

Problems and Tendencies of the Development of the Architectural Sciences: Culture Research Aspect

¹Mohammadjavad Mahdavinejad and ²Abdolbaghi Moradchelleh

¹Department of Architect, Tarbiat Modares University, Tehran, Iran

²Department of Architect, Gonbad Kavoods Branch, Islamic Azad University, Gonbad Kavoods, Iran

Abstract: The article poses the general scientific problem of the “putting in order” the perspectives of the development of the architectural science as an intermediary one, connecting the humanitarian researches of the architecture with the technical researches. The main goal is to unite the diverse research approaches towards the exploration, analyses and the interpretation of the architecture as a form of the social being in order to create the conceptual clarity. The data and results of the general theoretical research, devoted to the methodological analyses of the contemporary period of the development of the architectural science, its position within the system of the contemporary scientific disciplines, its levels and organization principles and interconnections with social, technical and natural sciences are presented in the first part of the article. Also the significance of the investigations of the development of the architectural science for enhancing its social effectiveness within the management of the architectural processes at the contemporary interdisciplinary level of the architectural science as the independent discipline are enlightened in the article. The results of the methodological investigation of the multifaceted ties of the architecture and various social phenomena are overviewed in the second part of the article, as well as such notions as “architectural culture”, “architectural process” are explained, the necessity to identify the historical types of the architectural cultures is proved. The author comes to conclusion of the necessity to research in all complexity the architecture as a form of the social being from the point of the interdisciplinary background, giving the preference to the research of the architecture within the culture system as a sum of the knowledge incorporated into the material forms of the social life.

Key words: Architectural sciences • Typology • System of ties • Tendencies of the development
• Architectural vision • Architectural process • Architectural culture

INTRODUCTION

On the Methodology of Analyses of the Contemporary Architectural Science: from the Architectural Form to the Form of the Culture: The experience of the architectural development shows that despite the existing objective regularities of its historical periods its gaps and falls could have been less painful if the architectural sciences took the management of the process in full extent. The formation of the architectural environment should be done on the scientific foundation, providing the long term goal oriented and stable programs of the development of the spiritual and material spheres of the society, method and tools of their realization. The methodological, typological, economic, sociological, historical cultural investigations are going on. The style of the architectural thinking is changing: going from the

formally aesthetic and economically functional style to the all embracing scientific compound of demands, features and capabilities of the architecture as a human environment. The necessity of the deep cognition of the architectural science, its subject, methods, problems and specific technical sciences and practical activity has become a crucial task for the contemporary scientific researches in this field, connections with the architectural reality, culture.

Nowadays the academic scientific demand for the whole acquisition of all the sides, features and intermediary links of the subject suppose the definition of borders and the characters of the architectural science, which will enable to identify its main development trends, growth points, the forefront, to uncover the actual scientific goals, to prevent from falls and errors, to enforce its progress, to enhance organizational structure, training

scientific staff, informational support. The study of the character, borders, the structures and methods of the architectural science is not just formal academic interest but and acute question of its existence and social effectiveness. The penetration of the sociological, economical, ecological, culture, technical researches into the architectural science is an objective process but dialectically controversial situation, which is mirrored in the absence of the architectural vision and approach to the positive knowledge and impossibility to mechanically transfer into the architectural theory and practice.

The specifics of the architectural science dictate its position and role within the system of the contemporary knowledge, its links with other fields of the research activity, the character of its presentation and the role of the links, connecting it to the practice of the architectural process. Being a science on the human artificial environment, it is close to the natural sciences and as far as this environment is created with the help of the certain technical means, the architectural science comes closer to the social and technical sciences. Such a synthesis and an interaction are very complicated and ambivalent.

