

REVIEW

By Prof. Dr. Milena Georgieva, (Institute of Art Studies – BAS) for

The dissertation of Veselina Mireva "PAPER IN ARCHITECTURE. TENDENCIES AND INNOVATIONS"

for awarding the educational and academic degree Doctor in Professional Studies 5.7 Architecture, Construction and Geodesy, Academic Specialty "Theory and History of Architecture"

The dissertation of the doctoral student Veselina Mireva, discussed and directed for defense in Department New Bulgarian Art of the Institute of Art Studies, consists of introductory statement, three chapters and a conclusion. It is accompanied by a bibliography and an album section, which illustrates in detail the chapters of the dissertation. The topic of the dissertation seems at first glance unusual - can something as delicate and subtle as paper be a means of building solid structures like buildings? Is that possible? Already in the Formulation of the study, presented as an introduction, it becomes clear that different concepts and different forms of paper application embodied in different types of architecture will be considered. In fact, the use of this unusual material is an alternative form of architecture (it has been stated in the introductory remarks), and its use is mainly in high-rise buildings during natural disasters, refugees' shelters or temporary events - festival pavilions, fairs, etc. The PhD student focuses on paper architecture of architect Shigeru Ban / Japan / whose projects are related to the ecology and social orientation of the people. V. Mireva is keenly interested in the influence of paper architecture and the art of this architect in contemporary architecture, tracing its efficiency and specificity, tendencies in the use of paper for architectural purposes, its present and future modifications, the systematization of contemporary architectural concepts in connection with its use. The introduction addresses the subject, object and purpose of the study, as well as its chronological and historical framework - from the creation of the first architectural objects from paper to the present day, as they connect with nations who have a centuries-old tradition of using paper. V. Mireva cites important works and dissertations about the use of this material in architecture which she has used and which also prove the importance of this problematics. We should evaluate her work as theoretical rather than descriptive, since it offers an exploration of *"links to culture, to architectural forms of application in urban and social fabric, to the interplay of paper and social traditions, presented through the prism of technical sciences as much as through art and contemporary humanitarian works,"* that is, it is an interdisciplinary study. The tasks of her work in terms of tendencies in paper architecture, its incarnations in the present and the future, the systematization and typology of paper architecture, its application in the world and in Bulgaria are very precisely defined.

In Chapter One, "*Selected Information about Paper*", the work with paper is traced historically - from its birth in China, its application and importance in the overall culture of this ancient Asian empire, its passage to the West towards Europe and America. Its function as a material used for various purposes by humanity is also closely followed. The culture of the paper - the one it carries and which educates its users - is specifically addressed in the first part of the chapter. It introduces us to the socio-psychological context of the countries that first used this material. Religion, rituals, crafts, arts - they all contribute to the diversity of paper pragmatics and are addressed in the chapter with extensive examples and references to authoritative sources. The second part focuses on the relationship between architecture and paper, showing the reasons for the entry of paper into architecture - its ease, its age-old connection with other eco-friendly materials, such as the wooden constructions used in the East in areas with pronounced natural disasters, that it is a locally found material that has acquired a solid tradition in construction, etc. For the first time in this chapter we are introduced to the Japanese architect Shigeru Ban, who works mainly in the field of paper architecture - he is the head of the problematics and in the next two chapters serves as an example and basis for comparative analyzes with his creative work in which paper plays a great role. Each of the three chapters of the thesis ends with separate conclusions on the material presented by the author. The conclusions to the first chapter outline three architectural concepts - creating a connection with nature; reducing the weight of materials; keeping in touch with the traditions that contemporary paper architecture strives for, whether it is a construction material or a product, whether it is standalone or in addition to conventional architecture. In general, the first chapter inevitably deals with philosophical and aesthetic issues concerning the problem of the material and the intangible, their interaction and the possibility of emphasizing the temporary as an alternative to the "stable" architecture through: the dematerialization of new materials and structures; the application of ecological production; the forms of control over the management of buildings, etc.

In Chapter Two, "*Temporary Architecture and Paper. Disasters and Festivals. Trends*" temporary architecture is being examined in two main areas - 1. architecture during disasters and 2. festival architecture. As the author writes, *being impermanent in nature and yet using technology, it can be seen as a particular cultural phenomenon*, and this point leads to broader conclusions. Generally speaking, we are talking about easily prefabricated homes as a quick response to the accommodation of distressed people, but sometimes accompanied by temporary installation and transport infrastructure. V. Mireva deals with various typologies of temporary architecture in distress situations, taking into account their different complexity and size, as well as a number of social factors. Shigeru Ban raises the problem of disasters by setting up a new architectural matrix for temporary houses, mainly made of cardboard tubes, i.e. made of affordable and lightweight materials with quick lay-out that saves time and effort.

