

|                     |  |
|---------------------|--|
| <b>Zeitschrift:</b> | Bauen + Wohnen = Construction + habitation = Building + home : internationale Zeitschrift                                |
| <b>Herausgeber:</b> | Bauen + Wohnen   |
| <b>Band:</b>        | 21 (1967)  |
| <b>Heft:</b>        | 5: Stadtplanung : Experimente und Utopien = Urbanisme : expériences et utopies = Town-planning : experiments and utopias |
| <b>Rubrik:</b>      | Summary  |

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

**Download PDF:** 08.01.2026

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**



## Summary

Reyner Banham

### "Clip-on" Architecture

(Pages 166-179)

In a study devoted to the potentialities of technology in America, which was published in a special issue of the *Architectural Review*, Gerhard Kallman writes, under the title "Men Made America": "The question can now be raised as to whether, in view of the new trends, with anonymous planning, all the procedures tending toward centralization are having to give way to new methods".

That was written in 1950. History has shown that no one in the USA attached any importance to this idea, and the Americans have continued to resolve architectural problems in accordance with the methods of the old world, in this way bringing about a revival of the monumental style. The rare examples of anonymous architecture, "non-centralized" building, which were created in the USA towards the Fifties are at the present time among the most severely criticized buildings, such as the long elevations of Eero Saarinen's General Motors Technical Center (Ill. 1).

The idea of the infinite

Although the question posed by Kallman was without issue in America, it did inspire a number of ideas on the other side of the Atlantic. Kallman's conception fits into a long range development of ideas of indeterminate architecture. Under different designations, this idea has turned up in England in several places over the last fifteen years. The famous prefabricated school buildings in Hertfordshire constitute an excellent example of indefinite repetition of standardized wall elements, which are glazed and thus form an unlimited repetition of identical unities. Six months after the appearance of the article by Kallman, Richard Llewellyn Davies, in an address delivered before the Architectural Association of London, summed up most of these ideas which were still vague or obscure. Davies was always an expert in the interpretation of conception having to do with architectural design and construction methods. Under the title "Infinite Architecture", he presented not only his own ideas but those of a group including, in particular, Leslie Martin and John Weeks. They devoted their time to the interpretation of the aesthetics of the architecture of Mies van der Rohe, taking as examples the buildings of the Illinois Institute of Technology in Chicago.

At Pantin and at Bobigny, near Paris, Emile Aillauds built infinite residence blocks, which are indeterminate, "non-centralized", in serpentine form. The same indeterminate architecture occurs again in the projects of Smithson. These conceptions were realized in the famous Park Hill agglomeration in Sheffield (Ill. 2).

In the meantime, toward 1951, a new type of composition makes its appearance. In fact, British architecture tends in the direction of an infinite manner, which is indeterminate and shapeless, in which each part is as important as any other part, and can be replaced by any other part at all.

Alison and Peter Smithson, the renewers of British architecture during the Fifties, created, in 1955, a design of a plastic house (Ill. 3). In the same year there were realized a plastic house by Ionel Schein for the Exhibi-

tion of Household Arts in Paris and a plastic house at Monsanto, which was finally installed in Disneyland (Ill. 4). Smithson's version, however, was more subtle than the plans by the other architects.

Gradually the Smithson brothers began to develop in another direction. Ionel Schein and his partner Jacques Coulon, nevertheless, went on, to the end of the Fifties, with their studies on the potentialities of an infinitely repeatable cell unit. They created a series of plans of residence elements, which increasingly resemble industrial products and less and less architecture as we know it. This cell is furnished with all ducts and mains so that it becomes almost an independent residence capsule. With the addition of supplementary parts to the cell, it was possible to create points allowing for the attachment of other capsules and so to create a house of any desired size.

The "Clip-on" idea

The invariable basis of this idea is the tent, the dome or the balloon, of synthetic material, this unit composing the main living tract. All the capsules which are added to this basic unit represent the "Clip-on".

The Smithsons' house and the unit-motel of Schein/Coulon have the characteristics of "Clip-on" architecture, but, as soon as the cells are attached, the "Clip-on" idea vanishes. With the adjoining of 2 or more cells the problem of an entirely new factor comes up.

