instructions did not apply to Molière. It is, perhaps, indeed a myth, but what I learned from it is that the self-confident architect need not give way to anyone if he is the victim of browbeating. Because worse than the tyranny of Delft with a capital D, about some words have been exchanged, is the tyranny of Delft with a small d: the pedantry that claims to have the monopoly on wisdom. In the third place I learned courage from you, when shortly afterwards you were called to this place

and used the word “God” as the foundation of your insights, in a time when it required courage not only to use it as a philosophical concept. I aspire to be worthy of what you taught me.

Mr van der Waay, dear teacher,

Now that none of my Delft teachers is among us anymore, I take all the more pleasure in seeing you here, as the first person who taught me to learn. How I appreciate in you the inspired teacher, who helped his best pupils in their further development with pure and unselfish dedication, and I am proud that in those days I was one of those chosen few and that you have shown your continued interest in me to this age. And it is a great joy to me that you, my parents, are present here today to add to the value of this meeting and to enable me to express my gratitude for all you have done for me.

Ladies and gentlemen, students of architecture,

I have attempted this afternoon to increase your awareness of the creative forces in architecture, which are also alive in you. What I had in mind was that this awareness should help you recognize them, use and control them determinedly, and reach greater maturity. Look upon it as a wonder that these forces are alive in you, in the same way that our very existence in itself is a wonder. If you believe that there is a God who has granted them as a gift, then receiving them is grace. Perhaps you assume that there is a Divine Principle that unfolds its creative forces in our Being in increasing development, so also in you, that reveals its creative forces in you to co-operate in his ever developing creation. But that, too, is grace. I invoke this and any other grace upon you in ample measure.

Esteemed listeners,

I thank you all for your presence and your attention.



FIG. 11 J.B. Bakema (Source: Het Nieuwe Instituut).

J.B. Bakema

Towards an Architecture for Society

The insights gained in the study of visual sensation can serve as indispensable leads to better understanding and more effective handling of the complexities of social relationships. (Adelbert Ames jr. in Transformation no. 1, 1950, p. 12)

Honorable Ladies and Gentlemen,

The insights gained in the study of visual sensation can serve as indispensable leads to better understanding and more effective handling of the complexities of social relationships. (Adelbert Ames jr. in Transformation no. 1, 1950, p. 12)

Esteemed Governors, Esteemed Professors, Ladies and Gentlemen lecturers, members of staff and students, and all you who, by your presence, demonstrate your interest. Esteemed listeners,

On the occasion of my appointment as extraordinary professor of architectural design at Delft Technical University, I entreat your attention for my views on the significance of this profession for our lives. The profession is about: *The design of space shaped by constructions for people.*

The concepts of space – form – construction and man are constants in any discussion of the architectural profession.

I mention them separately here in order to make it quite clear that only their simultaneous employment in the architectural design results in notions like house, workplace, school or church.

- space
- form
- construction
- man

For design, the interrelationship between the concepts is just as important as the characteristics of each individual concept.

Space:

Space became a concept through the experience of both the hollow in the earth and the distance, with sun, moon and stars. The prehistoric stones placed at a distance, created at one and the same time the marker in space and the cavity in the earth where they were found.

Nowhere is this as clear as on Easter Island, where the volume in space and its counter-form in the ground can be taken in at a glance and prompt reflection on the architect's responsibility for both space and mass, hollow and sphere, give and take.

Many of you will recall the footprint in the sand that alerted Robinson Crusoe to the fact that his island was inhabited by at least one other human being, while printing for example owed its invention in part to the fact that a letter fell into the sand,²⁷ and those of you who have visited the prehistoric caves and seen

27 Alludes to an anecdote purporting to explain how Laurens Janszoon Coster came to invent the printing press.

the colour-intensified motifs described by Giedion in his latest book *The Eternal Present*, have also been able to experience how space is one of the means of learning about life, step by step, from the prehistoric caves right up to our future, in which astronauts have learned to see all Earth's caves and mountains as a coloured, spherical mass in a blue-black, expanding universe. In the space of the universe the Earth is an identifying midpoint.

How does architectural design relate to all of this? Every day you crawl out of and into a cave, such as the bed at home or the road tunnel outside, and time and again the design of room and street will inform the way universal space is measured.

Form:

Form is the instrument of evolving human awareness. A human being first acquires its form upon leaving the mother's body and this wondrous, almost moment-less event, is identical to the process in which considerations defined by the architectural task are turned into form.

We can estimate the considerations, but not the wondrous moment in which form comes into being. All we can do is respect this moment and in so doing perhaps understand it. Thus knowledge through respect, a kind of learning that has almost been lost in our time. In estimating the considerations that prepare the form, a simplistic way of thinking has developed in the post-war period, which in my view is the main problem of this period and has caused great confusion in the design process and also in the relevant education.

