

Agnieszka Kurkowska*

Bionic relations as features of the author's original concept of biomorphic plastic forms that belong to a place

Introduction

Houses serve as carriers of specific values and co-decide on the possibility to experience a sense of identity in connection with a specific place. Objects that belong to the material culture co-created by means of architecture constitute essential objects in the process of transmitting ideas and specific content. Bionics¹, being an interdisciplinary science, studies the structure and operation of living organisms. Architecture may draw on the research methodology related to bionics, thereby transferring the results of the analyzes conducted on botanical forms (their structure and topographical setting, growth processes, and their response to climatic and weather factors) to the search within the plastic forms of architectural objects or to purely artistic forms that precede them.

In biological terms, a human being is an element of animate nature in all its diversity. Inanimate nature, on the other hand, provides the footing for all situations experienced by humans, as well as the background thereof². We are looking for rural houses, shelter and respite from chaotic excess. Bionic (here: specifically botanical) relationships noticeable in the natural environment of the Pomerania region can be seen as a source of inspiration to create habitation forms that are culturally alternative to those that provide continuation of the existing patterns.

The presented author's original project is entitled "Kashubian living. In search of bionic relationships"; the study may confirm the above thesis. The project constitutes a creative attempt to challenge a theoretical concept. This attempt can be seen as one of the possible paths for introducing positive changes within the built housing environment in Pomerania. The individually implemented author's original project whose main theme is the search for habitation forms in close connection with the natural conditions of the Kashubian region³, was launched in the summer of 2016 and is underway. The activities in its scope are of an artistic and research nature. Subsequent elements are being created that present new stages or threads based on personal experiences and reflections resulting from observing special places in the vicinity of Jezioro Wdzydzkie [Lake Wdzydze]⁴. However, the wider

³ Kaszubia is a cultural region in northern Poland; it belongs to the Gdańsk Pomerania region. Due to the accumulation of historical and ethnographic divisions, the detailed boundaries of the area assigned to a specific population group are variously indicated in the source materials.

⁴ Pojezierze Kaszubskie [The Kashubian Lake District] (also known as Pojezierze Kartuskie [the Kartuskie Lake District]) is a physical and geographical mesoregion of Pojezierze Wschodniopomorskie [the East Pomeranian Lake District] macroregion [3]. This area is situated the highest above sea level of all Pomeranian lake districts [4]. There are over 500 lakes and over 8,500 ponds with an area of up to 1 ha in Pojezierze Kaszubskie. Lakeness totals as much as 3.5% of the mesoregion's area. Most of the lakes are of glacial origin. Due to the characteristic landform structure (dome-shaped, dissected elevation), numerous ribbon lakes and the river network are arranged approximately radially, although the NNE–SWW direction dominates noticeably [5]. Rivers courses through the mesoregion flow in all directions, but remain in the catchment area of the Baltic Sea [5], [6]. The lakes in Kashubia are deep (an average of depth 20–40 m). Their width varies from 200 to 1500 m (on average about 600 m), whereas the length of individual gutters ranges from 1 km to 24 km. The shores are often slopes with an inclination of up to 40° [5]; this enables a deep, picturesque landscape view into the water-related space. Single gutters often merge into river systems, e.g., jeziora Raduńskie

* ORCID: 0000-0002-1380-4628. Faculty of Architecture, Gdańsk University of Technology, Poland, e-mail: agnieszka.kurkowska@pg.edu.pl

¹ Bionics (Greek) is a field of knowledge on the border of biology and technical sciences; it discusses technical applications of the principles along which living organisms function or processes observed in these organisms or in their communities [1].

² *A human marks places with his everyday and festive presence, tames them and, as a consequence, appropriates them. The house is a symbolic and unique emanation of the place* [transl. by the author] [2, p. 165].

landscape-related context should also be taken into consideration. The topography of the lake district consists of a hilly landform, with numerous moraine elevations, pond depressions, steep lake shores, numerous islands, and a dynamic course of relatively (given the lowland nature of Pomerania) deeply embedded riverbeds. Moreover, endemic plant species can be found here, as well as a peculiar forest biocenosis (as in the case of the pine Bór Chrobotkowy Reserve [Cladonia forest]⁵ and lobelia lakes⁶).

