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Sprawling City and Mass Housing in Modern Europe and Japan: Innovative Design for High Density Residential Complexes by John Habraken and the Metabolists.

Raffaele Pernice

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Lecturer, Department of Urban Planning and Design, Xi'an Jiaotong Liverpool University, China

Abstract

The period which coincided with the massive reconstruction after the end of WW II and the consequent economic boom which protracted till the early 1970s was one of the rare occasion when sustained economic investments and new research on new models of urban residential schemes were developed in the developed world, foremost in Europe and Japan, in order to redesign the cities and restructure the expanding suburban peripheries. Dutch architect John Habraken and his fellows of the group SAR, as solution to the fast urbanization developed innovative methods for the mass production of housing which combined the attention to the value of individual choice with the aspiration to a higher degree of variety and livability of the built environment. Simultaneously and in the same spirit the Japanese Metabolists promoted a new bold technological language in architecture, which will inspire the post-modern megastructural movement of the period, in order to create new urban forms for the society of the Atomic Age, trying to combine modernity and some elements of the traditional national culture. By focusing on the specific contribution and theoretical concepts promoted by John Habraken and the members of the Metabolist Group in their efforts to resolve the problems of housing shortage in the city in their respective contexts, the paper briefly outlines the key elements of their design approach as proposed in post war Europe and Japan during a phase of fast urban and economic growth.

Keywords: Metabolism; John Habraken; Supports; Prefabrication; Megastructures.

1. Introduction

By the late 1950s the model of Functionalist City, conceived and expressed as a mechanical form of interrelated but independent and carefully designed parts with specific functions and separations, became the universally accepted model implemented in the planning of new large urban settlements and small neighborhoods, from America to Europe and other developing countries.

The predominant idea of economic regeneration through urban development which dominated the economic boom of 1950s and 1960s, fostered the construction of huge and extensive systems of infrastructures in the cities as urban and interurban networks of movement, communication and energy supply integrated with public spaces, industrial and residential zones, to support the fast urban growth and create a solid basis for, as it was truly hoped at the time, an overall social order and harmony.

Basic planning concepts derived from pre-war urban theories and sources, such as the concept of decentralization and the importance of an efficient transportation development aimed to control the urban congestion, assure a good functionality of the industrial systems of production and foster an ordered dispersal of activities and people on a regional scale, were assumed as key elements in the design of new housing complexes and in the proposition of the "new towns" and "satellite towns" policies proposed for a great number of new rational cities by many governments in US and North Europe.

However the implementation of these same rationalist principles in most of the carefully planned projects of "slums clearance" and "urban renewal", as was named in America and Europe the construction of extensive, geometric-patterned modern and healthier housing settlements and neighborhoods based on abstract schemes in 1940-50s, which were intended as tentative to improve the living conditions of low-income people and give them higher standard dwellings, resulted into an epochal failure both for the poor quality of the housing complexes and for the drastic alteration of preexistent urban environment.

The worst consequence of the evil effects of many large scale urban redevelopments, and in general of the uncontrolled urban growth set in motion by the economic development, was the frequent loss of the familiar community-based neighborhood landscape and of the irreversible transformation of the traditional image of the city as something coherent, human and comprehensible, which prompted an unstoppable criticism of most of the planning and architectural the ideas promoted by the Modern Movement.

* Contact Author: Raffaele Pernice, Lecturer, Xi'an Jiaotong Liverpool University, 111 Renai Road, Dushu Lake Higher Education Town, SIP, Suzhou 215123, China
Tel: (+86)-186-6250-2732 Fax: (+86)-512-81880443
e-mail: raffaeleitaly@yahoo.com

2. John Habraken and the Group SAR

The progressive fall of the design principles and urban methodology developed by Modern Movement during the 1920/30s and since then accepted as mainstream in the postwar time till 1950s, stimulated the research and the experimentation of new architectural models able to represent the higher grade of complexity of contemporary metropolis and the bigger scale of the urban phenomena, defined by some scholar as the debate over "the poetic of the new dimension", which principally expressed concern about to the "issue of great numbers" and the consequent necessity of reconsidering the spirit and tools of town planning. Many urban designers and architects tried different paths to resolve the urban crisis which appeared evident in the failure of the large urban renewal projects: some tried to regenerate the historical city and emphasized the human scale of familiar neighborhoods districts; others pointed towards rejection of the contemporary city and advocated the development of a comprehensive urban image and form, according to the concept of mega-scale and self-contained urban settlement which had its model in the megastructures.