Simplistic, yes, because in my view in the period since 1945 in the Netherlands and beyond, we have seen our daily environment wither and grow poorer thanks in part to a too limited, too hasty

and thus mistaken use of the considerations that lead to form in our lives. Mistaken, because ‘form follows function’ became a malignantly proliferating misunderstanding of [Louis] Sullivan’s fragile philosophy, which in reality meant the following: “All is function, all is form, but the fragrance of them is rhythm, the language of them is rhythm: for rhythm is the very wedding-march and ceremonial that quickens into song the unison of form and function, or the dirge of their farewell, as they move apart, and pass into the silent watches of that wondrous night we call the past. So goes the story on its endless way.” (Conclusion of the section Function and Form in Sullivan’s *Kindergarten Chats* from 1918).²⁸

Do we not hear every day the dirge of a farewell in that constant misunderstanding of the meaning of form in our life, or is there also the joy of discovering new relationships with which to work in architectural form-making? The need to define forms was raised once more in 1952 by Richard P. Blackmur at the beginning of his introduction to the work of the American writer Henry James, *The Golden Bowl*: “the strength of the form should mediate between the soul and its effect as the essential medium for perception”.

For those who doubt that there has been any misunderstanding of the meaning of form, I direct their attention to the following circumstances: Currently, it would be difficult to name a city in the Netherlands of which the various development phases between now and the year 2000 are sufficiently clearly defined to enable the articulation of the architectural space. It strikes me as

28 Bakema’s translation differs slightly from the original: “Everything is function, everything is form but the scent and sound of that is proportion and number. Art is the celebration and respect that makes the unity of form and function sing. Or ... there tolls the sorrow of a farewell when they go their own way in the silent watches of a wondrous night that is called the past. The story is unending..”

equally difficult to name a company that has succeeded in defining both its business and spatial development phases, despite the fact that only once the architectural form has been determined is it possible to discover how the space will function for the users.

The housing districts where we live are often the outcome of the hasty introduction of a different housing type into a plot plan that had been based on a particular architectural relationship between the space inside and that outside the walls, owing to changes to the funding policy and without any revision of the subdivision because, for example, the streets and pipes had already been laid. This state of affairs ignores one of the most important functions of spatial form, which the Californian architect [Rudolph] Schindler, for example, described thus: “the space architect sees the house or the city as a whole as the expression of a single cosmic space. The house is an organism in which all the rooms are interrelated: variations of a basic scheme. The house is woven from a few basic materials that are used to define spatial form.” (‘The Contemporary House’, probably 1940 [actually in *Architect and Engineer*, San Francisco January 1936])

In 1924, the painter-architect Theo van Doesburg, who died in 1931, wrote as follows about architecture in the 6th volume, no. 6-7 of *De Stijl*: “the arrangement of the functional spaces is strictly determined by rectangular planes which have no individual form as such, since although they are bounded (one plane by another), they can in theory be infinitely extended, resulting in a coordinate system the different points of which correspond to an equal number of points in the universal space. As a consequence of this, the planes have a direct tensional relationship with the open (exterior) space...”. How is it possible that in such a lucid flat country as the Netherlands, the best of what had been discovered for architectural spatial articulation, has been emphatically forgotten in the total urbanization of the Netherlands that has

been taking place since 1945? For Van Eesteren also stated, on p. 166 of that same issue of *De Stijl*: “urban design arises out of a plastic balance of the components of which the city or district in question is composed. Changing one of the components results in a disruption of the state of balance.” Is it possible that the Van Doesburg–Mondrian philosophy was subject to the same kind of misunderstanding as in the case of Sullivan? “...the wall is angular – we know why, the bathtub is smooth – we know why, the door is 2 m. high – we know why. But who knows why utilities (stations, stock exchanges, electrical substations, urinals etc.), have to be theatrical representative monuments?” (Mart Stam in the catalogue of the international architecture exhibition mounted by the ‘Opbouw’ association in 1928, quoted by J.B. van Loghem in his 1932 book *Bouwen, Bauen, Bâtir, Building*).

In 1932, in his attempts to promote a social architecture, Van Loghem included the abovementioned credo in a series of quotations that began with one by Granpré Molière, published in *Wendingen* in 1918: ‘many have attempted in isolation from society to at least discover beauty for themselves. In this they resemble deserters who choose the suffering of loneliness and faithlessness above fighting together.’ Both the ‘bathtub’ and the ‘faithlessness’ explanations can be lumped together under ‘Nieuwe Bouwen’, as promoted by Van Loghem. Molière built Vreewijk, Stam collaborated on Van Nelle and the Weissenhofsiedlung in Stuttgart in 1928. Just as the design of Vreewijk could be called an overly rectilinear interpretation of the beauty of our medieval town centres, the ‘bathtub’ explanation might pinpoint the moment when an overly rectilinearly interpreted functionalism threw the form away with the bathwater. This was also the feeling in the circles of Dutch Nieuwe Bouwen adherents; even Duiker found it necessary in a conversation with [Willem] van Tijen in 1933 to reiterate that “the pure definition of the fact is strictly intellectual conception” (*De 8 en Opbouw*, p. 156).