The earliest traces of human existence in Pojezierze Kaszubskie date back to the early Stone Age. During the Bronze Age, the Kashubian fraction of the Lusatian culture inhabited the area. In the following years, various cultures, more or less related to each other, appeared here. They mainly occupied the northern part of the region, and mostly camped in the vicinity of water reservoirs for obvious practical reasons (transport, food, production, and necessary daily activities) [2]. Today, the historical urban layout remains legible in the landscape; it follows the building line topography, with frequent, single buildings in the forest (silviculture). Some of the characteristic historical residential buildings preserved here include the wooden Kashubian cottage (18th/19th century) and the brick Pomeranian house (19th/20th century). Their form and modest characteristic decorations, as well as craftsmanly details, determine the regional aesthetic expression of the Kashubian village. Unfortunately, the post-war building development, and especially the modern one, shatters the sense of order and continuity of tradition, bringing no regional values that would embed cultural objects in the context of the place.

The activities conducted within the project consist of moving on a micro-scale in the physical layer. They are based on the direct observation of the biological form structures and processes visible to the human eye while in a close relationship (e.g., on tree barks), whilst changing the observer's perspective (e.g., on the forest floor). At the same time, they involve the commonly experienced elements of environmental changes (not only at static observer's close-up); these are verifiable and available as research material that can provide inspiration and background for artistic activities (drying of wetlands, the seasonal retreat of lake shorelines). On the other hand, the creative and research perspective accounts for the macro scale, the scale of the broad, multifaceted context (natural, cultural, artistic) of the activities themselves, as well as the desired target effects.

The research and activities are aimed at a creative search, followed by the creation of a set of forms (and urban grouping thereof) that meet the expected attune-

ment to the surroundings (developed with the use of the above-mentioned method and described in detail below). These could then be verified in terms of suitability for creating architectural objects on them. Joining the research on habitation, which is the basic category for human existence, provides both the starting point and also the goal of the above-mentioned project. Habitation, being an obvious necessity, co-decides on the quality of the inhabitants' life.

The thesis upon which the author's original project is founded stems from the assumption that the desired forms of potential human residences which enable inhabitation in accordance with the analyzed place's context should result from the observation of nature and remain in dialogue with it. Such an approach will ensure arriving at correct solutions. This model of creative reasoning respects the environment and draws inspiration from it. In accordance with it, the elements of the presented project were created, and subsequently verified as plastic models located in specific places. The project consists of diverse variants of habitation-related architectural concepts in original artistic activities; these come in the form of a drawing, sculpture (that often assumes biomorphic forms⁷), and photography. The artistic forms were based on a search for the characteristics of relationships that provide a source and a pretext for exploring potential forms of inhabitable objects which, at the same time, would fit in with the existing place. Bionicity proved to be the leading feature.

The goals of both the completed and planned research, as well as the results obtained in the project, seem consistent with the currently emerging postulates of the desired turn towards locality, otherness, and uniqueness (see: [10]). Biological and geographical processes, together with their stages and products, can be analyzed. Elements in the form of frozen frames and theoretical models of variability observed in the environment can be studied likewise. It could be beneficial to change the perception perspective; a dynamic change of scale would be welcome, with the account to the transition between micro and macro scales as regards the human scale: from a minor plant to the landscape (seen from different perspectives, also ones that are unusual to the human). Attempts can be made to attune human physical needs with human-related dependencies observed at zooming out (especially ergonomic ones). Many of the observed relationships with contextual elements can possibly be applied in the conceptual modeling of actual architectural objects (since these form prototypes are not strictly organic in character). Probably some of the features or captured relationships will be lost (due to such issues as the lack of equivalents of small botanical forms on a large scale). It seems, however, that the already-created biomorphic forms can be treated as an introduction to architectural design, which is often preceded by a purely artistic stage. However, they can also be considered a completed stage, subject to the reception of art.

[Raduńskie Lakes]. Jezioro Wdzydzkie has a similar layout, which is why it was included in Pojezierze Kaszubskie by some researchers, such as Bolesław Augustowski [5].

⁵ Characteristic of the "Bory Tucholskie" National Park (see: [7]). It also occurs in a more extensive area, in the area of Pojezierze Kaszubskie, around Jezioro Wdzydzkie, where research was conducted.

⁶ Lobelia lakes [8] are unique formations found nearly exclusively in Pomerania, mostly in Pojezierze Kaszubskie. As areas of exceptional nature, they have been included in the Natura 2000 program and are covered by legal protection. Their advantage is high water transparency [8].

⁷ Biomorphism – here: modeling sculptures based on natural patterns that lead to obtaining form shapes reminiscent of natural natural objects (the issue is broadly discussed in: [9]).