Service mains, telephone and other elements ought in principle to be created at the same time as the unit itself. To resolve this problem, the creators of the scheme reversed the usual set-up: The upper house becomes the source of power and services. It carries the entire structure, and the "Clip-ons" become residence units. That is why the Archigram group employs the term "Plug-in" instead of "Clip-on" for its urban plans. Nevertheless, from the purely technical point of view, the two methods are often employed in one project, and the design tradition transcends the subtleties of the mechanical differences.

The "Plug-in" city

The Archigram group are not in a position to say with any certainty whether the "Plug-in" city will ever be able to function. The group, however, can give certain indications showing what such a city would look like. In 1964, "Archigram" became internationally famous as an architectural review with Issue No. 4, which contained nothing but a "Space Comic", showing a city floating in space. It offered the world, which is keen on pictorial images, a new vision of a city of the future, made up of elements attached to scaffold structures by means of cranes. Naturally, one is free to accept or to reject Archigram's vision of the hovering city, the city of ordinates, the "Plug-in" city. Nevertheless, it has to be admitted that Archigram's installations, with interchangeable residence cells and supporting scaffolds, seem to constitute the first plausible image of an architecture determined by technology since the geodesic domes of Buckminster Fuller fascinated the world 15 years ago.

England's contribution to indeterminate architecture has reached such a point that it deserves our most careful attention at the present time

Rudolf Doernach, Hans Joachim Lenz, Eckhard Schulze-Fieltz

Urbanization System, Association for Research and Development

### Urbanization System

(Pages 176-178)

The importance of prefabrication in light materials is uncontested. At the present time, nevertheless, it is leading to nothing, since it is conceived solely for flat constructions. The problems of traffic and the shortage of building sites are increasing the risks of solid-wall production.

A system of industrially prefabricated urbanization ought to allow for any given kind of design (Ill. 1). This system entails the expansion of the building project and the division of the assignment into a neutral urban structure

system (Ill. 3) and a filler procedure (Ill. 8).

As technical means with a view to modifiable designs, there are being proposed steel skeleton frameworks. This type of structure contains all the ducts and mains, such as water supply, sewers, electricity, heating, etc. Spatial cells of plastic are installed in the macrostructure and tied in with the network of mains.

As for the filler elements, there are under consideration spatial construction parts (dimensions 2.8, 3.6, 7.2 meters). They have the advantage of a higher degree of prefabrication. In this way, construction costs are reduced, and there is an increase in productivity. In order to get a large diversity of apartment types, there is added to the spatial elements a coordinated system of panels as well as supplementary elements for special cells, roof, stairs, balconies, loggias, etc.

For the spatial cells and the panel elements, new materials are employed, e.g., FERISOTON, which is a thin polyurethane, light (400 kg/m<sup>3</sup>), heat-insulating (0.7 kcal/m<sup>2</sup>), resistant (10-20 kg/cm<sup>2</sup>), not liable to strain thanks to the steel fireproof bracing. FERISOTON, the new construction material, protects the steel from corrosion and from fire, permits assembly-line production and replaces costly sandwich constructions.

Fritz Haller

### An urban system

(Pages 179-181)

Extracted from a lengthy work which will appear in August 1967, in book form, Walter Publishers, Olten, and the title of which will be "An Urban System".

Preliminary Remarks

The word "city" is not intended to designate in this connection a limited agglomeration which is densely built up, but rather a vital space in the broadest sense of the term, constructed for the use of man.

Nearly all the sciences and nearly all the research work being done at the present time are directed toward the creation of a new vital space for man and for our industrialized society. However, few groups are truly attempting to resolve similar problems. The reason for this is that they lack the time and the necessary means to conduct large-scale research. Experience as well as imagination have failed to place these human researches at the service of a concrete assignment.

The present work seeks to define this assignment, which is still slumbering in obscurity. The resolution of the problem presented here is called "supercomplex invention". The result of this work could be taken as a technical model for the description of the idea of a supercomplex invention. No one will construct a city in accordance with this procedure, for it is not mature enough. Nevertheless, it is an attempt showing what extraordinary efforts ought to be made until the point is reached when detached rooms constitute the totality of a supercomplex invention.

The first extract from the work in question presents plans and explanations of the 4th grade unit. This unit comprises 60 million inhabitants; it is the largest unit treated in this volume. Nevertheless, there are to be found in the text indications bearing on 5th grade units and more, with populations running into several hundreds of millions. The fact that no one has yet ventured to sketch out such giant units proves no doubt that our ideas are still insufficient to embrace the total planning of our entire vital space. The brief extract entitled "4th grade unit" is a prior indication of a much larger work.