To explain more of this background, it is important to bring into the discussion that aspect of architectural design that is probably subject to the greatest misunderstanding, namely:

Construction:

We are now in the vicinity of the term that is preferably mentioned in the same breath as the word Art. Engineering and Art. Is this intended to be a unity and antithesis, like Man and Woman, Straight and Curved?

Engineering and art were temporarily separated in 1794 by dint of removing the subject of Engineering from the curriculum of the Académie des Beaux Arts and giving it a place of its own in the École Polytechnique, a mere three years after the Proclamation de la Liberté du Travail. In 1919 Walter Gropius tried to bring engineering and art under one roof again by founding the Bauhaus. That this was contrary to the view of society in Germany only became apparent in 1933 when the German government rendered the school unviable by classing it as 'Cultural Bolshevism' and raised traditional architecture like that of Paul Schmitthenner to the status of rural state architecture. Yet again, columns were misused for government buildings.

For a proper understanding of our current situation, it must alas be said that the Netherlands, especially in regard to rural architecture, maintained its role as friendly nation back then rather too obviously and for a bit too long. This may be evident from the big official exhibition organized in the very first year of the Occupation (1941) in the Boymans museum [in Rotterdam] under the title 'The Netherlands Builds in Brick'. It was the engineer A. Plate who pointed out, in one of the final issues of the magazine *De 8 en Opbouw* (no. 6, 1942), that architecture can only be of enduring significance when the constructed (built)

spatial form is the expression of the age-old process of human awareness, which is guided by respect and concern for the wonder of the universal space in which everything is and will be. Seen from this perspective, construction is an equal partner in the entity of Engineering and Art, Man and Woman, Straight and Curved. “Every mathematical curve has a nature of its own: the accuracy of a law, the expression of an idea, and the evidence of a virtue. Denial of these characteristics may be caused only by a blind ignorance that seeks refuge in lazy egotism.” So said the Spanish engineer E[duardo] Torroja, considered one of the great architect-structural engineers, in his book *Razón y ser de los tipos estructurales*, published in German in 1961 as *Logik der Form* (p. 259) [published in English as *Philosophy of Structures* (p. 312).] Here we have a structural engineer who explains his work in terms of the words ‘idea’ and ‘virtue’, which is to say two words infused with the notions of imagination and ethics, and he directs decisions about construction towards that sphere of life in which the origin of existence resides. For him, constructing is the adoption of what Newton introduced with “the laws of nature are written in a mathematical language”. Thus construction is this kind of thinking the visualization through form, of tensions that govern the shape of the material. And what a fascinating activity construction is. Seen in this light the hole in the earth, the branches bent to form a dome, the adobe walls assembled from dried blocks of clay, the arches on walls, the vaults flowing down into compound piers and the concrete cantilever or bent and folded concrete surfaces are a kind of confrontation between human wonderment and research, and the laws of existence.

The American structural engineer [Richard] Buckminster Fuller explained his exploration of spatial structures by talking about “using the minimum weight in material to achieve the largest possible spans”, while the Spanish-Mexican thin-shell builder, Félix Candela, loved to relate how his first curved shells came

about as an economical way of covering markets in Mexico City or of building churches for priest-builders who shared many cares with their parishioners but no money. “Aren’t the pillars in the nave a bit too thin in proportion to the height of the nave?” “I’ve given these pillars the diameter they require for their vertical load; because all the pressures are neutralized by the distribution of the flying buttresses that transfer all their pressure to the outermost counterforts, leaving a maximum of space inside.” Thus Hugo van Courtenay responding to the bishop charged with evaluating the gothic design for the extension of a Romanesque cathedral in the 13th century, in Viollet le Duc’s *Histoire d’une hôtel de ville et d’une cathedrale*.

In his introduction to [the Dutch translation of] this book, Dr. P.J.H. Cuypers wrote: “without a clear knowledge of the social circumstances of their period it is impossible to form a proper understanding of the development of major monuments.” As far as I am aware, our Technical University still lacks a course that explains the connection between the structure of cities and buildings and the structure of the society that produced them. As recently as the last election in the Netherlands, while the quantity of proposed structures (in this case mainly dwellings), was much discussed, the sort of dwellings that should be built in connection with the evolving types of people, and the method of construction (sort of construction) that should be applied in connection with that, was scarcely broached in 1963. The shaping of space is a vital human activity aimed at providing protection from nature, but at the same time, man seeks by way of the shaped space to relate to the total (universal) space. Thus, as well as being an indispensable element in the shaping of space, construction is also a way of learning to understand the tensions that shape matter.