Bionic relationships – research and creative background

Bionics as a science, as a point of reference or a source of a design method is becoming increasingly common; it is enriched with unusual trends by successive creative and research paths. Bionic analogies have long been accompanying art and architecture. The 19th century offers abundant examples of natural references, interest in the evolutionary approach to form development, botany as a science, the use of methods of morphology and comparative anatomy in the history, as well as the philosophy of architecture. Both the internal and external features of the building were analyzed, just as is the case in natural sciences (more in: [11, pp. 68, 69]). Biomimicry, in turn, may be broadly understood as drawing inspiration from nature, searching for similarities, and mapping or transposing forms and processes. These terms, namely bionics, biomimicry, and even biomimetics, are often used interchangeably in order to describe architectural activities, which proves the interpenetration of natural sciences with fine and applied arts (more in: [11, p. 69]).

Moreover, habitation and home may be seen as important terms from the point of view of the presented project. These two concepts were also extensively discussed and thoroughly analyzed by the author in her monograph (more in: [12]). In short, it can be stated here that habitation should be understood as a complex process. Its necessary subjects include the human and the home; it is associated with specific activities; it results from individual and social needs and requirements; it satisfies the need for various values related to the physical and metaphysical dimensions of human existence. In other words, the author sees the house as a special architectural object erected in response to the multifaceted need to inhabit and be sheltered.

Nowadays, bionic analogies are of interest to various artists, including architects such as Juhani Pallasmaa (see: [13]), who studies structures created and inhabited by animals, or Zbigniew Oksiuta (see: [14], [15]), a sculptor and architect who creates bionic structures with residential building features. Luis Sullivan, an American architect (see: [16]) who created in the early 1990s, believed that, due to compositional activities, works of art possess the vital force appurtenant to live organisms. Also, the current projects of Denis Dollens provide an important reference here (see: [17], [18]), as the author focused his work on biological evolution and its digital analogy. The provided examples seem typical of contemporary architectural trends.

However, the sole fact of acting within in the field of bionics is not the only important aspect here; the role of bionics in the philosophy of a given project matters as well. As noted by John Frazer, it is imperative to distinguish between inspiration and explanation, because when science is used to explain and illustrate a phenomenon, analogies must remain consistent and relevant. In the case of inspiration, such an approach is of lesser importance [19, p. 12], [20, p. 50]. Architecture refers not only to the form of a building or the artistic search thereof. In fact, it is also related to understanding the processes that the living world, i.e., humans themselves and the surround-

ing natural environment are subject to. In the described original project, bionics supports the search for forms (the study of biological forms, the observation of their structure and behavior, e.g., in changing weather conditions), understanding their structure and changes they undergo. It is also an element of work methodology; bionics refers to juxtaposing cultural and biological objects; it involves searching for dependencies and evaluating a set of features that determine attunement and the experienced sense of compatibility (which could then result in support for the multifaceted experience of belonging). Furthermore, it is supposed to provide a research path that outlines the purposefulness of action. The effects of work throughout the entire project may be applied directly or indirectly to architectural design, based on prior attempts of an artistic and study character. Original attempts at the source of creative inspiration are far from innovative in the use of bionic analogies (see, e.g., F. Otto, O. Candela, P.L. Nervi, B. Fuller, R. Erskine). However, what is unique, is the exceptional view of a specific place and the natural forms present in it, a specific change of scale, and unconventional case studies that benefit from many possible forms and their attunement with various contexts. Such a review of study forms may introduce a broader picture to the discussion on the advisability of this type of individual approach to the designing process, not only with regards to the housing forms in Pomerania, or specifically in Kashubia. It shows the presumptive potential and provides a starting point for further studies, where the methodology of work will probably also require reaching for research tools specific to biology, such as creating typologies, comparing the features of sculptural objects with natural forms, etc.

The creative process in the project – the author's original method

The creative process, which resulted in the creation of original plastic biomorphic forms, in each case proceeded under the adopted work method. Fundamental differences that individualized specific activities were related to the time required or taken at various stages. They depended on the availability of particular places, the number of attempts, a longer or shorter period of searching for the right artistic expression with which to reflect the observed and examined natural elements (Figs. 1–3). The stages distinguished and repeated in the project included: 1) the personal observation stage, namely the study of bionic forms; 2) the reflection stage, i.e., the stage of creative graphic and painting work (which provided an attempt to record spatial ideas) and the physical creation of sculptural objects; and 3) the stage of locating objects, i.e., confrontation and verification with the natural environment which previously served as an inspiration and the research subject. It is also possible to return to the second stage, that is the creative one, through painterly interpretations of the created and documented complete scenery. All these stages co-create a narrative vision of the cultural world woven into the natural world.