Construction of the urban system (Ill. 1 and 2)

The urban system is made up of identical cells disposed one above the other. The smallest element of this series is a 1st grade (e1) unit. A sum of such units forms a 2nd grade (e2) unit. A quantity of these units constitutes a 3rd grade unit (e3) and so on. Each unit consists of several units of smaller dimension, a centre (c) and one or two peripheries (p). In the centre (c) there are located all the

supply, production and service installations, with distribution to the entire unit.

In the periphery (p) we have the welfare services, educational facilities, research plant, etc.

e4 4th grade unit (Ill. 3 and 4)  
61,000,000 inhabitants  
16,700 sq. km. of land

Movement in the direction of the planning of an agglomeration system for 60 million inhabitants and more has entailed many problems, the resolution of which is of crucial importance for the realization of smaller units.

What are the potentialities of the automatic train above the plane of the 3rd grade unit? What are the conditions of transport for systems of a higher degree of magnitude? What about the recreation area (week-end area, vacation region)? How is food production to be incorporated in a total system? What rights and functions are allotted to the centres and peripheries of 4th grade units and above?

The 2 4th grade units (e4) presented here are each made up of 4 groups of 3rd grade (e3) units, of a 4th grade (e4) centre and of 4th grade (p4) peripheries. Depending on the geographical, economic and political conditions of the smaller units, a unit of the 4th grade can also consist of more or fewer 3rd grade units.

The centre of the 4th grade (c4) unit is the "capital" of the 4th grade unit. In the capital there are accommodated all the services, such as public authorities, administration, the business centre and communications facilities as well as amusement centres and information and orientation, etc. Aside from apartments and hotels in the residence towers of the urban centre, there are, in the 4th grade centre, 24 2nd grade units for around 3 million inhabitants.

The 4th grade (p4) peripheries are designed for large-scale research centres devoted to special projects. These 4th grade peripheries also possess supplementary residence units of the 2nd grade for around 4 million inhabitants.

The green zones outside or between the 3rd and 4th grade peripheries and the 4th grade centre are intended for recreation, with parks, lakes, motor roads and forests.

Depending on climatic conditions, unoccupied surfaces in the vicinity of the industrial zones of 3rd grade centres are reserved for agriculture or stock-breeding.

Transport systems in the 4th grade unit (Ill. 5)

The automatic train moving passengers and goods in all 3rd grade units is tied in with the centre and the peripheries of the 4th grade. The main communications in the elements of the 4th grade unit are effected by means of a network of express trains with speeds of up to 800 km/h. To cross one half of the network takes half an hour to an hour, including stops. The same express trains effect connections with other 4th grade units and with any centres and peripheries of 5th grade units that may be planned in the future.

The transport of goods is likely to be effected on the express network, but during the slack hours. Heavy shipments, express goods and emergency consignments are effected by helicopters, between the centres and the 3rd and 4th grade peripheries. The helicopters also handle the connections with the 4th grade centre, where transfers to the intercontinental air network are made.

All these main transport networks in the 4th grade units, tied in with the systems of larger units, would have to be developed further, especially within the framework of a "planetary plan".

Friedrich Achleitner

### Urban Fiction in Austria

(Pages 181-183)

Since the exhibition of Hans Hollein and Walter Pichler at the St. Stephan Gallery in Vienna (May 1963), there has been a lively discussion on the subject of town-planning for the future, in Austria. Another exhibition has just been held in the same gallery. Under the general thematic title "Urban Fiction", this show brought together,



for the first time, all the current tendencies. Except for Hollein and Pichler, who present their old expressive cityscapes, there are in Austria mainly two groups, in the institutes of technology of Graz and Vienna.

The principal feature of the work of Hollein and Pichler is the attempt to express in an exaggerated dramatic fashion the forces underlying urban life. Pichler's architectural manifesto indicates a certain relation to futurism. We find in the work of both Hollein and Pichler the idea of the liberation of architecture, of a return to its original values. Hollein's manifesto declares: "The design of a construction is not determined by material conditions but by man alone. At the present time when for the first time in the history of mankind a developing science and perfected technology are placing their resources at our disposal, we are building what we want, we are creating an architecture which is not determined solely by engineering, it is pure, absolute architecture. Man is becoming the master of space."