In the fifth, sixth and seventh sub-chapters the doctoral student focuses on festival architecture and its specificity and the variety of buildings. Naturally world fairs aim to create innovative architecture that will highlight a country with something national, specific, but also unusual, experimental. It is also temporary, but well thought out in advance by its creators. In these parts of the study, the paper architecture inscribed in the festival, as well as the use of paper material in two paper pavilions, realized in Bulgaria, are addressed. The author substantiates her opinion that if *paper tries to replace traditional building materials by itself, without looking for the appropriate expressive form*, it would not be interesting, because the concepts laid down here lead precisely to innovative architectural realizations, such as Ban's creativity. In the conclusions, Mireva points out that, despite the temporality of paper architecture, the possibility of its application in permanent architecture is not excluded. Here, the PhD student is right to question the difficulties of disseminating paper architecture for disasters in contemporary events - earthquakes, floods, etc., despite its adaptability and recyclability, storage and easy design. To a large extent, this social issue is rooted in its popularity, in the perception of paper as a material, by different governments and institutions in different countries - in short, the support of more participants is needed for the development of temporary architecture and its efficiency. Unlike architecture in disasters, festival architecture gives much more valence to creativity, since it is not the quantity that matters, but the quality of the object. It is rightly noted that paper as a financial means reduces the cost of the object and this leads to the development of this tendency, as well as to the desired competitiveness.

Chapter Three *"Paper: Contemporary Context and Interpretation of Traditions.*

Innovations" again based on Shigeru Ban's work and his experience, the work focuses on the typology of joints, the various types of assemblies and details used in paper architecture. Therefore, this chapter provides definitions of detail and assembly in the light of tradition and innovation. The author looks for the influences of traditions in contemporary architecture by considering seemingly weak materials that manage to create strong structures - bamboo, wood and paper, traditional for Japanese architecture and crafts are a true alternative to heavy materials. Added to these is the origami tradition as a source for the principles of modular repetition in molding. V. Mireva is not only satisfied with the description of Shigeru Ban's experience, she is interested in the philosophy of his art, his minimalistic design, the use of local materials, time, which is a major factor in his paper architecture. Paper and its incarnations in tubes, boxes, plates, different layers of it naturally lead to the systematization of different types of assemblies, to the interaction of paper with different types of materials - wood, metal, even more so when there is a deep tradition in large Far Eastern cultures. Because today these materials can be used rationally. The specific design features of the paper material for folding, crossing, cutting, bending are also not underestimated. The PhD student also looks at paper as a resource for creating new building materials - e.g. paper concrete or paper pulp mixed with other materials. The heterogeneity of this chapter and Mireva's desire to

explore paper from different perspectives leads her to use semiotic methods, especially when drawing conclusions about Shigeru Ban's creativity or to prove its positive features in architecture, linking it to the natural and the naturally effective.

The detailed *Conclusion* offers the main ideas and results of the study. In it, the importance of paper is evidenced in the small sketch with which the idea of an architectural creation begins, in the project, in the layout and in the realization of paper. I will pay attention only to some of the numerous conclusions, which are structurally systematized into sub-sections on three levels: 1. Properties of paper, 2. Different shapes and volumes that exist in architecture, 3. Architectural forms and structures for which paper is a suitable material varying in scale and character. The latter are considered on three more levels - detail, construction, architectural form. The doctoral student manages to prove the benefit of paper architecture, especially in temporary structures, where paper is a regular material of expression, but not only there. Another contribution of the conclusions and summaries that I think are important is that Mireva emphasizes the special attitude of the Japanese to time and the temporal, which goes into their architecture, and today it also relates to contemporary architecture, especially that using paper. To this end, she points out strict distinctions in the characteristics of permanent and temporary architectural sites, emphasizing the preliminary stance on the temporality of non-permanent architectural sites. It is worth practicing architects to listen to these typologies, moreover, that V. Mireva also makes a predictive picture of paper architecture, while being quite optimistic! One of the key conclusions is that the paper in architecture seeks a balance between people and nature, and its collaboration with other materials will lead to its increasing application in permanent architecture. The cyclical nature of the paper as a natural product, its ability to be used and recycled, the pollution of nature, safety for people, its accessibility and democracy, its economy and non-standard nature, its successful cooperation with other materials testify to its secure future development.

The outlined 5 major contributions of the thesis prove the relevance of the topic, including Bulgarian architecture, to which pages are also dedicated. I think the proposed typologies of different nature are the strengths of this dissertation and would have practical applications. There is a desire to globalize the paper problem in architecture by giving examples from different and distant cultures. Ability to master extensive factual material on the topic, explored from social, psychological, artistic, technological, formative and environmental points of view, as well as opportunities to summarize the material studied, guided by the initial desire for transparency and systematization. I think that good style and language are also positive qualities of the doctoral student, where the logic of the presentation plays an important role and engages the reader. Impressive with his visual examples is her dissertation album. My only recommendation for a future publication of the thesis as a book is to avoid the repetition of already presented thesis in the summaries of the chapters.

The abstract corresponds to the content of the dissertation and thoroughly reflects its problematics. The PhD student also presents 7 publications on the topic of the dissertation, two of which are co-authored and one of them is a report from an international conference in Barcelona.

Convinced of the quality of the work, I plead with the honorable jury to award the educational and academic degree Doctor in the academic specialty Theory and History of Architecture, 5.7., to Veselina Ljubomirova Mireva.

Prof. Dr. Milena Georgieva