The first stage consisted of basic analyzes that translate into graphics constituting studies of shapes, forms,

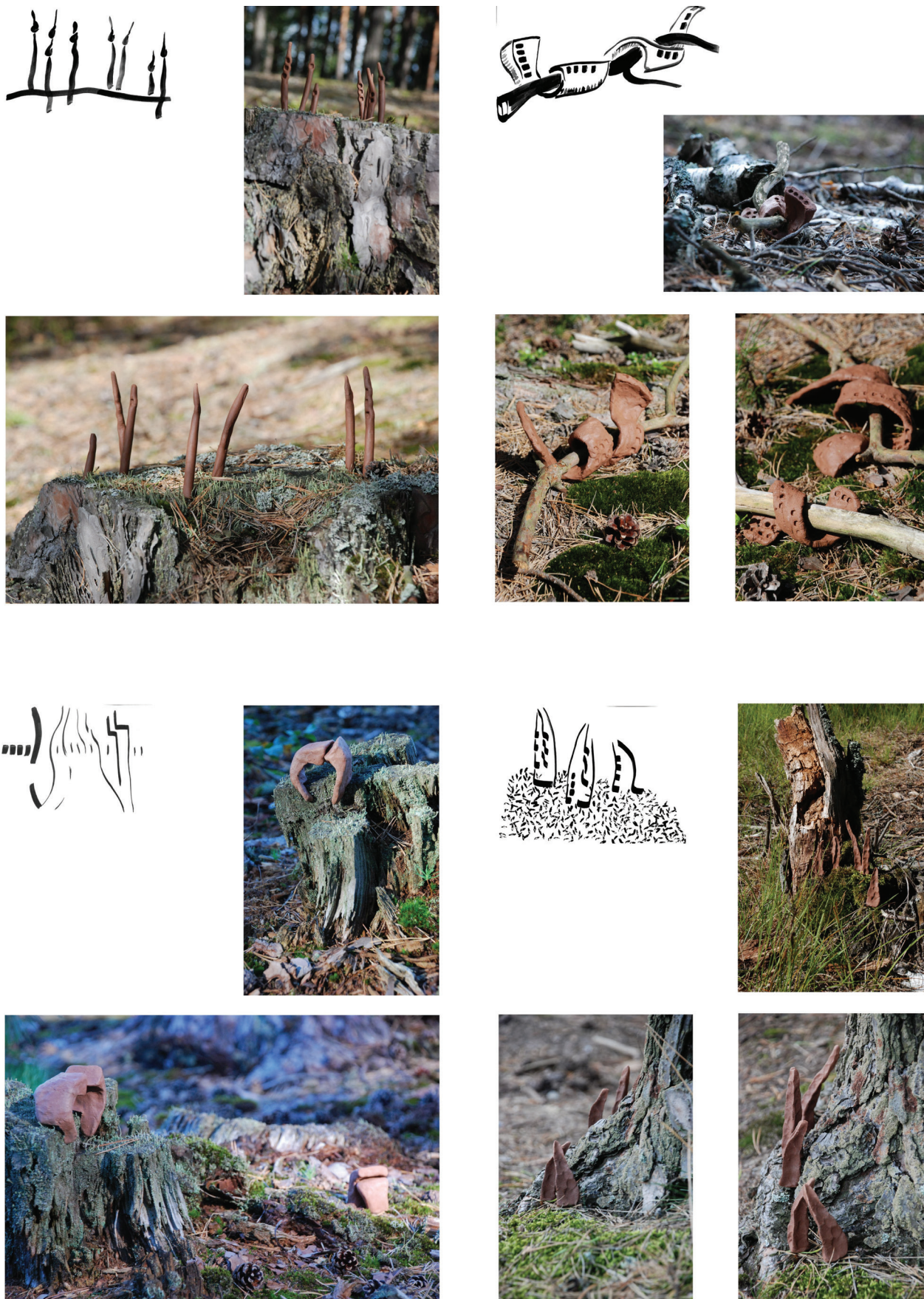


Fig. 1. Selected activities as part of the author's original project entitled "Kashubian residence. In search of bionic relations".
Dialogue with biological elements (elaborated by A. Kurkowska)

