

## Summaries

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### INVESTIGATING PRIVACY PRINCIPLES' FORMATION IN VERNACULAR ARCHITECTURE OF ARID AND SEMI-ARID PARTS OF IRAN

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*Keywords: privacy, climatic architecture, Iran, Islamic rules, vernacular residential architecture*

Traditional Iranian architecture principles have deep roots in this region's culture, thoughts, and climatic conditions. Privacy, as one of these principles, which regulated all aspects of life, was beautifully embodied in the vernacular residential architecture of Iran. It had profound effects and resulted in a specific spatial organization of the house and the placement of various functions, either private or semi-private. Many pieces of research have claimed that privacy was an attribute of Islamic rules in Iranian architecture. Based on historical and phenomenological analyses of vernacular Iranian architecture this paper strives to confront the privacy principle according to Iranian (or former Persian) culture, climate, and security conditions. Changed geopolitical and cultural conditions in the 20th century raised new forms of architectural residential morphology almost completely negating the principle of privacy. The question is whether the vernacular principle of privacy should be embodied in the new design of Iranian residential houses or just be preserved as an expression of ancient culture and thus increasing the quality of the image of the city and its attractiveness. The research completed by qualitative morphological and analytical methods clarifies mentioned principles and identifies the definition of privacy, the factors affecting it, the roots of its formation, its influence on the physical-spatial organization of traditional residential architecture in Iran, and its continuation in modern residential architecture in Iran.

Based on the morphological survey of traditional Iranian residential architecture, we can consider main elements affecting privacy in Iranian vernacular architecture as indicated below:

(i) Privacy principles according to culture and religion. Traditional Iranian housing has been merged with religious rituals, principles, the spirit of thinking, traditions, characteristics, and the attitude of generations. The culture, religion, and art in Iran mixed with new factors after the rise of Islam. Privacy, as an Islamic principle governing all aspects of life, has formed traditional Iranian housing and has had profound impacts on and outcomes in its spatial organization and function.

(ii) Privacy principles according to climatic conditions. Weather in the major part of the Iranian central plateau is hot and arid, and many historic cities with valuable architectural designs are located in this hot and arid region. Residential structures in these conditions were characterized by narrow streets and dwelling units turned inward. Narrow streets provided shade from the scorching sun as well as greater protection from the expanding desert. Over thousands of years, people were driven to find astonishing solutions to reduce the disturbing aspects of the climate and use its

convenient aspects. We can observe brilliant morphological solutions developed in such difficult climatic conditions to provide thermal comfort in vernacular Iranian architecture. Building orientation, methods of communication with the ground and underground, introversion and closure, wall thickness, the height of rooms, and applied materials confirm the maturity of the traditional builder's respect to and semiotics with the environment.

Another point worth mentioning is the issue of security and freedom in the home environment. A person in their private territory achieves a kind of freedom and a sense of security. As it is evident, the strategies used in plan design and supported climatic architectural approaches act in harmony with introversion and hierarchy principles in reaching the house's private zone and separating it from the public area. Among all the constituting features of privacy, cultural and religious or climatic, a specific architectural morphology can be observed, developed, and blessed by both these compelling reasons. However, changes in the way of life, and in social and cultural spheres, led to the need to reassess the sustainability of the privacy principle being strictly applied in residential architecture in Iran. The contemporary residential architecture of Iran extensively adopts the features of global modern architecture without considering the roots of ancestors' deep creative attitudes. State policies that supported women's education and employment in the last century freed women from households and supported their aspirations for modern housing. We can observe that contemporary people desire to reveal, express, and expose themselves to others. Therefore, the concept of home, paternal home, ancestral land, homeland, and private home will no longer evoke that traditional concept in them. At the same time, one should know and respect the local styles of architecture and house building. Knowing that the relationship between housing and culture will never be the same as in the past, a new logic and research should be established on how to preserve and evolve the native architectural culture in different regions of the country by creating a relationship of another kind. The research surveys the principle of privacy, its historical and phenomenological aspects, and the manifestation in the vernacular residential architecture in Iran; defines the influence of cultural and religious backgrounds as well as climatic conditions on Iranian architectural style. It raises the questions about the sustainability of this principle in modern architectural design in Iran.