Construction and form are complementary in the search for the relationships that generate the things we observe. Increasingly nowadays, the explanations of our existence are synonymous with the work that must be done to make daily life possible. Pierre Teilhard de Chardin declares, in his reflections on the 'phenomenon of man', that "Man discovers that he is nothing else than evolution become conscious of itself, to borrow Julian Huxley's striking expression."

I had a very powerful personal experience of the way construction and the spatial form can determine one another in Los Angeles where, in around 1930, the mosaicist Sam Rodia took to welding pieces of steel together in his garden as a hobby. He then encased them in cement into which he stuck colourful shards of bottle glass, tiles and found objects, culminating in a towering sculpture in which construction and form in combination with cement and shards evolved into a single sculptural spatial condition. The roughly 20 x 15-metre sculpture that completely filled his small garden was dubbed 'Watts towers'. The towers are of an expression reminiscent of looking-into-the-distance or sailing-towards-the-horizon. Each component, viewed individually, represents the essence of the total spatial-sculptural-colour construction, and the construction is such that it could not be knocked down by bulldozers, which is why they are still standing. For people had indeed wanted to demolish Rodia's hobby owing to a lack of confidence in the construction and perhaps also because the imagination that shaped cement, steel and tiles into a sculptural construction did not seem immediately useful in the Los Angeles society of that time. Now many people flock to see this colourful, overcrowded garden. This spatial sculpture was not engineered. Might the necessary constructions of our time not function better in the emotional lives of the users if they had been more the outcome of the unmediated desire to shape an idea? "Prior to and more than any manner of engineering, it is the idea that moulds

material into its resistant shape to fulfil its purpose.” (Torroja in *Logik der Form*). It seems logical to me that in architectural design, this idea can chiefly be of significance if, as a result, the use of the built space also leads to a better understanding of the universal (total) space.

Interest in this has always been a strong theme in the development of architecture. One could follow the development of the notions of space, form and construction by contemplating the evolution of the possibilities man created in order to free himself from the fear of existence, in this case from his fear of boundless space. The transformation of this fear of, into a relationship with, or from ignorance to understanding. Man seeks to make spans as wide as possible and motivates this with such considerations as e.g.:

- extension of worship (Gothic cathedral),
- expansion of covered market places (Galerie des machines, 19th century),
- enlargement of covered workplaces for administration and production (our time).

Nevertheless, the architect will always try to explain all the considerations that lead to the development of architectural structures as the development of multiple possibilities for experiencing space. He will employ the possibilities of construction for the figuring out of spatial structures.

In an exchange of letters between; the Luxembourg architect [Jos] Weber, the Finnish architect [Reima] Pietilä and the German structural engineer Frei Otto, the last wrote that “for me structures are tools I love, as the carpenter loves the plane and a woodcutter the axe. The form of tools ‘exists’, ‘exists’ as a result of a long evolution. Every attempt to employ them in a design is difficult, to shape them almost impossible without truly improving them,

thus to bring them to 'life', to trace them, to discover them. The ideal tool can serve in an ideal way, the way it serves is entirely the responsibility of the one who uses it." (December 1962). A recent 'commentaarcollege'²⁹ in the Faculty of Architecture prompted a study of the key work of a Russian contemporary of Rietveld and Van Doesburg, namely the urban design architectural principle developed in 1924 by El Lissitzky under the title 'der Wolkenbügel' [literally 'cloud iron', colloquially 'cloudscraper'].

At the intersection of ring roads and radial roads of existing big cities, vertical lift shafts would form the supports of horizontally cantilevered buildings housing large offices. He explained his work as follows: "Compared to the prevalent American high-rise system the innovation consists in the fact that the horizontal (the useful) is clearly separated from the vertical (the support, the necessary). This in turn allows for clarity in the interior layout, which is essential for office structures and is usually predicated by the structural system. The resulting external building volume achieves elementary diversity in all six visual directions." (El Lissitzky, *Rußland: Die Rekonstruktion der Architektur in der Sowjetunion*, 1930 [English translation by Eric Dluhosch in: *Russia: An Architecture for World Revolution*, Cambridge, MA: MIT Press, 1970])

El Lissitzky's work was in part responsible for the rise of an architectural trend later called 'Constructivism', which had a strong affinity with the work of the *De Stijl* group, for which the term 'Neoplasticism' had been coined. Together with Futurism in Italy and *l'Esprit Nouveau* [in France], they constitute the roots of the architectural development in which contemporary technology was used to give expression to a new time-space consciousness.

29 A lecture format then recently introduced at the Delft Faculty of Architecture: instead of a lecture *ex cathedra*, this format concerned a presentation with questions and answers delivered by a guest from outside the university.