Il. 1. Wybrane działania w ramach projektu autorskiego pt. „Kaszubskie zamieszkiwanie. Poszukiwanie relacji bionicznych”.
Dialog z elementami biologicznymi (oprac. A. Kurkowska)



Fig. 2. Selected activities as part of the author's original project entitled "Kashubian residence. In search of bionic relations". Schelters (elaborated by A. Kurkowska)

II. 2. Wybrane działania w ramach projektu autorskiego pt. „Kaszubskie zamieszkiwanie. Poszukiwanie relacji bionicznych”. Schronienia (oprac. A. Kurkowska)

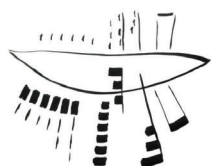


Fig. 3. Selected activities as part of the author's project entitled "Kashubian residence. In search for bionic relations".
Sets of repeating elements (elaborated by A. Kurkowska)

II. 3. Wybrane działania w ramach projektu autorskiego pt. „Kaszubskie zamieszkiwanie. Poszukiwanie relacji bionicznych”.
Zgrupowania elementów powtarzalnych (oprac. A. Kurkowska)

layouts, entire plants or elements thereof, the shape of forest cover elements, its tectonics, patterns of selected structures (according to a subjective, intuitive selection). At this stage, sketches, graphic notes, schematic ink drawings, and watercolors were created. Then, the selected ones formed a collection of patterns with creative inspiration potential. This stage also offered time for reflection and accumulation of impressions.

The second stage, that is the creative one, was also a part of the process that can be subject to objectification. It is at this point that real objects, i.e., original visions of the course of shape traces, were created. It was a search for forms and relationships between them. Material records were subject to comparative analysis and classification. The course of this stage, which can be seen as a fundamental part of the creative process, was based on a scheme of specific actions that end with a physical object. This scheme included:

- creating a graphic or image,
- creating a sculptural form,
- locating a sculptural form, or groups of such forms, based on the search for traces of affinity with a place.

The small scale of the objects (their sizes vary from a few to several centimeters) provided for their subsequent placement in the micro-spaces of places selected in the vicinity of Jezioro Wdzydzkie.

The third stage may be seen as an attempt at “aligning” (attuning the forms with the place). This stage consisted of in situ observation (experiencing the created or the existing relationships) and analysis-based research (including composition) on the documentary material in the form of a series of photos taken from several perspectives and key shots. This phase consisted of the study of local microtopography, attuned in terms of dimensions with small clay models. It often led to the selection of previously unconsidered places that would prove convenient to locate potential buildings, with the account to the future hypothetical re-scaling of the prototypes. In each case, several attempts were made by means of “testing” various solutions; each time, the attempts were documented once a satisfactory “layout” or “location” was obtained. The work largely consisted in juxtaposing the image against the background; combing the object and the context; comparing and checking the attunement with the proposed place.

The author's satisfaction with the location and arrangement meant that the most beneficial relationship with the natural surroundings was achieved or found. The meaningful aspect included: the similarity of forms (in terms of size, shape, characteristics, e.g., a shape that resembled the pattern of bark scales, Fig. 3); the feeling that the situated objects are attuned with the existing natural elements (e.g., matching the geometric line course, the layout based on the element and background principle, Fig. 1); the assimilation on various planes (e.g., surface formation similar to the structure of bark or moss, Fig. 3); the proper placement that indicated a stabilizing surface (e.g., placement in a tree bark crack, Fig. 2); the use of the existing elements' potential (e.g., hollows in the trunk, Fig. 2); establishing a dialogue (e.g., composition based on com-

plement, Fig. 1); benefiting from environmental advantages (e.g., concealment by partial immersion in water or hiding among leaves, Fig. 2). In some cases, concealment through a kind of repetition or partial hiding was the leading factor; elsewhere, the created dialogue emphasized the existing elements' strengths; sometimes, still, it was crucial to mark the separateness in a given place by using forms related to those present in the further environment.

These are the adopted criteria of selection through elimination and an attempt to form an assessment based on objective and subjective criteria, as well as an indication of the characteristics of the environment that was adapted to creative activities. A broader thematic study would offer a possibility for a detailed discussion on individual objects and the relationships obtained by their placement, often in several variants. The presentation of the method displays the selected examples, as well as the most important clues and features of the micro-environment.