For its part, the group of architects at the Institute of Technology of Graz is protesting vigorously against the predominance of form. Although there can be noted in their plans the same tendencies towards plastic and spatial attractions, the background remains functional, that is, constructive design is considered to be the result of a coming to terms with diverse realities. This debate, as it were, is the trial of the plan. This group also shares a certain optimism regarding possibilities in landscaping and the importance of this factor.

Bernhard Hafner is one of the members of the Graz group. Many of his ideas can be considered characteristic of his group. "The task of art is not the interpretation of realities but, rather, procreation, the conception of realities requiring a much vaster insight. Total architecture is more important than 'architectures', i.e., architecture is becoming town-planning, that is to say, the expression of the needs and of the mentality of society, of the tension between personal liberty and social dependence as well as between individual will and the requirements of the community.

Hafner, in his project, develops a communal structure and an individual structure with the following characteristics:

The municipal structure regulates the life of the community and in this way moulds a network of constructions reserved for public installations, as well as service mains.

The community structure ought to guarantee to society enough space to permit its development and growth. The flexibility, the adaptability of the urban structure will be ensured by the concentration of service mains as well as by archigrams for residence structures and their servicing, including social, cultural, educational and administrative facilities.

The individual structures are specific constructions which represent the dependence of all on the community structure, the expression of private wishes and of personal imagination.

The Vienna group (seminar of the students' club in the architecture field, with Günther Feuerstein) expresses an emotional and non-rational conception of architecture, which also accepts the preponderant role of formal design. As for the ideas of Laurids Ortner, they are the most radical of all.

Hans Hollein has already discussed the problems of adaptation of designs in his "aircraft carrier cities". In the Feuerstein group, attention can be drawn to the attempts, based on intuitive insight, to create a spatial equivalent to social situations (e.g., the construction of a vacation village for children). Here too, application is made of forms of organization deriving from the biological realm, which are then adapted to the exigencies of architecture. Despite its non-rational and subjective point of departure, this group, like all the other groups, is, in the last analysis, seeking to develop the image of a city which reserves enough space for the activities and the capacities of man.

Although the projects of these groups often possess an exclusively provocative character, there are in Austria very few proposals being made that

formulate an idea in all its details. There are, however, two projects which reveal, albeit in a very different manner, new housing designs. One of these projects we owe to Josef Lackner and the other to the Graz group of Günther Domenig and Eilfried Huth. Lackner is working together with a Swiss enterpriser and a team of experts from the Biotechnical Research Association. What is involved here is an anti-urban type of housing, the ideas underlying which are not revolutionary. The other project has the aspect of a highly urban type of housing. The supporting structure (secondary system) does not concern merely the building site, but it also comprises the entire distribution system. The individual resident can design his own apartment as he desires.

These two projects are discussed, in this issue, in greater detail by their authors.

Günther Domenig, Eilfried Huth

## Propositions

(Page 184)

For the future a quest is being made for an individualized type of housing in which the private sphere will be so vast that it will permit the expansion of an apartment within the free volume of the whole structure, thus keeping pace with the growth of the family and depriving week-end touring of some of its attractions. Educational reforms and the use of teaching machines are rendering superfluous the construction of school buildings.

The standard of living pyramid will be parallel to that of education and creative effort.

Apartments are living volumes that are individually installed and finished, often furnished with terraces and roof gardens. The volumes of buildings are external skins, and the arrangement of rooms inside is effected independently, aside from fixed installations.

Observations on the subject of town-planning

The question of the definition of the future property will constitute the essence of the problem. If no solution is forthcoming for this problem, all plans will remain disjointed projects.

It will prove necessary to draw up structural plans, plans that are publicly financed. Individual expansion within the volume of the city ought to depend on the needs of each. It will therefore be necessary to envisage residence volumes in reserve in order to allow for the creation of the "modifiable residence". The spatial order ought to take into account the following factors:

- a) boundaries,
- b) concentration of building site,
- c) grouping of recreation areas,
- d) wooded areas reserved as vacation zones and for forestry,
- e) intensive agriculture,
- f) construction of detached houses strictly prohibited.