## **BIBLIOMETRIC ANALYSIS OF WATER AT THE INTERSECTION OF ENVIRONMENTAL PSYCHOLOGY AND BIOPHILIC DESIGN**

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*Keywords: water, biophilic design, environmental psychology, bibliometrics, VOSviewer*

Environmental psychology is one of the fields that examine human relationships with nature. Another concept that attempts to describe humans' instinctive connection with the natural world is biophilia. Biophilic design is a field that examines the human-nature relationship. Environmental psychology and biophilic design are the fields that are related to architecture, built environment and natural environment. It has been seen that water can be a common intersection point of both environmental psychology and biophilic design with an architectural approach. Within the scope of this study, water –at the intersection of environmental psychology and biophilic design– is the main focus. This work is a part of an ongoing research on perceptual and affective aspects of water in terms of biophilic design.

This study seeks to explore the research related to water at the intersection of environmental psychology and biophilic design, with a view to identify current research gaps, authors, theorists, keywords, added terms, significant sources, and publications. The bibliometric analysis with science mapping techniques was found to be a fast and the most suitable method for the discovery to be made within the scope of this study. It is aimed to investigate what kind of findings there are in the literature on the approach to water in environmental psychology and biophilic design. Applying the bibliometric analysis method to the collected data can determine which fields are more recent, which authors work in these fields, which keywords are used, and which references can be used. Scopus and Web of Science Core Collection databases were

scanned with the bibliometric analysis using the science mapping techniques. The research was based on a quantitative research design, and quantitative data was collected from the said databases. After scanning the bibliometric data of Scopus and Web of Science Core Collection, data files were transferred to VOSviewer.

The keywords environmental psychology, biophilic design, and water were used. In the documents section of the Scopus database, all fields were scanned with the code ALL (“Environmental Psychology” AND “Biophilic Design” AND “Water”) in the advanced search field. In the documents section of the Web of Science Core Collection database, all fields were scanned with the code ALL=(“Environmental Psychology” and “Water”) OR ALL=(“Biophilic Design” and “Water”) in the advanced search field. A total of 292 documents were identified, of which 139 were found in Scopus and 153 in the Web of Science Core Collection. The analyses for both searches delivered the following findings. Eight analysis types common to both databases were collected according to scan findings in all fields. These descriptive analysis types contained information about the document types, publication years, top 15 countries or territories, top 15 subject areas, top 10 sources, top 10 authors, top 10 affiliations, and top 10 funding sponsors. Moreover, the oldest document in Scopus was dated from 2007, while the oldest document date in the Web of Science Core Collection was dated from 1995.

Further, the study evaluated document types, publication years, top countries, top subject areas, top sources, top affiliations, top funding sponsors, primary authors and co-authorship, author keywords and co-occurrences, citations of documents, co-citations of cited references and cited authors based on the bibliometric data of 292 documents in total collected since 1995. The data was downloaded by scanning with the keywords environmental psychology, biophilic design, and water in Scopus and Web of Science Core Collection. The concepts related to the biophilic design-environmental psychology clusters and the developments over time (current trends) by overlay visualization for the concepts were identified via co-occurrences mapping. The cited authors and cited references related to the biophilic design-environmental psychology clusters were identified via co-citation mapping. The documents’ relationship and the authors’ relationship related to the biophilic design and environmental psychology study areas was determined by citation of documents mapping and co-authorship mapping.

As a result of co-occurrences mapping, current research gaps and concepts were identified based on the findings. In the databases selected for scanning, the gaps determined by the scanned keywords are biophilic design, biophilia, emotional design, perception, architectural design. As a result of co-citation mapping, authors and references were identified. In the databases selected for scanning, the primary authors who can be examined as reference sources determined via keyword scanning are Edward O. Wilson, Florian G. Kaiser, Joye Yan-nick, Terry Hartig, Linda Steg, Rachel Kaplan, Robert Gifford, Roger S. Ulrich, Stephen Kaplan, Stephen R. Kellert, Thomas R. Herzog, Timothy Beatley. Lastly, it was revealed that the concepts derived from water at the intersection of environmental psychology and biophilic design research areas have just begun to be studied and have a growing tendency. In addition, in the approach to the relationship between space and water in architecture, biophilic design has been found to be a more recent field than environmental psychology. Consequently, the concepts identified in this study and especially the new combinations that can be established with the biophilic architecture approach allow to design new research topics.