The presented course of action offers the developed methodology with which the process should be conducted. It shows the potential for further research work on the topic of alternative architectural forms for Kashubian habitation. Miniaturization abstracts, simplifies, and makes the context unreal. While this is true, it also gives freedom to work with the awareness that the activities consist in liberating and exploring inspiration for further exploration on a human scale.

The presented project (Figs. 1–3) constituted a multi-element collection of artistic forms. Each object created in the project was assessed autonomously, and so was each subsequent action. In this way, an analysis of graphics or self-contained solids, that is their formation and potential, composition and expression, could provide a separate issue. The second possible path to proceed with was to study relativized forms by embedding them in specific places based on photographic documentation. Once the most appropriate or the most desirable solutions were arrived at, they could be translated into the scale of actual project activities. As a result, it was possible to imagine the creation of a set of architectural concepts for buildings located in specific types of destinations, which should also be defined and described. A catalog of types of such places is another possible target result of the research work.

Bionic relations – original biomorphic art forms

The nature of building is letting dwell. Building accomplishes its nature in the raising of locations by the joining of their spaces. Only if we are capable of dwelling, only then can we build [21, p. 332]. The architect's role is to reconcile two aspects of the living space, namely the inhabitants' cultural expectations and the cultural and natural spatial conditions of the place where the house is being erected. According to Vladimir Chumalo, a house can be related to the architectural image of a family. In this way, it may be stated that a house belongs to a place, i.e., the eternal source of individual identity, whereas the house's belonging to the settlement can be perceived as its identification with the place. The latter could be treated as the core that

integrates all characteristics and values of a given place, both in spatial and humanistic terms [22, p. 50]. Values are superinduced along the processes of survival, experiencing the place, and creating a shared memory. According to this way of thinking, it can be assumed that identity is a value with which the authenticity of this place and its uniqueness is determined [23, p. 114].

The creation took its starting point in following the philosophical and artistic search process, in which creation is combined with feeling and experiencing; it is intertwined with documenting the effects and revising the validity of the attempts made.

The adopted research method, in particular the bionic analogies adopted in it, required studying the landscape and the local nature. The additionally adopted goal consisted in broadening the knowledge on regional architecture (cultural aspects). More roughly, it focused on delving into the theory of habitation, its philosophical, psychological, and technical aspects. Architecture requires artistic forms of expression to search for an elusive attunement to the world, given its subjective experience and objective existence. In such a situation, drawing on bionic analogies and searching for bionic relationships seemed inevitable and desirable. The study of the living space and regional design, as well as the artistic study of landscapes and small botanical forms in Pojezierze Kaszubskie, made it possible to discover its potential and constituted a more remote introduction to the described project.

Specific inspirations were provided by the topography of the studied places in the indicated area, individual plants (both those found in the forest floor and on meadows or the banks of water reservoirs), present stones, boulders, or layers of soil, coarse wood debris, with the account to the observations of organisms that inhabit these places, such as insects, small mammals, and birds. Rather than analyzing only the form and its physical properties (e.g., hardness, strength, flexibility), the study covered its behavior in the face of changing weather conditions (the influence of wind, sun, and rain). The studied elements are characteristic of the larger area of Wdzydzki Park Krajobrazowy [the Wdzydze Landscape Park] or Bory Tucholskie [The Tuchola Forest], whose part is occupied by the aforementioned park. Photographic documentation and cycles of sketches were made, which then provided the basis for searching for forms. In situ creation was also used, which took cycles of several weeks (4–8 weeks) in the area of the Przytarnia, and Wiele villages, and the Joniny Wielkie and Joniny Małe hamlets⁸.

In the analyzed project, it was possible to distinguish several common stages, similar in the majority of individual elements. These elements were understood here as specific concepts emerging as autonomous graphic, painting or sculptural objects or thematic groups thereof. Only by looking at the activities in their entirety is the current effect of systematic studies revealed, which could be considered an innovative working method.

Conclusion

The project is biophilic in character, due to the need for insight that provides incentive for work and the research on the surroundings. It can also be assigned to activities of a biomorphic nature (in the sense of being inspired by natural forms, their relations, processes that accompany existence), when the shape of sculptural forms and the inspirations that served as their starting point are considered. An attempt was made to understand natural processes (including dying), but also to notice their forms, stages, follow their course, analyze and make theoretical attempts to apply them. These activities were meant to arrive at a formula for the living space. In Pallasmaa's studies [13], a postulate can be found that architecture needs to return to the role of an intermediary between people and the world. Architectural objects planned as part of a project's continuation could serve as a temporary cover; a background for life and its harmonized course in tune with the non-human world.