Reviewing scientific academic publications we can find a few researches that investigate precisely the architectural science, the history of the architecture theory, development of the scientific methods within the architectural field, connected with the enhancing concrete and general methods. The theoretical apprehension is absent in this field till nowadays, but it is necessary element of the scientific research in any sphere. The efforts of the apprehension of the system of the architectural sciences, some time ago undertaken by Constantine Ivanov, Russian architecture researcher [1] and Yuri Yevreinov, Gennady Lavrik, Abraham Marder, Ukrainian architecture researchers [3-6, 8, 9] and these researches are one of the few in this area. In order to uncover the subject of the architectural science, to make a first step towards shaping of apprehension of its areal, structure and levels of the architectural knowledge, research tasks and methods, in correspondence with the principles of the gnoseological searches we should come out of the limits of the traditional stereotypes and create more wider foundation for its definition. The more consequent and plausible way is to define the architectural science, its subject and role within the system of the contemporary scientific disciplines is to view it as one of the forms of the matter motion.

It is not a secret that the architecture history is a history of the struggle between the one sided conceptions and randomly between the conception of the *unity* and *one sided* conceptions. One sided conceptions are based on explaining the architectural phenomena by

mean by certain separate factor, ignoring or diminishing the significance of the other factors. This thesis is proved by the history of the architecture, although beginning from the Middle Ages the one sided conceptions have been developing (especially in the Renaissance period) and they can be well traced during the second half of the 19th century and the first half of the 20th century. But in our times at the beginning of the 21st century the architecture is understood as a unified system, which integrates not only design and architecture objects but also technical and biological objects that comprise certain ecological system. The last features reflect unified nature of the material architectural system in its dialectical complexity.

The whole course of the development (movement) of the architectural system, its influence on the social and natural processes, spreading the architectural activity to the global scale of Earth reconstruction allows us to say about the architectural form of the matter motion. Presumably the architectural form of motion is not only mere synthesis of the mechanics, physics, chemistry, ecology, biology and sociology, undertaken by men with the regard of the human interests on the small territories, but it is a synthesis, which on the certain stage is performed on the continental and planetary levels and even partly overstepping these levels. The architectural system as a certain stage of the matter development is linked to the social form or "over natural" form, although being a system which incorporates organic (men, animals, plants) and non organic (natural resources and technique) systems, or in other words biological and technical systems, in a certain sense it can be presented as a form of the motion which appeared at the early stages of the human social development and it is a necessary link, connecting biological and social forms of the motion.

It can be supposed the certain level of the architectural science at the period of the last third of the 19th century, when the architectural science developed within the frames of the art research, did not allow philosophers and aestheticians to concentrate on the architectural form of the motion. But in the numerous researches (by Friedrich Engels) the importance of the artificial means and constructions for the anthropogenesis is stressed and so the gap between the biological and social forms of the motion was filled in. Thus the social human life could not preserve active forms without creating artificial tools and constructions that have not existed before in natural form. History of the material culture gives examples that the society developed and declined in correspondence with the development and decline of the artificial environment - the architectural form of the matter motion.

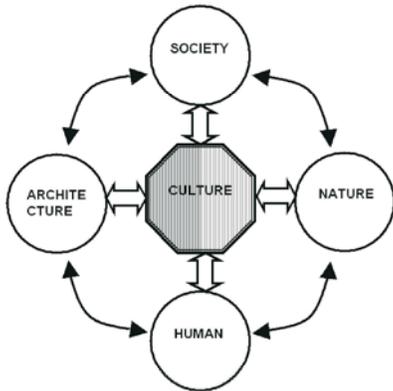


Fig. 1: The interaction between the functions of the architecture with the outside of the architecture phenomena

In order to define the position of the architectural form of the motion in general range we should propose certain criteria, which could be “genetic” and “structural” ones that point to the “high - low” and “complex - simple” scales, coinciding with the structural organizational levels of matter within the system of the structural approach. That is why the social form of the motion as a higher form includes lower forms as well as the architectural form of the motion (the architectural level of the structural organization of the matter) which is a prerequisite and a basement of the social form of the motion. The evident illustration of this phenomenon is a space exploration, when the creation of the certain artificial environment and the emergence of the new artificial material bodies are prerequisites and a basement for the development and expansion of the Earth civilization to the near objects and then to the far away space bodies and territories (Fig. 1).

It can be assumed that the structure of the architectural science in which fundamental and general disciplines comprise “higher floors” investigating in the architectural aspect the motion forms in nature and society and “lower levels” (technical disciplines) explore forms of the motion in non animated nature, points to the place of the architectural science in between the groups between social and natural disciplines.