## **TRACES OF FORMER MILL RACES IN KRNOV: POSSIBILITIES OF REVITALIZATION AND INTERPRETATION**

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*Keywords: mill race, industrial heritage, extinct heritage, urban revitalization, place-making*

The presence of water in various forms ever was and still is a prerequisite for the birth and existence of human settlements. The multifaceted aspects of the communities' relationship to water were dynamically reflected in the characteristics behind the formation of the urban structure in different historical periods and represent specific values for towns and cities. Mill races were an integral part of many towns in the past. But when they lost their economic importance, they were mostly filled and buried underground. Although we can now find them in their original form in a few cases only, their spatial corridors have often been preserved in the urban structure. The research aims to detect the historical trace of the former mill races in Krnov, a small town in the district of Bruntál in the Moravian-Silesian region of the Czech Republic, and investigate the possibilities of their interpretation and revitalization.

Krnov lies in the Moravian-Silesian Region, where the Czech Republic borders Poland. The town lies between the rivers Opava and Opavica, which flow through the Krnov and merge into one stream, the Opava River, continuing towards the Opava town. The town has a rich history associated with textile production. The cloth workers guild founded in 1570 was one of the oldest in Krnov. At the turn of the 18th and 19th centuries, woven woollen cloth-making was one of the most important crafts in the location. And it was the mill races that were an important source of energy and water for manufactories, water-powered fulling mills, spinning, and dyeing, and for driving machines connected with the fabric production. The Krnov textile mills, their buildings, and their premises, even in the poor condition in which they have been preserved to this day, stand as unique testimonies to the history of Krnov. They shape the town's *genius loci*, its specific local identity. The mill races were also integral to this identity.

The research focuses on the identification of the remnants and traces of the former mill races using historical maps, literary and visual sources, and subsequently on the investigation of the state of their current existence in the urban structure, according to current orthophoto maps, real estate cadastre records, and field research. In the first stage, the research focused on identifying the routes of the mill races using historical maps, and historical literary and visual sources. The maps of the first, second, and third military mapping were used. Subsequently, in the second stage, we conducted a survey of the current existence of mill races in the urban structure of Krnov from an urban planning point of view, according to the current orthophoto maps, current records of the real estate cadastre, and our own survey in the field. In the third stage, the results of the research were evaluated from the landscape-architectural and urban planning points of view. Various potential possibilities for the revitalization and use of the spatial corridors of the former mill races to interpret the preserved tangible, as well as intangible and extinct cultural heritage values, were analysed.

The routes of the mill races during the development of the urban structure of Krnov are documented in various historical map sources. Four mill races can be seen on the map of the Imperial Obligatory Imprints of the Stable Cadastre from 1826-1843; these formed a system of mill races in the town and its surroundings in the past. At present, the bed of the Opava River in Krnov is directionally maintained in a constant route by modifications made before 1945. The largest adjustment dates back to 1919, followed by a modification beyond the confluence with the Opavica River from 1988-1989. Of the original four mill races, only two have been preserved to this day, the other two were filled up. Research shows, however, that the footprint of their corridors is legible in the urban structure even today, and its presentation in new forms could significantly contribute to regenerate the urban fabric and revitalize public spaces.

The case study of mill races in Krnov shows the importance of this specific phenomenon in the past and also its importance today. The extinction of the mill race channels from the urban structure of towns translates as the loss of cultural identity, and in the context of current threats of climate change, also as the loss of environmental benefits provided by the blue infrastructure. The Krnov example shows that the municipality of Krnov and its citizens actively initiate activities trying to revitalize and interpret the unused heritage of the mill race system. The mill races represent a historical and cultural heritage, and the presentation and interpretation of their values, even those that have disappeared, can greatly contribute to increasing the quality and attractiveness of urban public spaces for residents and tourists.