According to Pallasmaa, the pandemic prompts a conclusion that imagination constitutes a very valuable and the most humane of human qualities [13, pp. 4–11]. In the author's original project presented above, imagination is the driving force behind the action. Confronted with measurable natural values, it avails of them and generates non-verbal and non-scientific astonishment with the diversity of the world as an endless source of inspiration.

The performed studies and physical activities were intended at checking the correctness and the possibility of attunement; finding the original source behind a form through its sign. This challenging search for affinities was hardly facilitated by the subjectivity of personal judgment. Solutions consistent/attuned with the context were sought; ones that create a bridge to the future, care for a compromise between tradition, necessity, new requirements, innovations, eccentric expectations, and humility towards nature and the environmental situation. The effects seem promising, whereas the adopted work method makes them comparable. The created forms fit into the surroundings [24]; their affinity with the existing natural elements can be found. A large variety of plastic forms and their uniqueness were also obtained. Several dozen cataloged proposals were created. In the longer run, it is planned to create original architectural concepts to include proposals for potential residential buildings or urban layouts thereof, including, for instance, a project of a compact settlement.

In the future, assuming the evolution of the undertaken design task that is to include actions within target architectural concepts, the actual scale of a human being as a facility's potential user should be considered. The effects yielded by the undertaken actions should probably be confronted with the general opinion and verified. It would also be necessary to find objective features to support the validity of the solutions selected for further development, so that the above work could make a satisfactory measurable contribution to the creation of living space.

⁸ All these places belong to the Karsin commune in the Kościerzyna powiat.

References

- [1] *Bionika*, <https://encyklopedia.pwn.pl/haslo/bionika;3877863.html> [accessed: 30.03.2022].
- [2] Sulima M., *Miejsce domu w kulturze wsi*, [in:] W. Czarnecki, D. Karolczuk, *Odnowa polskiej wsi*, Wydział Architektury PB, Białystok 2006, 165–169.
- [3] Szafer W., Zarzycki K., *Szata roślinna Polski*, t. 2, PWN, Warszawa 1972.
- [4] *Pojezierz Kaszubskie*, https://www.szkolnictwo.pl/szukaj/Pojezierz_Kaszubskie [accessed: 5.03.2018].
- [5] Augustowski B., *Rzeźba terenu*, [in:] J. Moniak (red.), *Studium geograficzno-przyrodnicze i ekonomiczne województwa gdańskiego*, Gdańskie Towarzystwo Naukowe, Gdańsk 1974, 37–90.
- [6] Kondracki J., *Geografia regionalna Polski*, PWN, Warszawa 2002.
- [7] *Sosnowy bór chrobotkowy*, http://www.pnbt.com.pl/sosnowy_bor_chrobotkowy-375,783,592 [accessed: 21.10.2022].
- [8] Kraska M., *Jeziora lobeliowe*, [in:] *Poradniki ochrony siedlisk i gatunków natura 2000*, t. 2: *Wody słodkie i torfowiska, 3110 Jeziora lobeliowe*, Ministerstwo Środowiska, 27–36, https://natura2000.gdos.gov.pl/files/artykuly/52940/3110_Jeziora_lobeliowe.pdf [accessed: 3.03.2018].
- [9] Turowski A., *Biomorfizm w sztuce XX wieku. Między biomechaniką a bezformiem, słowo/obraz terytoria*, Gdańsk 2019.
- [10] Wilson E.O., *Biophilia: The Human Bond with Other Species*, Harvard University Press, Cambridge 1984.
- [11] Świątek G., *Aporie architektury*, Zachęta Narodowa Galeria Sztuki, Warszawa 2012.
- [12] Kurkowska A., *Przestrzenie architektury w kontekście zamieszkiwania*, Wydawnictwo Uczelniane Politechniki Koszalińskiej, Koszalin 2017.
- [13] Pallasmaa J., *Lekcja architektury zwierzęcej*, “Autoportret. Pismo o Dobrej Przestrzeni” 2016, nr 4(55), 4–11.
- [14] Oksiuta Z., *Formy, procesy, konsekwencje*, Galeria Arsenal Białystok i CSW Zamek Ujazdowski, Warszawa 2007 [exhibition catalogue].
- [15] Oksiuta Z., *Spatium gelatum*, BWA, Wrocław 2003 [exhibition catalogue].
- [16] Sullivan L., *A System of architectural ornament according with a philosophy of man's powers*, Eakin Press, New York 1967.
- [17] Dollens D., *D2A: Digital to Analog*, N.M. SITES, Santa Fe 2001.
- [18] Dollens D., *Digital-Botanic Architecture*, D-B-A, Santa Fe 2005.
- [19] Frazer J., *An evolutionary architecture*, Architectural Association Publications, London 1995.
- [20] Klein L., *Żywe architektury. Analogia biologiczna w architekturze końca XX wieku*, Fundacja Kultura Miejsca, Warszawa 2014.
- [21] Heidegger M., *Budować, mieszkać, myśleć*, [in:] M. Heidegger, *Budować, mieszkać, myśleć. Eseje wybrane*, Czytelnik, Warszawa 1977, 137–152.
- [22] Czumalo V., *Potrzeba identyfikacji?*, “Autoportret. Pismo o Dobrej Przestrzeni” 2012, nr 1(36), 46–52.
- [23] Żmudzińska-Nowak M., *Miejsce. Tożsamość i zmiana*, Wydawnictwo PŚ, Gliwice 2010.
- [24] *Uchwała Nr 145/VII/11 Sejmiku Województwa Pomorskiego z dnia 27 kwietnia 2011 r. w sprawie Wdzydzkiego Parku Krajobrazowego*, https://wdzydzkipark.pl/files/site-wpk/userfiles/pliki/uchwala_nr_145.pdf [accessed: 5.09.2022].

