

Zeitschrift: Das Werk : Architektur und Kunst = L'oeuvre : architecture et art
Band: 55 (1968)
Heft: 6: Bauen und Formen mit Kunststoff - Das Lebenswerk von Pierre Jeanneret

Rubrik: Summaries in English

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The growth of the plastics industry from the standpoint of architecture 353

by Erwin Mühlestein

No other material so markedly characterizes the age we live in as the whole diversified range of plastics. This development began in 1839 with the first successful vulcanization of natural rubber. Experience with rubber taught us how to deal with synthetic substances and how to apply them. Plastics in the proper sense of the term came into being only after the chemical transformation of cellulose into macromolecular compounds which are malleable during processing but become solid as end products. The first completely synthetic plastic was Bakelite, manufactured for the first time in 1907. In 1913, production got under way on polymerization resins derived from atmospheric nitrogen and hydrogen. In the twenties, syntheses started with the gas methane as initial material. Before the beginning of the Second World War there were only 21 different-known types of plastics, at the end of the war 34.

After the Second World War, the American plastics industry began for the first time to manufacture tubing for the construction industry. For many years only individual building parts were fabricated, for the most part in shapes that were not at all adapted to the properties of the new material. The question as to why it was such a long time before an entire house, consisting only of plastics, was built cannot be dismissed simply with the argument: the building codes would not have allowed it. The real reason is that the architects were not yet familiar with the new material and did not know how it should be employed. – And there has been little change in this respect down to the present day.

One of the first houses consisting of plastics was built in the summer of 1955 by the Finn Arne Ervi for the Scandinavian Exhibition in Helsinki. The architectural design still closely resembled traditional building; a steel skeleton framework independent of the rest of the structural frame carried the roof load. The house demonstrated the potentialities of the new material in one direction only: owing to the light weight of the construction material, movable partitions could be installed.

In 1956 in The Hague, the Frenchmen René Coulon, Ionel Schein and Yves Magnat presented a round house fabricated of plastics. With the sole exception of the sanitary block, this project again did not handle the material in a way appropriate to its properties: it was still not yet realized that plastic malleability entails a higher degree of shaped solidity. A self-supporting plastics house constructed with this principle in mind was not erected until 1957; this was the Monsanto House, built for Disneyland by Richard Hamilton and Marvin Goody. This house is now ten years old and has had 20 million visitors; it is thus standing proof of the long life of the new material.

At the conclusion of his article the author raises the question: Why are there still so few plastics houses? – He believes that the explanation consists, on the one hand, in the fact that the architects do not yet know how to handle the material. On the other hand, and this is a graver consideration, it is difficult to finance plastics constructions. The banks and finance companies are still not prepared to extend building credit or even a mortgage loan on a long-term basis for the financing of what they regard as a new-fangled construction method. Unfortunately there is a great danger that these delays will force the employment of plastics in the building industry into the wrong channel and that plastics will be employed only as an auxiliary material to be applied to conventional projects and not used in a way appropriate to its real properties.

Experimental apartment house in Pilsen 357

1960. Project Team of the Institute of Technology, Prague

Multi-family house of prefab concrete elements with a curtain-wall elevation of shaped plastic panels.

Cell units of plastics for one- and multi-storey buildings 358

1967. Architects: Ralf Schüler and Ursulina Witte, Berlin

Ten different cell units together with four accessory construction elements make up the range of types of this construction system, which also leaves room for simple renovations.

Pré-magasin Prisunic as vacation house 360

1967. Architect: Jean Maneval, Paris

This plastics house serves, on the one hand, as a mobile pavilion of the French department store chain Prisunic. However, the houses can also be set up at any desired spot as vacation units.

Playground apparatus 362

1967. Designer: Werner Zemp, Hitzkirch LU

With two elements the most various play apparatuses can be assembled, it being possible to close up the openings if desired with cloths fitted with sewn-in rubber bands.

Bus stop 364

1968. Project Team of the Hochschule für Gestaltung, Ulm

Bus stops of any desired size can be assembled using a roof element and different cubicle elements. The plan executed in the original dimensions will represent West Germany at the Triennale 1968 in Milan.

The «Spheroïde» cell unit 366

1967. Designer: Guy de Moreau, Belgium

Eight different fibre-glass-reinforced polyester resin compound panels and 56 additional construction elements can be assembled with the variable cell unit of the Spheroïde.

Windowless variable city of shaped plastics and adjustable glass elements 367

1963–1968. Project: Erwin Mühlestein, Zürich

Five different construction elements of fibre-glass-reinforced polyester resin constitute the external skin of the different buildings of a city. All construction elements can be stacked into one another and thus take up little space in storage and transport. The plastics elements are shaped precisely along the static lines of stress, and this fact permits the spanning of the supporting orthogonal lattice-work with a minimum expenditure of material. As the city rests on supports, the ground is left free for vehicular traffic and public facilities.

New materials in the visual arts 371

by Jean-Christophe Ammann and Herbert Distel

The rise of plastics has also created a new situation for the visual arts. These new materials have not simply replaced the traditional materials, but they have opened up an avenue leading to entirely new visual conceptions. The table drawn up by the authors does not contain all of the more than two hundred kinds of new plastics, but lists only the most commonly used ones, those employed by artists, and describes their properties. The Kunsthalle in Berne is planning an information centre for the orientation of artists.

Hommage à Pierre Jeanneret 377

by Gilles Barbey and Collaborators

In «Hommage à Pierre Jeanneret» an attempt is made to do justice to the work of this great architect and engineer without encroaching on the unity of this work and that of Le Corbusier. The articles contain unpublished personal notes by Pierre Jeanneret and numerous statements by persons who met him or worked with him.

The Bauhaus image 397

by Lucia Moholy

The author, who during the twenties lived in association with the Bauhaus masters, rectifies a number of errors and misinterpretations which have appeared in the recent literature on Bauhaus. In particular, she designates as completely incorrect the often employed terms «Bauhaus painter» and «Bauhaus architecture». There never existed an «official Bauhaus school of painting», and such a thing could not exist. The artists who were called to Bauhaus were obligated to devote much of their time to joint assignments that were mainly pedagogical in nature, projects that lay outside their actual work. The goal of the preliminary training programme created by Johannes Itten and continued by Albers and Moholy-Nagy was not the work of art 'per se'; the aim was the determination of the ways and stages leading to the actual work, the process of becoming familiar with the properties and processing qualities of different materials. Bauhaus was also not a school of architecture, which, let us say, created the «Bauhaus Style». The plans and construction sheets of Bauhaus were drawn up in the private architectural office of Gropius. «Bauhaus» therefore can signify: Idea – Programme – Theory of Instruction – Institute – Building, but not a uniform style.