Proposals for an urban type of housing  
We are trying, in our projects, to transform the expanded fashion of living into types of urban agglomeration that would avoid the building of detached houses.

Friedrich St. Florian

## The vertical city and its elements, 1967

(Pages 187-188)

The second half of the 20th century has sprung a surprise on the town-planners, a surprise that gives their task an added dimension: the city of 10 million inhabitants. This city will not come into being simply through an expansion of the city of 1 million inhabitants. The new size, the new scale, do not exist yet. Nevertheless, various attempts are currently being made with a view to giving new inspiration to town-planning and a shape to the city of the future.

The project dealt with here is an experiment which has incorporated the new needs. Basing itself on the example of Boston, which for the last

4 years has been realizing one of the boldest urban reorganization plans in the USA, this project gives an advance view of the future city: the vertical city and its elements.

Its principal elements are, first of all, immense transfer stations which regulate the traffic flow on different means of transport. These transfer stations represent important fixed points in the draughting of future town plans. Three different transfer stations could be sufficient. Interchange 1 regulates all surface traffic (cars, monorail, underground). Interchange 2, installed on top of the city, transforms the different system of air transport (helicopter, vertical take-off planes). Interchanges 1 and 2 are tied in with Interchange 3, which for its part handles long- and medium-distance transport.

Vertical systems of transport and service built in between the transfer, or interchange, stations, as well as horizontal bridgeheads, constitute the general framework. Within this framework we have all the institutions that represent the core of the city (administration, hotels, banks, restaurants, shops, visitors' flats, cultural institutions, etc).

The highly developed transport and communications system is justified only if the uninterrupted activity of the core is guaranteed.

Noburn Kawazce

## From metabolism to metapolis

Project for a city of the future

(Pages 189-192)

How ought the cities of the future and their detached elements be realized in practice? How are the architects to proceed? In Japan it is Prof. Tange of the University of Tokyo, and a group of architects, town-planners, designers and critics, a group styling itself "Metabolism", which is combining its efforts and research projects in an attempt to reply to these questions.

The "Tokyo Plan 1960" (published in Building+Home 1/64) by Prof. Tange is widely known, but since then Prof. Tange has not come out with any new plan. The "Metabolism" group, set up in 1960, has concerned itself with joint projects. A major proposal for the building of a new city was published under the title "Metabolism 1960". Since that date, a few members have sporadically brought out their proposals, but the second joint report has yet to come off the press.

It is impossible to furnish an interpretation of all the proposals put forward by the group. Nevertheless, we can sum up the common ideas which constitute the basis of individual proposals.

Rapid urbanization and industrialization, these hallmarks of our age, can be compared to metabolism in nature. It is therefore up to the architect to mark out the paths to follow for our evolving society faced with its manifold problems. At the same time, the architect concerned with this metabolism should strive to stabilize and sustain human life. Several methods for achieving these ends have been put forward, methods in part deriving from members of the "Metabolism" group.

Metabolic urban systems seek to develop an overall plan which reflects the desires of the masses of the population. Metabolism, for the architects, is a purely technical conception. These architects do not raise questions concerning problems of present-day civilization, as to what direction it will develop in, what meaning it has for people and whether it is good or bad.

The "Metabolism" group has chosen, for the years after 1965, the theme "metamorphosis". That means that the group has reached a stage allowing it to point out the future road.

If "Metabolism" launches an appeal to architects requesting them to become aware of their responsibility, "Metamorphosis" indicates that the group aims to trace out the route to be followed by whole civilizations.

All the continents ought to form an organic body so that future generations can rule over nature by means of technology. Mankind has still to overcome many obstacles before the process of transformation leads to a universal culture. Such a civilization

will not for long remain an urban civilization as in the past.

The members of the "Metabolism" group decided to call the future mode of living "Metapolis". Mankind will be obliged to pass through different stages of development before arriving at "Metapolis".

During the last few years, it has been possible to observe, in a number of Japanese cities, a phenomenon that is quite characteristic but previously quite unknown. There have been constructed, for instance, polyvalent buildings, called "Kaisan". On the outside, they do not differ from an office building, but, on the inside, there are theatres, cinemas, a chain of shops, hotels and offices. Another phenomenon: the underground shopping centers, first realized in Nagoya. Now these are to be found in all the principal cities of Japan. These shopping centers are tied in with railway stations, terminals, amusement centers, etc. Soon the "Kaikan" will no longer suffice. It will therefore be necessary to build "superstructure" capable of covering the entire centres of cities.