The definition of the place and type (main or secondary) of the architectural form of the motion demands the special research. But we probe the thesis of including it onto the general score of the motion forms (9 structural levels of the matter organization). The sense and significance of such inclusion can be presented in such mode: the development of the architectural activity and the architectural system (the architectural

environment) may be compared to the scale of the natural processes. The definition of the architectural form of the motion is connected to the position of the science in the system of knowledge and plays an important role for the development of the “second nature” (Le Corbusier).

Low levels of the system of the architectural sciences are engineering and technical disciplines and their tasks are investigation and application of physical and chemical forms of the motion. These forms of the motion are the necessary factors for all the processes taking place in the architectural environment and its existence as a material object and the level of their applications depends on the stage of social development of science and production. The application of these factors gives the freedom of choice of tools and means of the architectural environment functioning. The development of the architecture from the adjustment to the natural conditions at the early stages to the relative independence from the nature by means of the modern techniques is the proof of the above mentioned statements.

The group of the typological disciplines investigates functional processes (on the technological, biological, social, ideological and aesthetic levels). The functional quality of the constructions depends on the level of the development of the typological disciplines. The research of the types of the constructions and objects demands uniting them into the single system and the complex of the urban construction and design disciplines is engaged in this process. The main task of these disciplines is inter correlation of the divers interaction of construction and objects and making the compound system out of them.

The next stage of the architectural knowledge structure is the complex of the general sciences (historical, social, economical and aesthetical disciplines) which point to the general direction of the architecture development. They explore the concrete regularities of nature, society and architecture at the certain period of development.

And at last, fundamental sciences (philosophy, methodology and sociology of the architecture) research general laws and regularities of the architecture as whole historical system. Their tasks are philosophical, methodological and general sociological research of the general laws of the development of the architectural environment as a whole.

The laws the system organization are described by the science as the laws of the functional and structural organization, acting under the premises of the moving and flexible character of the system ties and its elements. Within the architectural system these laws are acting in a very specific way as laws - tendencies. All the regularities

can be presented as groups: laws of the historical development (general and concrete) and the laws of dynamics (general and concrete). The historical development of the system is connected to the laws of the first group; the development reveals itself in consequent change of the featured conditions during the course of history and is exposed in its actual dynamics. The uncovering of the system invariants is the realm of power of the second group, these laws provide the security of the system and its self preservation, which can be studied only in the present condition of the system. Both groups of the laws are in dialectical connection between themselves. That is why two leading approaches of the contemporary knowledge on the architectural system - historical (genetic) and system (structural) - are closely tied to each other.

The system of the architectural sciences is linked to various spheres of the contemporary science and being an open scientific system (as the expression of the openness of the architecture as a system) they are interacting between each other. Let us point to the most important of the ties:

- Ties with the sciences, studying physical and chemical processes as foundations of all material systems, which cause their significance for the production, as well as for the architecture.
- Ties with the biological and medicine sciences, studying the processes of the functioning of the living systems and the conditions of their optimal life.
- Ties with the social sciences, studying structure dynamics and regularities of the social processes which acquire the special importance for the architectural prognosis.
- Ties with the sciences studying general regularities of the structural and functional organization and wholeness of the systems (system researches and cybernetics) and integrating the data of many disciplines from the point of view laws of structural and functional organization, self organization, self regulation, which are close to many modern trends of mathematics and logic.
- Ties with sciences, studying logic structure and science language (terms, principles and methods) - meta theories or theories of theories.
- Ties with philosophic sciences comprise the methodological foundations of the system of the architectural knowledge as a whole and the subsystems of the architectural knowledge even of its narrowly specialized fields (Fig. 2).