In Netherlands, at the time one of the most advanced country for what concerns housing policy and design, architect John Habraken aiming at responding at the process of current fast urbanization developed innovative methods for the mass production of housing which combined the attention to the value of individual choice with the aspiration to an higher degree of variety and livability of the built environment spaces. In his 1961 book "Supports: an Alternative to Mass Housing" and other published and unpublished works, by building on the concepts of "Infill" and "Supports" as a new architectural system built with the use of new technologies, Habraken studied the production of well-designed housing units which privileged quality over quantity, and in doing so he expressed the general need for a research in the field of urban housing for the development of buildings and large housing complexes which could merge the traditional community culture with the comforts of a modern life. These studies were further refined in the following years through the cooperation with his fellows of the SAR (Foundation for Architects Research). Adapting Le Corbusier technological scheme for "Maison Domino" and "Unite d'Habitation", which moved to consideration of economic nature, to a new use, Habraken interpreted the prefabrication of mass housing as driven not by purely economic reason, but on the contrary by the search of the satisfaction of the users. His idea for a Support and Infill's theory presented in the book lack of any detailed representations and clear technical drawings, as he preferred to introduce a schematic structure of frames and connections to assure flexibility and adaptability in the concrete design of the complete structure for new housing in the growing cities (Bosma and al., 2011). Whilst Le Corbusier model for a mass produced residential unit was based on the idea of the "minimum living" and was designed as a low cost prototype which didn't consider the specific needs of the people, Habraken advocated instead a more human design approach, with the intent to build not only a physical habitat for the users but a social structure which lays the

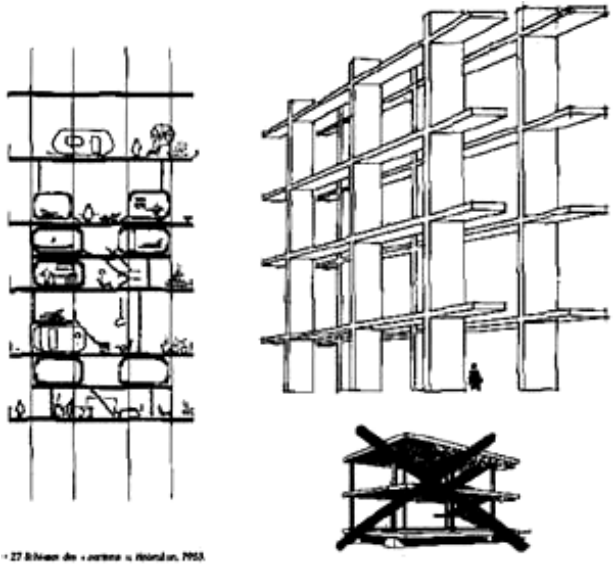

Fig.1. An urban structure based on Support's theory

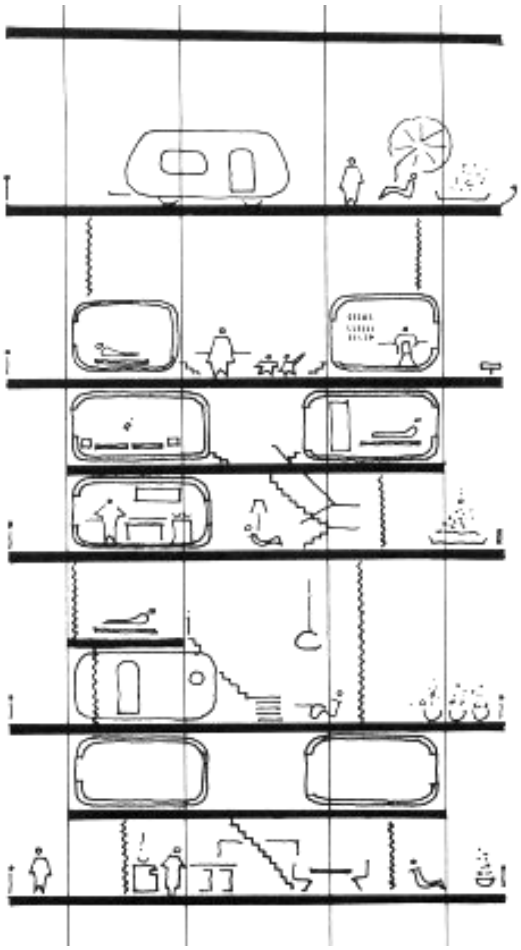

Fig.2. Detail of a section of a Support structure

foundation for a sound and harmonic urban community. The schemes he proposed for his supports were thus that of an un-fixed and extremely flexible container-skeleton of infilling- activities and relations, whose structural forms should represent the "different" facets of community". Total form and single interiors were supposed to adapt to the needs of the inhabitants, which were indeed the main users and "regulators" of the final physical structure.