Constructivism was given little opportunity for further development by the political regime in Russia. Nevertheless, in the aforementioned book Lissitzky did include a photograph of an office centre in Kharkov with the same spatial organization, and if one looks at the bridge connection between the Van Nelle office building and the factory buildings of the same complex, it becomes clear how new technical means were employed in the period 1920–1930 for spatial constructions, with which man could once again give shape to his enduring and thus ever-new wonderment with his existence on earth in space. Imagination was the foremost instrument in that endeavour and how different that is from the motives driving the development of constructions for the production of our housing districts. In the building of Mies van der Rohe's multi-storey block in the Weissenhofsiedlung in 1927, the construction was used to achieve the greatest possible number of variations in housing options through a choice of different floor plans and also through the use of covered roof terraces, which form a nuanced transition from the space within the block, via the urban space to the total (universal) space.

“For economic reasons the construction of rental housing should be standardized and rationalized. On the other hand, the increasingly differentiated housing needs demand greater functional flexibility. In future it will be necessary to take account of both trends. Skeleton construction is the best construction system for this. It allows for a rational construction method and leaves complete freedom for internal spatial determination. If the only fixed spaces are the kitchen and bathroom owing to the associated services, and if you also decide to subdivide the remaining living space with movable partitions, I believe that using these means it is possible to satisfy every acceptable housing need.” (Mies van der Rohe's description of the block of housing he designed in 1926 for the Weissenhofsiedlung in Stuttgart. Bau und Wohnung, Verlag Wedekind und Co. Stuttgart 1927)

Back then, the creative use of technology generated a flexible use of space inside the housing block as well as a varied transition from the space inside the block to the surrounding urban space. Compare these outcomes with the obstinacy with which structures are currently misused in order to neutralize any optimism on the part of the users of recently built dwellings regarding differentiated spatial experience, out of kind of neurotic anxiety about the unattainable number. The future of which Mies van der Rohe wrote in 1927, has meanwhile become our reality in 1963, where unfortunately in the shaping of our built environment the structural possibilities are usually limited to a means for multiplying the same, rather than helping to visualize the magnificent coherence that is characterized by a thousand-fold diversity.

The current pursuit of efficiency in construction will only be appreciated by the user if the product thus attained has greater future value than with a traditional approach. (This insight has also been adopted in recent studies by the Economic Institute for the Building Industry). The place of the notion of future value in the overall development of construction and in the gathering of the data needed for design, production, distribution, use and improvement, is the subject of a 1953 publication [*Development Index*] of the University of Michigan in Ann Arbor by Lönberg Holm and Theodore Larson. Their 'development cycle' concept refers not only to the aforementioned activities, but also to the requisite research that must precede designing.

Would it not be possible, given an annual Dutch production of e.g. 80 to 100,000 dwellings, to allocate a half to one per cent of this each year to research aimed at the development of forms of living? It seems to me that the universal character of the education at a technical university, might include e.g. research into new dwelling types as part of the curriculum of the architecture faculty, which could to that end collaborate with private architects and engineering consultants.

The yet to be defined philosophy of building might find its practical limitation in a revised profession of art history, making it possible to study the aforementioned relation between the structure of buildings and cities, and that of the relevant society. Through participation in research, the insight gained could be applied in the preparation for designing.

Man:

The only part of existence with the capacity of consciousness: "In order to live man must act, he must become engaged with what surrounds him. But in order to decide what he will do with all this, he needs to know what he is dealing with, i.e. he needs to know what it is. Since that basic reality does not automatically disclose its secrets to him, he has no choice but to activate his intellectual apparatus, of which in my opinion the imagination is the main tool. Man imagines a certain form or existence of reality". (Ortega Y Gasset in [the essay] 'Geloven en Denken', 1934).

"Consciousness is the form-giver; life itself, which is a ceaseless growth process, is too strong to be aware of the much weaker form of to 'exist'; as such, it never has an outcome because this would be a completion; in our thinking it can never acquire form because, while still developing, already growing again, it has outgrown that form and is potentially, at the same time, another and yet another emerging form..." (Dr. H. Oldewelt in 'De plaats van de mens in de totaliteit van het leven' [Man's place in the totality of life]).

"When a person wills he also wills something; his act of will is entirely focused on a thing and can only be thought of in relation to that." (Schopenhauer, '[Die beiden] Grundprobleme der Ethik; der Wille vor dem Selbstbewusstsein')

"I find, first of all, that I pass from state to state." (Henri Bergson in Creative Evolution).

Ladies and Gentlemen, I am conscious of the fact that a practising architect who is invited to be an extraordinary professor of architectural design, is not the obvious person to classify the philosophical motivations that provide further insight into the function of architecture in life as a whole. My reason for attempting to do just that, lies in the fact that I am keenly aware that architectural design should be based on man's need to give shape to his desire for a creed for life. And in our age of worldwide communication, getting to know life is increasingly a matter that every individual will have to learn to take responsibility for himself, since he is increasingly discovering, right in his own living room, the relativity of what he is vis-à-vis other people.