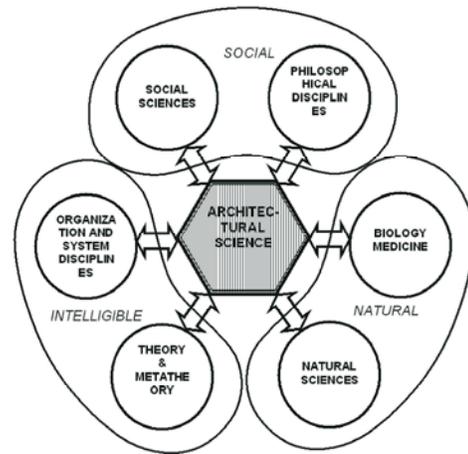


Fig. 2: System of ties of the architectural sciences

The analyses of the subject, significance, structure, levels and ties of the architectural science leads to the conclusion that the whole course of the architecture poses the task of the growth of the architectural science into the contemporary fundamental science that will define the formation of the architectural environment in correspondence with the variety of demands of the developing society. This historical necessity acts as a law (tendency) of the development of the architectural science.

The research of the nature and essence of the architecture as a specific social phenomenon, its ties with the other life spheres with the society as a whole and men has always been actual task. A long time ago it was proved that the architecture is a complicated dynamic system, which can be described as a sphere of the spiritual and material production and consumption, the sphere of the reflection, the transformation of the social and individual life, the sphere of the creative activity and communication. The architecture is at the same time the form of the material being and the form of the social being [1, 2]; the architecture is a form of the creative activity and the result of this activity. Being one of the principal parts of the artificially created environment the architecture is closely connected to the development of the productive forces and to the changes of the social relations. That is why the architecture should be viewed through the whole complex of its comprising parts, relations and ties.

The Specifics of the Architectural Sciences Within the System of the Cultural Phenomena: from the Diversity to the Unification: From the beginning of the research of the architecture as a cultural phenomenon, at the beginning of 1960s the existence of the strong ties between the

architecture and the culture was not subjected to doubt. But, on the other hand, the real practice of the architecture and the construction demands solving the problem in the multifaceted perspective of the methodological, theoretical and application problems.

It is evident that the culture in its general meaning serves as a measure and means of the realization of the essential human forces as a social subject in its activity and created material and spiritual products as a result of this activity. The culture uncovers and characterizes the level of the creativity, the level of the unfolding human abilities and talents in all the spheres of the life activity. At the same time the culture absorbs the creative activity of the previous generations, embodies created material and spiritual values as the realization of the social nature. In this sense the prerequisites for the universal influence onto the all spheres of the human activity are created. This influence can be traces in two principal functions of the culture: *normative and sanctioning function* and *creative and transforming function*. The main threads of the interconnections between all social phenomena lay in this "double" plain of the culture system and the interconnections between the architecture and the culture are the most evident and clearly visible for the most of the researchers.

The understanding of the culture not only as empiric compilation of the results of the human activity (comprising external, subjective form of its existence) but the human development enhanced by means of such activity allows posing a question of the relations between the culture and its elements as a relation of the whole unity with its parts. The interaction between the culture and its elements is one of the essential types of the above mentioned relations.

The research of the relations between the architecture and culture necessarily involves system and structural analyses of the architectural culture. The need of such statement is caused by the actual tasks of the contemporary architectural theory and it is also caused by the chance to investigate the experience of the historical development of the architecture. The architectural culture includes in itself not only the unified compilation of the architectural artifacts, but the process of their creation, perception and acquiring into the world of the culture. The architectural process is a part of the architectural culture, the scope of this notion is more narrow then the notion "architectural culture" but wider then the notion "creative process". The architectural process should be understood as the dynamic system of the knowledge, creation, expansion and the consumption of the architectural artifacts, which exert influence on the

changes in the structure of the personality and it has a tendency to expand the sphere of its social influence with the course of the historical time [1-3].

As any dynamic system the architecture develops with the course of time and enriches its inner content of its essential features and ties with the external social phenomena and it is also characterized by the certain social direction. Taking into account the social and cultural background of the architecture, its class character, its position and role in the life of the society we can speak about different types of the architectural cultures and compare them. To take a retrospective view we can describe the architectural culture of the Antiquity, the Middle Ages and Renaissance etc.