## **ALPINE HUTS: ARCHITECTURAL INNOVATIONS AND DEVELOPMENT IN THE HIGH TATRAS IN THE SECOND HALF OF THE 20TH CENTURY**

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*Keywords: alpine architecture, post war modernism, innovations, High Tatras, hut, Czechoslovakia*

Nowadays, the topic of buildings in the mountains, especially mountain huts, is very popular among architects. Such a commission is considered a matter of prestige. Was this also the case seventy years ago? Were architects interested in alpine architecture? How did they reflect the huts that had already been built in their work? The post-war reconstruction and recovery could also be seen in the architecture in isolated and exposed locations. While interventions in the first half of the 20th century offered a technical solution rather than an architectural expression, in the second half of the century, architectural trends found their way to the high mountains, even if only to a limited extent or on paper.

The High Tatras became an important recreational centre for both Czechoslovakia and other Eastern Bloc countries. The management of tourism with the preference for mass tourism over individual recreation involved extensive plans for expanding construction activities into the high mountain environment. Neither the planned cable car to the mountain peak Gerlachovský štít, nor the accommodation facilities for thousands under the peaks of the High Tatras eventually became a reality. A mountain hotel was built at the foothill of Gerlachovský štít, with a roof that was supposed to withstand an avalanche. Three architectural teams prepared four studies of a Tatra hut, but none of the designs was completed. The administrative transfer of the Tatras facilities from one state organisation to another was a recurring phenomenon in the period under research.

The paper is organised thematically into chapters representing the prevailing architectural trends of the decade and a hut project illustrating the direction. The focus is on the process of architectural planning against the background of turbulent organisational changes in the tourist facilities management. Therefore, the objects under analysis are the huts that underwent the design process, and not the makeshift and unplanned solutions. The research concentrates on the architectural quality of buildings in unique environments, ranging from a provisory shelter with a chimney and a door to a sophisticated project applying the latest technological, material and design innovations. Another angle is the assessment of buildings with respect to current architectural trends. In addition, the paper studies the typology of mountain huts that adapted not only to the environment and terrain but also to socialist realism, post-war modernism, high-tech architecture and postmodernism.

The hut at Popradské pleso was supposed to reflect the era. Its architects responded to the retreating socialist realism by searching for a form to express the folk traditions. A competition with an unclear outcome resulted in the construction of the hut. The realised building is still valued for its aesthetic qualities and has become an integral part of the iconic place in the High Tatras. Authors have analysed the reconstruction of the burnt-out hut Sliezsky dom (Silesian House) at Velické pleso. The hut, which was once built by tourists from the Silesian faction of the tourist association in Wrocław in 1895, was designed by Czech architect Jaromír Sirotek from Brno. The new Silesian House thus became an example of high-mountain post-war modernism in Slovakia and the whole of Czechoslovakia. The reconstruction transformed the hut into a hotel, which was later absorbed into the state enterprise. The hut gave the impression of being for the upper classes of the classless socialist society.

Chata pod Rysmi is a hut located above the mountain lake Žabie Pleso and below the Váha pass, on the avalanche pathway. The text concentrates on the hut extension that was supposed to solve the problem of insufficient capacity and protect the hut from the destructive force of the rolling snow. It was the only hut in the High Tatras with a spiral staircase. Kežmarská chata used to stand at the mountain lake Velké Biele pleso and burned down in the period of intense mass tourism. Although there were projects for its reconstruction ten years later, none were implemented. The investor could choose between a more conservative but still modern solution by a Slovak design group or Czech innovators. The architects from SIAL in Liberec developed two designs

to create the most energy-efficient hut possible. The chalet at Zelené pleso is not examined as a collage of extensions but as a compact object that reflects the architectural debate. Like the previous one, Kežmarská chata, this project also was not realised.

The last decade under research, the 1990s, did not significantly impact the architecture of the Tatra huts. The post-revolutionary period, with the privatisation and transformation to the market economy, also saw the high-mountain facilities being returned back to the hiking associations. Modernism in the alpine environment was a part of the general architectural trend rather than a result of an order by the state. Phenomena associated with the architects of post-war Czechoslovakia were not applied in the restoration of mountain huts. The high mountain terrains of the Tatra Mountains did not become a place of experimentation with prefabricated panels or typified construction. The huts were either the result of a conservative approach based on the building traditions, with occasional slipping into poorly executed improvisation, or the result of a specific and atypical architectural proposal.