The time is past when a group, party or religion can dominate the search for a creed for life. The interrelations between the various world views are becoming a stimulus for man's awareness of the laws governing his existence. The time is also past when a particular building can dominate vis-à-vis the rest in the design of the built human environment.

The relationships between all buildings are becoming more important than each individual building. We are all still familiar with the city in which the town hall and church were intended to be dominant. But that intention has long since been rendered obsolete by the accompanying silhouettes of warehouses, offices and apartment buildings, television towers or moving bridge pylons. With the disappearance of the dominant in the silhouette, the familiar clarity has been lost, but that does not have to mean that no new kind of clarity can be developed with the environment being built in our time. (See the architect J.J.P. Oud's writings on clarity in urban design.)

Man has always tried to understand his existence by comparing his own efforts with those of his fellow men, but never before has he been beset with so many comparisons as in the present day. Some will see in this a loss of depth, but this is compensated by the great advantage of increased participation by everyone. The shocks that force people to reflect have become stronger, the intensity greater, the time in which to achieve equilibrium shorter. Responsibility for the management of earth and space is becoming more and more of a public problem in which every individual according to his nature and capacity must learn to participate.

The palace of the future will undoubtedly be formed by the aggregate of all the houses of the many people who live there. And each of them lives in rooms that are also connected by television with the earth and total space.

Bearing in mind that man's desire to feel at home in the global space, can only be formed via things present in his immediate environment, the spatial form of his room acquires significance as a means to consciousness.

The rooms that form the house are also instruments by which the user tries to live together with his fellow men, but more especially with the things that manifest in his existence and challenge him to be understood. He cannot ignore that challenge because he lives, and when the sun shines or the wind blows he will pit himself against the why, and thus every space that is shaped with constructions could be another attempt by man to learn to come to terms with the surrounding space. We live in the age in which every individual acquired a perfect right to their own creed for life.

“He knows that things do not really exist unless man has discovered their wonderful being that they have hidden with a veil, with darkness.” (Ortega Y Gasset, ‘Der Intellektuelle und der Andere’).

This idea seems far removed from the practice of architectural design, but mindful that every line on paper is intended to give shape to an idea about space, I think it is essential to contemplate that thinking about space in conjunction with thinking about our existence. Might not the ease with which the brick aesthetic, hung on concrete structures and exhibited in 1941 in 'The Netherlands Builds in Brick', was able to change into a glass curtain-wall aesthetic, point to insufficient insight into the function of architectural expression in the process of human awareness?

How is the student to learn to employ spatial form-construction if he has not first been introduced to the significance of the concept of form in man's search for balance?

Thus it seems to me essential that before commencing the study of design and construction, the student should learn to comprehend the great coherence of life in which architectural form functions. Professor Granpré Molière, in his own way, made a start on this, which I think could be expanded into a general basic subject. The aforementioned philosophy of building seems to me to be a necessary basis for the correct use of the capacity for designing and constructing. Especially at this time and why? Sometimes I have the feeling that, compared with other human activities, we deal with our many possibilities for architectural form-giving in a rather haphazard way. The words openness, seclusion, high, low, number, size, rhythm, proportion, straight, curved, convex, concave, are at best used as concepts, but rarely can the concept be used in connection with its significance for the development of human relationships.

When it comes to the architectural definition of visual relations, there is practically no result of scientific research available, yet at present, if an architect defines these visual relations in his design, drawing on his own sense of life, it provokes uneasiness about the inappropriate influence the resulting human environment

supposedly exerts on human behaviour. For example, there has been a lot of talk about group formation in the construction of dwellings, and the concepts of neighbourhood and district appeared to offer some points of reference, until the change in spending patterns e.g., rendered these concepts in turn obsolete, and it became clear that, like the notion of the garden village, the neighbourhood concept had proved to be inadequate for the structures of our emerging urban agglomerations.³⁰

Right now there is a trend of banning motorized traffic from the centre of cities and channelling it along ring roads around the City until it becomes apparent, as in Brussels, that the city centre then loses its *raison d'être* compared to those areas where motorized traffic is permitted. For the sake of convenience in construction, the curtain wall is being used more and more, until people here and there discover that the small amount of material used results in a reduced thermal and acoustic absorptive capacity.

How long will it take before people also realize that a plastically expressed transition between inside and outside space satisfies a basic human need to continually experience nuance, from man's birth in the enveloping body to the final take-off into the ever-expanding universe!