Abstract

Bionic relations as features of the author's original concept of biomorphic plastic forms that belong to a place

The article concerns the search for an architectural formula for living organically in the area of Pojezierz Kaszubskie [the Kashubian Lake District]. The original project consisted in creating a series of biomorphic plastic forms that belong to the place. In this way, a set of alternative solutions was created in the form of small clay sculptures that account for bionic relationships between the newly created cultural elements (dedicated to the place) and natural elements (characteristic of the analyzed area). The project assumed a specific method of creative and research work. The method consisted in a repeated process of sketching (with the use of natural elements encountered in the lake district), followed by sculpting and placing the sculptures. It led to gathering a collection of documentary photographs that record the successive attempts to place cultural objects in a natural context. Thanks to the photos, further solutions can be put together and compared. A kind of catalog was created to prove a strong bionic affinity of forms, common to all the created sculptures. The sculptures in specific “layouts” are attuned to the existing place; they enter a “dialogue” with it. The catalog can be used as research material, but also as a tool to contemplate the relationship between objects and places “supplemented” by them.

Key words: bionics, home, Kashubia, natural context, habitation

Streszczenie

Bioniczne relacje jako cechy autorskiej koncepcji biomorficznych form plastycznych przynależących do miejsca

Tematem artykułu jest poszukiwanie architektonicznej formuły zamieszkiwania organicznie osadzonego w rejonie Pojezierza Kaszubskiego. Autorski projekt polegał na stworzeniu cyklu biomorficznych form plastycznych przynależących do miejsca. W ten sposób powstał zbiór alternatywnych rozwiązań w postaci niewielkich rozmiarów glinianych rzeźb uwzględniających bioniczne relacje pomiędzy nowo powstałymi elementami kulturowymi (przypisanymi miejscu) i przyrodniczymi (charakterystycznymi dla analizowanego obszaru). Projekt zakładał określoną metodę pracy twórczo-badawczej. Wielokrotnie powtarzany proces szkicowania (wykorzystującego naturalne elementy napotkane na pojezierzu), a następnie rzeźbienia i lokowania rzeźb pozwolił zgromadzić zbiór dokumentalnych fotografii rejestrujących kolejne próby osadzania kulturowych obiektów w przyrodniczym kontekście. Dzięki fotografiom można kolejne rozwiązania zestawiać i porównywać. Powstał rodzaj katalogu ukazującego silne bioniczne powinowactwo form, wspólne dla wszystkich powstałych rzeźb. Rzeźby w określonych „aranżacjach” spawują się z zastanym miejscem, „dialogują” z nim. Może on posłużyć jako materiał badawczy, ale też posłużyć kontemplacji relacji obiektów i „uzupełnianych” nimi miejsc.

Słowa kluczowe: bionika, dom, Kaszuby, kontekst przyrodniczy, zamieszkiwanie