A "Pair-City" plan, elaborated by Kikutake, envisages the construction of a new city on the outskirts of Tokyo, a city having centralized functions and multi-storey residence units (Ill. 1). This process is called "base development". Kikutake goes even further, and he has come up with the idea of the "ocean city", which renders an entire continent independent of the outside world.

The "Metabolism" group has decided to exploit the future of contemporary civilization under the aspect of metamorphic force. However, what does such a civilization mean for mankind? The reply to this question will probably be the theme of the period starting in 1970. This theme will be called "Metempsychosis". In fact, after 1970, it will be necessary to examine the human race on the basis of the Eastern philosophy of metempsychosis.

Jürgen Joedicke

## The Utopians of the Twenties in Germany

(Pages 193-197)

### Introduction

The founding manifesto of Bauhaus in April 1919 is decorated with a woodcut by Lyonel Feininger. This woodcut symbolized the conception of Gropius, an idea formulated in the manifesto, according to which artists and craftsmen ought to form a new guild. "Architects, sculptors, painters, we must all return to the craft tradition". Such is the leading idea of this document.

In 1923, Bauhaus put this new ideal on its program, and this trend seemed astonishing to those who considered Bauhaus as the school that was promoting a reconciliation between technology and art. The characteristic tendency of this period is summed up in a phrase of the program for April 1927, where we can read that "the joint planning of utopian projects - construction of community and cultural buildings - is the aim to be achieved". At the present time, it is easy for us to criticize this period, whose imagination exceeded the limits of constructive reality and which believed that its ideas were capable of changing the face of the world. However, we must not lose sight of the fact that the impossible has to be imagined first if we are ever to realize the possible. The architects of the Twenties, such as Gropius, Bruno and Max Taut, Wassili, Hans Luckhardt and Scharoun, who imagined utopian plans, realized real designs in the construction of housing and of complexes when they were later on confronted with concrete assignments.

### Formations of groups

It is absolutely impossible to understand this period in Germany and these artists if they are thought of in isolation from the political events of the period. The conception and the initiation of the realization of the new aims had greatly stimulated these artists. For the first time, artists inspired by the same feelings came together with a view to realizing, in common, new tasks. The first of these associations was called "The November Group" from the name of the



revolution which abolished the monarchy in Germany.

In December 1918, the group sent invitations to architects, sculptors, painters, writers, musicians and dramatists, requesting them to join their association. A short time afterwards the "Working Committee for Art" was founded. This committee set forth in its manifesto: "Art and the people ought to constitute a unity, art ought not to be reserved for a privileged few, but it ought to participate in the happiness and enter into the life of the masses of the population". The "Working Committee" was dissolved as early as 1921, whereas the November Group continued to exist. It organized an exhibition in Berlin in 1926.

In 1919, Bruno Taut, who played a dominant role among the architects of his period, invited various architects and artists to engage in correspondence in which each could express his ideas and announce his projects anonymously. This correspondence continued from the end of 1919 to the end of 1920. It enables us to form a more exact idea of the problems confronting that epoch.

In 1914 Sturm Publishers brought out the work entitled "Architecture in Glass" by Paul Scheerbart. The author (1863-1915) evoked in his novels, which were utopian and fantastic, visions of a totally imaginary world. He too was a member of "The Storm" (Der Sturm), where he made the acquaintance of Bruno Taut. In the glass house by Taut exhibited at the Cologne Werkbund (Ill. 1-3), the relation between the conceptions of the two men was quite clear. Taut's glass house, an advertising pavilion for the glass industry, was modified under the influence of Scheerbart into a construction exceeding the limits of reality.

The architecture in glass realized here did not represent only an aesthetic program but also a mural requirement. Nevertheless, it is not necessary to compare Scheerbart's vision, as regards glass architecture, with the glass houses at the end of the Twenties. In point of fact, Scheerbart did not seek to create a concrete glazed architecture but, rather, fantastic spatial effects.

In his work, we likewise find suggestions on mountain illumination. His idea was to construct hotels on the sides of mountains which would resemble glass palaces illuminated from the interior. This idea had already made its appearance in a utopian novel which came out in 1901. Taut took up this project in this work "Alpine Architecture" (1919), in which, in 5 chapters, he described the fantastic transformation of the surface of the earth.