3. The Metabolist Group

The Metabolist Group was composed by architects Kiyonori Kikutake, Noriaki "Kisho" Kurokawa, Masato Otaka, Fumihiko Maki, the critic Noboru Kawazoe, the industrial designer Kenji Ekuan and the graphic designer Awazu Kiyoshi. The architects of the original group presented their manifesto at World Design Conference in 1960 as a collection of individual papers and projects which exposed their ideas and concepts on the city of the future. In the attempt to combine their urban theories with the Japanese cultural tradition of impermanence derived from Buddhism thought, Metabolist group believed the architecture shouldn't be static, but capable to undergo "metabolic" changes, and instead of thinking of fixed forms and functions, they developed structures and projects composed of mobile and flexible elements. As stated by critic Kawazoe (1960) referring to the form of the city of the future: "…What will be the final form? There is no fixed form in the ever-developing world. We hope to create something which, even in destruction will cause subsequent new creation. This "something" must be found in the form of the cities we are going to make-city constantly undergoing the process of metabolism".

The Metabolist city intended to overcome the fixity and the mechanical structure of the Modernist City, whose fundamentals were in a state of crisis since the last CIAM meeting in Otterloo in 1959. Many of the projects by Metabolists presented high rinse mega-structures made of support clusters of prefabricated apartment capsules, which could be modified and replaced according to their life cycles and the social demands and fashion. During the 1950s many experts in the prefabrication of industrial components for mass housing were invited to Japan by the Japanese Government and other independent professional associations to present seminars and conferences. Among others the architects Konrad Wachsmann, Louis Kahn and Buckminster Fuller were invited. Their activity was highly stimulating for the subsequent development of the large construction companies in the field of the industrial production of architectural components and housing. The theory of capsules elaborated by Kurokawa was the final result of his studies in the field of containers production begun at the beginning of the 1960s. These sorts of studies were indeed extremely interesting both for the government and the big companies that often hired professional architects to enhance the quality, the performance and the aesthetics of their products.

Rejecting the Modernist methodology based on the principles of Athens Charter which focused on the use of a fixed master plan and zoning, Metabolists tried to control and plan the city through the tools available from industrial design methodology instead of the architectural principles. Indeed the idea of metabolic cycles of the Metabolist architectures derives from the vision of the world of technology and the functionality of the assembly line of the industrial production system.

Kurokawa and Kikutake also rejected the Rationalist hierarchical order in favor of a completely free relation among the urban elements, creating a new type of urban space separated from the European tradition. For instance recalling the concept of "En" space (intermediate space), Kurokawa links directly to the tradition of ancient Japanese city, whilst Kikutake, initially interested in new artificial environment in the sea as seen in the projects for "Marina City" and "Ocean City" elaborated during the years 1958-1961, later developed an urban methodology he named of "Channel Development System", conceiving the whole urban system like a huge and interconnected web of buildings, capable of spontaneous changes.

Otaka and Maki concentrated more on the relationship between the buildings and the surrounding urban environment, as explained in their research on the collective forms and the development of the "Artificial Terrain" and "Golgi's structure", a urban method showing how preconceived exterior voids can shape the interior space of a building.

4. Final Considerations

An unquestionable merit and a certain affinity in the research conducted by Metabolism and Habraken was in their use of new technologies in the tentative to renovate the spirit of modern architecture during years of frantic economic development and urban growth led by the recovery after the end WW II, in the attempt to fill the vacuum left by the collapse of CIAM doctrine; they tried to react against the forces that generated the urban sprawl in the European and Japanese cities, declaring through their projects their willingness in finding a solution at the problems of the modern metropolis, overwhelmed by architecture with poor design dictated by plain economic reasons.

Their projects and models promoted since the 1960s were clearly intended to set a path in search of a solution to the urban problems of a mass society; both Habraken, in his search for a true effective model of mass housing, and the Metabolists (mainly in the case of Kikutake and Kurokawa) with the force of their visionary and appealing forms, eventually strongly influenced the modern architecture in the developed world for all the next decade, and uncovered ideas and concepts that can have still some relevance in the contemporary time.