The culture research aspect differs from the other aspects - philosophical, sociological, economical ones and as well it differs from the architectural approach itself by the fact that it grasps in organic unity versatile plains of the architecture as a social phenomenon. Each of the above mentioned approaches is exposed only by dominant tendency but all of them are generally united. So far the mechanism of the interconnection of the society and the architecture can be vividly traced by pointing to the social functions of the architecture within the culture system. The basics of the analyses of the system of architecture functions are the following sub systems: architecture - society, architecture -nature, architecture - culture, architecture - architecture (relation of the architecture with itself within the historical cultural process).

The research of the architecture functions is linked to the knowledge on the social culture as a complicated social self developing system. In its turn the culture is one of many sub systems of the society and the culture is constantly interacting with them. The essence and form of this interaction are defined by the type of the social relations, stratification transparency of the society organization. With more or less probability we can state that the construction of the hierarchy of the social functions of the architecture is based on the choice of the single certain (or a few) criterion (for example aesthetic, cognitive, organizational, communicative criterion) and this regularity put in ranks the certain number of the architectural feature [3-5].

CONCLUSIONS

The relative character of the essence, hierarchy and structure of the social functions of the architecture are explained by the fact that they are really valid only for the certain system of the social and cultural relations. In this

case the research of the interrelations between the architecture and culture should take into account the principal inner features of the architecture, which are preserved regardless of changes taking place within the structures of the cultural activity, its elements and institutions. The certain stability of these essential integral features gives a shape to the architecture as a whole system.

The above statement presents the logic of the interrelations between the architecture and the culture and within its frames the relation between the architecture and the social phenomena. The research of the dialectics of these relations in their real complexity, controversy and at the same time in broad social and cultural context is an important task of the contemporary architectural science, the solution of which is connected with the unfolding of the several research problems. We should point to some of them:

- Uncovering and stating the objective principles of the architecture development.
- Defining the mechanism of the interaction between the society and the architecture using the phenomenon of the culture in general theoretic, concrete historical and actual applied aspects.
- Pointing to the perspectives of the architecture development in connection with the culture dynamics of the certain form of the social organization, its traditions and historical orienteer.

Thus having taken an overview of the number of statements, connected with the perspectives of the organization of the architectural science within the context of the contemporary scientific knowledge it is possible to draw a conclusion of the necessity of the complex study of the architecture as a form of the social consciousness from the positions of the interdisciplinary research. The very existence of the architectural science as a scientific phenomenon claiming for the independence is caused not only by analytically and synthetically enriching of its expression forms under the various social and technical conditions, but by “cleaning” the disciplinary field out of “extra” disciplines and concentrating the attention on the conceptual clearness of the architecture as an independent factor of the development of the material forms of the society. And it is plausible to give preference to the architecture research within the system of culture as a sum of knowledge, incorporated into the material forms of the social being [6-10].

REFERENCES

1. Alexander, C.H.R., 1964. Notes on the Synthesis of Form. Cambridge (Mass.): Harvard Univ. Press.
2. Ashihara, Y., 1970. Exterior Design in Architecture. New York: Van Nostrand Reinhold.
3. Evreinov, YuN, 1970. Architecture and Prediction // Materials of the Conference on the science of science. Kiev: The Academy of Sciences of the Ukrainian SSR.
4. Ivanov KA. Architecture and Society: Avtoreferat diss. na soiskanie uchenoi stepeni doctora architecture. Moscow, 1967.
5. Jencks, C.H., 1977. The Language of Post-Modern Architecture. New York: Rizzoli.
6. Lavrik, G.I. and Evreinov YuN, 1969. To the Problem of the Methodology in Architecture // Architecture of the USSR, pp: 2.
7. Lynch, K., 1981. A Theory of Good City Form. Cambridge (Mass.); London, The MIT Press.
8. Marder, A.P., 1988. The Aesthetics of the Architecture: Theoretical Problems of Architectural Creative Activity. Moscow: Stroyizdat.
9. Marder, A.P., 1970. About the Cyber Approach to Forecasting the Development of Subject-Spatial Environment // Materials of the Conference on the science of science. Kiev: The Academy of Sciences of the Ukrainian SSR.
10. Norberg-Schulz Chr, 1988. Roots of Modern Architecture. Tokyo: A.D.A. EDITA.