In this work we find ourselves confronted by the phenomenon of a conscious utopia. However, as in the case of Scheerbart, these ideas are based on reality. Taut takes as his point of departure the condition that the spiritual force of a people gets expressed in magnificent buildings. He considers a utopia a means for stimulating new ideals.

"Unknown Architects" Exhibition in Berlin

In April 1919 the Working Committee for Art organized an exhibition of unknown architects with a view to finding new unknown talents. In the catalogue of this exhibition Gropius, Bruno Taut and Behne wrote an article each, in which Angkor Wat, the Alhambra and the Dresden Zwinger are cited as models of architecture. Taut's pathetic query: "Does architecture still exist at the present time?" is an indication of his rejection of utilitarian architecture. In his article, Gropius also expressed his desire to abandon reality as such in order to devote himself to utopia. At this exhibition, there could be seen in particular works by the painter Hermann Finsterlin.

Glass Chain and Morning Light

At the end of 1919, it was again Bruno Taut who took the initiative in inviting 14 friends to exchange their ideas by correspondence. In these letters, the collection of which is known under the designation "Glass Chain", we can see once more the utopian approach prevailing in this period. Along with this endeavour, B. Taut engaged in bringing out a booklet, comple-

menting the review "Urban Architecture in Ancient and Modern Times", a booklet to which he gave the title "Frühlicht" (Morning Light). In Frühlicht he published the projects and ideas of the members of the "Glass Chain".

#### Conclusion

All these sketches and projects have remained on paper only. One single plan was actually realized: the transformation of the old Schumann circus into a theatre for Max Reinhardt, a project carried out by Poelzig and inaugurated in November 1919.

In 1923-1924, events took their course in Germany. Architecture returned once more from the utopian realm to reality. Bauhaus modified its leading idea "Art and Craftsmanship ought to constitute a unity" to "Art and Technology ought to unite".

Some day in the future, no doubt, buildings will be put up in which the conceptions of this epoch are finally realized after having undergone a metamorphosis.

Heinz and Bodo Rasch, Wuppertal/ Stuttgart

#### Realization of a utopia

(Pages 198-200)

##### Preliminary Remarks

Suspended constructions, in which the resistance of steel cables to traction is utilized to hold the building up over empty spaces, are now parts of the usual idiom of modern architecture. The buildings at the Brussels World's Fair, the plans and buildings of Frei Otto and René Sarger demonstrate the potentialities of this construction procedure. The use of suspended constructions is not applied only to the erection of broad-span hall buildings, but also to superstructures. As early as 1927, Heinz and Bodo Rasch developed a series of plans in which they explained the potentialities of this new type of construction. Nevertheless, the honour of realizing their ideas in practice was reserved for our own time. In 2 competitions in 1955, Heinz Rasch proposed the creation of suspended houses. In April 1956, he draughted a patent application for this procedure, this application being subsequently granted.

Jürgen Joedicke

The Weissenhof agglomeration was erected, in 1927, in Stuttgart. The two young architects Heinz and Bodo Rasch were asked by the publisher Wedekind to analyze the construction systems utilized in the realization of the Weissenhof buildings. In their analysis, they determined two types of construction: masonry buildings and skeleton buildings. These findings inspired them to examine and elaborate a "housing system". The work "Wie bauen" (How to build), which appeared in 1927, and signed H. and B. Rasch, presented a number of buildings in which there had been employed the potentialities of suspended constructions in superstructures.

Bodo Rasch

##### 1. Plan for a freight station

Architects: H. and B. Rasch, 1927

The text for examples 1 to 4 is taken from the work "Wie bauen".

Glass roofs are suspended on steel cables. Below, and likewise suspended, there are offices, stairways and derrick installations. The offices are entirely glazed. On the loading ramps, between the tracks, there are wire mesh cages for freight, handled by means of derricks.