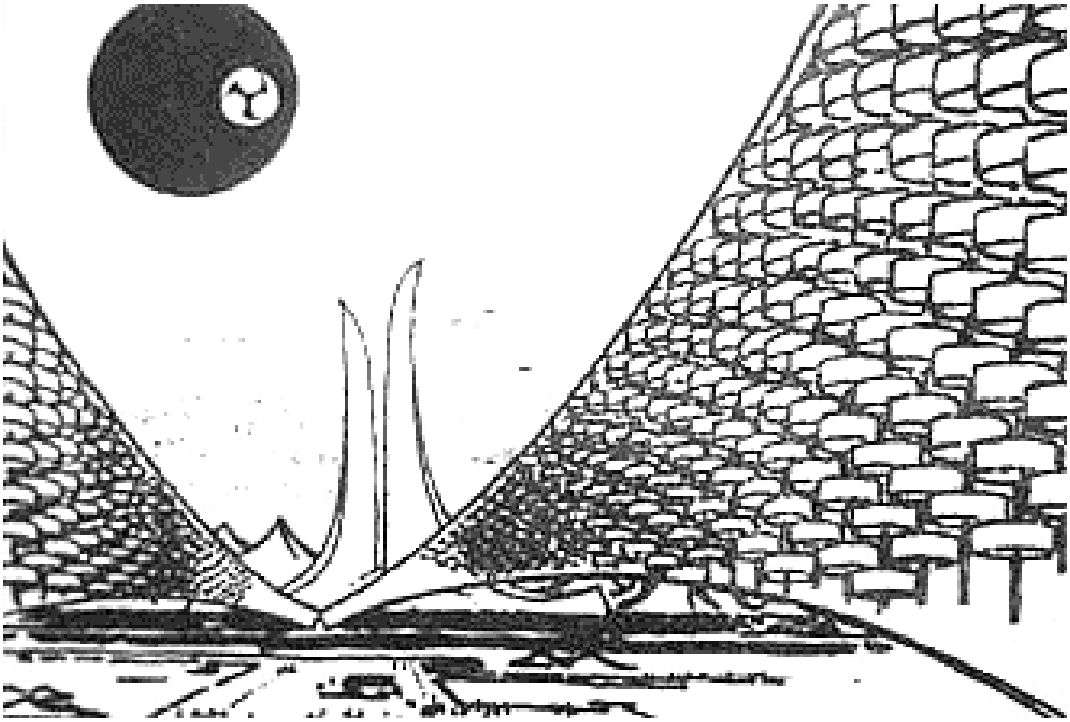

Fig.3. Sketch of housing block for Marine City-Unabara by K. Kikutake, 1958

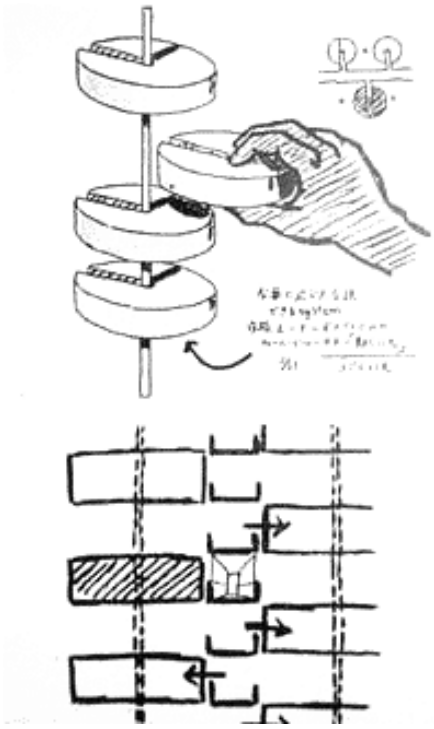

Fig.4. Sketch of a scheme for a residential unit by K. Kikutake

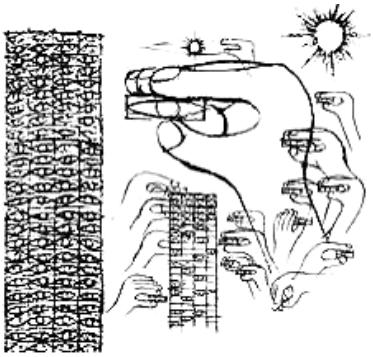

Fig.5. Sketch of a residential unit by K. Awazu

References and Selected Bibliography

1) Bosma, K. et al. (2000), Housing the Millions. John Habraken and the SAR (1960-2000), Rotterdam: NAI Publishers.
2) Banham R., (1976), Megastructures: Urban Future of the Recent Past, London: Thames and Hudson Ltd.
3) Habraken, J. (1999) Supports. An Alternative to Mass Housing. Urban International Press.
4) Koolhaas, R., Obrist, H. (2011), Project Japan, Berlin: Taschen.
5) Kawazoe N. and al. (1960), Metabolism 1960. The Proposal for New Urbanism, Tokyo: Bijutsu Shuppon-Sha.
6) Kurokawa K. (1977), Metabolism in Architecture, London: Westview Press.
7) Lampugnani, V. M. (1985), Architecture and City Planning in the Twentieth Century, New York: Van Nostrand Reinhold Company.
8) Mumford L. (1961), The City in History, New York: Harcourt.
9) Pernice R., (2014), From Tokyo Bay Planning to Urban Utopias. Metabolist Movement in the Years of Japan's Rapid Economic Growth (1958-1964), Saarbrucken: Scholar Press.
10) Ragon, M. (1986), Historie de l"Architecture et de l"Urbanisme Moderne, Voll.3, Paris: Casterman.
11) Ross Michael F. (1978), Beyond Metabolism, New York: McGraw-Hill.
12) Yatsuka H., Yoshimatsu H., (1997), Metabolism, Tokyo: INAX Publisher.