“The clarification of visual forms and their organization in integrated patterns as well as the attribution of such forms to suitable objects is one of the most effective training grounds of the young mind.” [Rudolf Arnheim, ‘Gestalt Psychology and Artistic Form’. In: Lancelot Law Whyte ed., *Aspects of Form*, 1951]

30 In those days of welfare state planning everything – local shops, district centres, parking – was pre-planned on the basis of scientific surveys. However, as Bakema pointed out, if there was a change in people's habits (shopping, car use) all that careful planning was suddenly rendered obsolete.

What a field of study this opens up for the many who currently wear themselves out in a kind of social-psychological pedantry about what others do.

“The insights gained in the study of visual sensation can serve as indispensable leads to better understanding and more effective handling of the complexities of social relationships.” (Adelbert Ames jr. in Transformation no. 11, 1950) [Sensations, Their Nature and Origin: Brief Statement of the Findings of the Dartmouth Eye Institute, 1945]

It is fairly generally known that among the recommendations President Kennedy received from a working group of philosophers, artists, doctors and other specialists, was one to trace the origins of aggression, and that his faith in international cooperation by nations with different ways of life appears to have been reinforced by the recommendations of this group.

Yet to date architects know practically nothing about effect of architectural form on human behaviour. This situation seems to me acceptable so long as that form can be determined in a ‘fair play’ between user and designer. But that approach is decidedly outmoded when it comes to the emerging method of building. The space that is now being built for the majority of people comes into being in a system of administrative, distributive and commercial regulations, to which the moment when decisions are made about this kind of space has become almost entirely subordinate. The kind of spatial experience this produces is at odds with the freedom of belief implicit in article 181 in chapter 8 of our constitution, because religion and belief have a lot to do with respect and concern for the total space in which everything is and will be, while belief and religion are as close as space and

construction.³¹ That sounds rather weighty and direct, but does it make sense to learn the profession of architectural design without also accepting responsibility for the impact of the built environment on the development of human beings?

There are many examples in the history of building in which there is a demonstrable link between the way of living and architectural-urban forms. The army encampment-style structures of the Graeco-Roman and Anglo-American colonists, the boulevard structures of the cities of the despotic era, the colonnaded buildings of the recent dictatorships. They are nearly always gouged like scars into the organism that arose out of the awestruck search for the secrets of tension in material – light – sound – movement – colour – strength – space – birth – death. Everybody suffered an occasional scar and was often none the worse for it, but just as often a scar gave rise to disablement and total destruction, and it is equally possible that our cities, following the scars they acquired in the 19th century due to the construction of industrial slums, are now in danger of being unrecognizably mutilated by the recent consistently built negation of the basic human need for a distinctive kind of spatial transition from the unchanging measure of things like table and bed, and the ever-expanding measure of things like motorways and industrial estates.

The diversity that is characteristic of every healthy society is being ignored in the cities now being built. If now, as once happened to Pompeii, our cities were to be covered with ash and archaeologists were to dig them out in the year 2000, would they see reflected in the ruins of our suburbs the signs of a vital democracy? I do not know, but whatever the case, the year 2000 is not so distant any more.

31 In the constitutional revision of 1983, freedom of religion was moved to the first chapter, article 6, and recast as 'freedom of religion and conviction'.

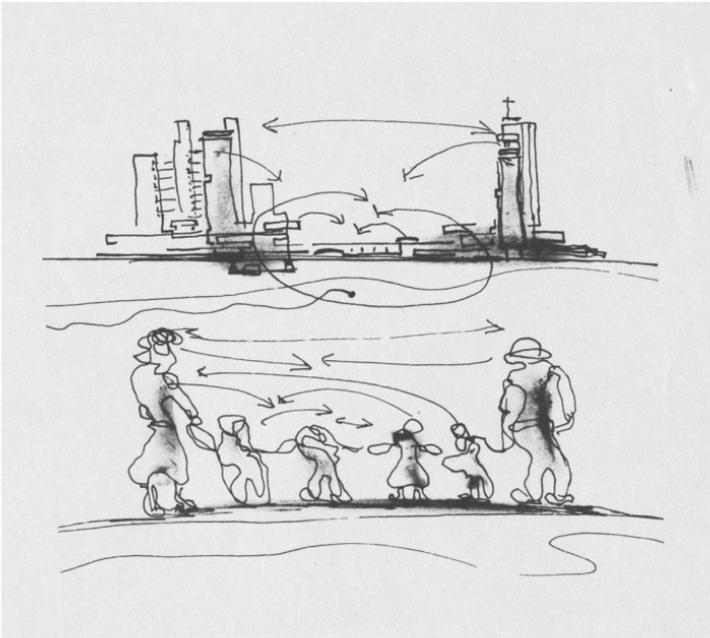


FIG. 12 Bakema demonstrates with the 'friendship diagram' how architecture can be an expression of human behaviour.

"People in a neighbourhood talk about it, they notice both the fact and the effect of the loss of diversity long before the failure of what has taken place is reported with maps and statistics." (Jane Jacobs in *The Death and Life of Great American Cities*).