##### 2. Plan for a stadium with suspended roofs

Architects: H. and B. Rasch, 1927

(Ill. 3, 4, 5)

The stadium encloses a football ground (105x65 meters), a 400-meter track, several 100-meter tracks, facilities for high- and broad-jumping, for putting the shot, for pole-vaulting and for gymnastics on apparatus, etc. The grandstands accommodate 80,000 people. This entire surface is roofed over with a Cello dome furnished with a layer of steel wire. The roof is sustained by a main cable held among 4 masts

and by a series of supporting cables branching off from the main cable and running up to the extremities of the grandstands on top. In the bracing, there have been suspended 3 floors, each having a diameter of 60 meters. These floors house cloakrooms, baths and massage facilities, the administration, a restaurant, etc. In the centre of the floors, as core, there is located the stairwell.

##### 3. Apartment houses

Architects: H. and B. Rasch, 1927 (Ill. 6)

The floors are suspended from masts composed of riveted tubular steel. The masts intersect. Assembly of the whole structure is effected from the top downwards. The floors have a diameter of 12 meters.

##### 4. Suspended houses

Architects: H. and B. Rasch, 1928

(Ill. 8, 9, 10)

12 residence floors 15 meters in diameter are suspended from riveted tubular steel masts. These masts are installed on a zig-zag pattern. Access to the floors is via paths 4 meters wide. Thanks to their weight, the access walks regulate the bracing differential of the cables. Assembly is effected from the top downwards.

##### 1. Mast for 12 floors, 49 meters high

The diameter of the mast, at the widest point, is 1.50 meters and at the end 32 cm. The spherical surface (32.5 cm.) resting on the ground is of steel and affixed to a concrete foundation 9.50 meters in diameter.

##### 2. The bracing

The masts are braced by means of insulated steel cables at a 45° angle. The cables are intended to support the equivalent of 104 tons.

##### 3. Suspension of the floors

At the extremity of the mast, there have been suspended the floors on flat irons, at a 5-meter interval from the mast owing to an adjusting cone.

##### 4. Residence floor

It is made up of a floor, partitions and a ceiling. It is suspended at the floor at only 6 points. That is why the residence floor represents a complete residence unit. The floor, in plan, is circular.

##### 5. Access routes

Each is supported by 2 lattice trusses of steel 28 meters in length. These trusses are furnished with facing. They serve also as balustrades. The walks are made of planks resting on girders.

##### 6. System

One unit of these suspended houses is constituted by 2 series of masts, the interval between the series being 21.40 meters. Inside each series, the masts are at an interval of 30 meters one from the other. In the centre, between the series of masts, the access walks have been suspended. It is permissible to determine the distance between the suspended houses. They can be brought together as far as a point where the height of the construction is equal to the distance separating them. In this case, the counterweights are dispensed with, since in their place there would be the foundation of the next series of masts.

H. and B. Rasch

Ionel Schein

#### France: Utopian Reality

(Pages 201-206)

"People who have become middle-aged judge contemporary situations by comparing them with what has been, which was often worse. Such become conservative, because they fear more than they hope. Youth judges its own time by comparing it with what would have to be. It wants to change things, because it hopes more than it fears." (Françoise GIRAUD). This citation expresses wonderfully not only the present conflict between the generations on the old Continent and elsewhere, but also, with amazing precision, the situation in which young architects and town-planners find themselves in France and in other countries.

What is shown on these pages is not a true and complete picture of the situation, but only an excerpt revealing a number of studies and finished projects. They all have the following in common: their isolation in their environment and in society and their intellectual isolation. These studies and projects do not stem from a comprehensive philosophy of the urban architectural phenomenon.

Thus, most of the young architects concerning themselves with social development studies arrive at solutions which end either in a kind of formalism or in the aridity of a "metaphysical" system, extreme cases of which are Friedman and the sculptor Schoeffer, who is even more elementary and even less subtle. Others, again, assimilate architecture to the latest fashion rather too easily. The spatial presence of a design must fructify the vital rhythms of a community (production - distribution - consumption - exchange) and harmonize them with this design and with all other developments.

What, after all, is the use of elevating the population of Paris in a three-dimensional structure 50 meters above the ground, if the living conditions of this population do not fundamentally change, if the relations between one person and the other remain the same? The architecture must not only be in keeping with the building program and satisfy the given requirements (in the good old outmoded tradition of the Charter of Athens), but the architecture has to permit development, has to pioneer ahead of it, indeed, even promote it. The following pictures express clearly the fact that a few have become aware of the problem. They do not all speak with the same power, with the same comprehensive sweep. However, we are only at the beginning.