"Yesterday's truth is dead, tomorrow's yet to be erected. There is no valid synthesis perceptible, and each of us holds only a bit of the truth." (Antoine de Saint-Exupéry, *Letter to a Hostage*, written in Portugal while awaiting passage to the United States in 1940)

It is perhaps with this attitude that we can make our circumstances work once more for our great life's goals.

Every space that is built contains a bit of the truth about the great space. Every human being, starting from the space he uses, will get to know the great space and when combined with other people's experience of it, the total space will become familiar. The home could become part of configurations which in turn could grow into residential palaces in which the squares could be like roofless rooms and in which roads could be like corridors for cars above which are decks for the pedestrians. We will have to stop disproportioning our country any further with garden cities, and instead learn to give form to the problem of living together with 350 people per square kilometre in the Eurodelta from Amsterdam to Cologne and Antwerp.

"[The truly evolved human being] will no longer attempt to bring beauty, health, or shelter to the city's streets and parks by means of trees and flowers. He will build healthy and beautiful cities by opposing buildings and empty spaces in an equilibrated way. Then the outdoors will satisfy him as much as the interior." (Mondrian in his essay 'House - Street - City' which originally appeared in the magazine i10, 1927, reissued in 1963, edited by Arthur Lehning and Jurriaan Schrofer. [English transl. in: Harry Holtzman & Martin S. James (eds.), The New Art, the New Life: The Collected Writings of Piet Mondrian, p. 207]).

We will have to learn to use our sense of form to render visible possibilities that at present lie hidden in a Kafkaesque confusion, in comparison with which the disentangling of the Gordian Knot seems like child's play.

Architectural design in our time means first of all learning to formulate the tasks hidden in society in order to gain the trust of the clients that remain anonymous in our current pattern of life.

Architectural design in our time means developing spatial structures so that these anonymous clients are able to identify with the total space according to their own nature and capacity. To put it more plainly, it means that we must learn to give form to the house that meets the demands of the increasing independence of man, woman and child within the family circle, and to a way of life with short, intensive, automated working hours coupled with free time in which a lot of work can be done that is impossible with machines. Those who now choose to study architecture, will above all need to practise rendering social questions visible without expecting that the solutions they sketch will be built immediately. More bluntly: we lack sufficient capacity, for example, to design the coming interweaving of public and private space, to design movement that benefits staying put, to define cores for changing domestic arrangements, and above all to learn to work for people who seek freedom through consciousness. As dr. ir. A. Korevaar, librarian of this university wrote on p. 245 of his book *Technology and Philosophy*:

“For the human character does not in general want freedom from work but rather work that allows the individual to live life to the full in that work.”

I hope with this lecture to have clarified a few ways in which architectural design can help to shape our society.

Bibliography

Baeten, Jean-Paul. *Een telefooncel op de Lijnbaan: De traditie van een architectenbureau*. Rotterdam: NAI Uitgevers, 1995.

Bergeijk, H. van, Van Lohuizen and Van Eesteren. *Partners in Planning and Education at TH Delft [Inaugural Speeches in the Built Environment: Global and Contextualised]*, Delft Bk Open, 2015.

Bergeijk, H. van. "The Free Bird and its Cages: Dutch architectural magazines in the first decade after the Second World War", in *Modernism and the Professional Architecture Journal. Reporting, editing and reconstructing in post-war Europe*, eds. T. Schmiedeknecht, A. Peckham, Oxford: Routledge 2018.

Dijk, H. van. "Het onderwijzersmodernisme," in *Hoe Modern is de Nederlandse architectuur?* ed. B. Leupen et al., Rotterdam: Uitgeverij 010, 1990.

Es, Evelien van. "The miracle of total space, in which everything is and becomes," *Architecture Bulletin* 03 (2007).

Frieling, D.H., 'Afscheid van een zendeling', in *Delftse School (1964)* 11.

Heuvel, D. Van den, "The spaces between \ encounters", in *Lessons: Tupker \ Risselada. A double portrait of Dutch architectural education 1953 \ 2003*, eds. D. Van den Heuvel, M. Steigenga, J. van Driest, Amsterdam: SUN 2003.

Oud, J.J.P. "Three new professors in Delft" *De Groene Amsterdammer*, January 17, 1948.

Salomons, Izaak. "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.

Taverne, E. "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.

Vanstiphout, Wouter. *Maak een stad. Rotterdam en de architectuur van J.H. van den Broek*. Rotterdam: Uitgeverij 010, 2005.

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This small booklet contains the inaugural speeches of J.H. van den Broek and J.B. Bakema given on the occasion of their appointment as professors at the Technical College of Delft. The speeches provide novel insights into their respective teaching programs, and into the dynamics of their time. An analytical reflection of their work is given by architectural historian Evelien van Es.



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