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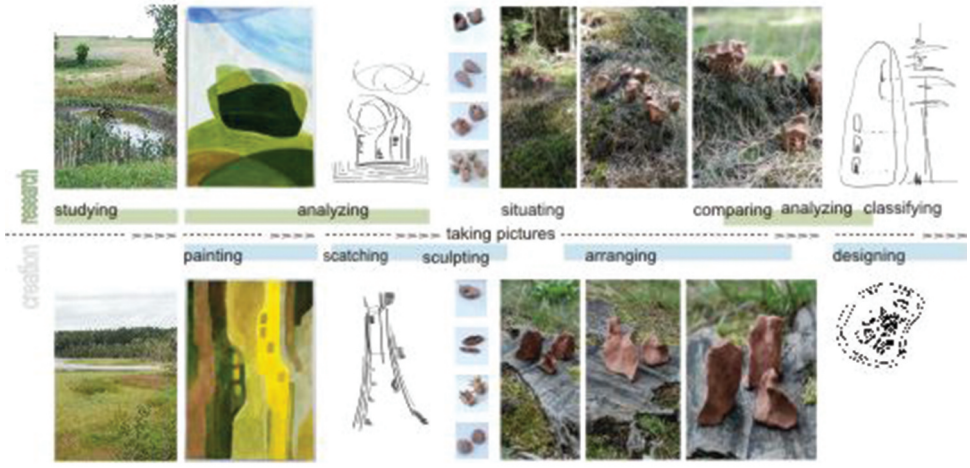

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Using creative approaches for discovering biomorphic forms for appropriate human habitation in natural environments: Case study of Kashubian Lake District

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Abstract: The research process consisted of studies of natural and cultural conditions of the Kashubian Lake District This is an area of exceptional natural conditions. For centuries, it has seen human habitation with respect to landscape values. Given its extensive forest cover and the lack of heterogeneity of natural conditions, the area has become an interesting inspiration for the author's original project. The project is aimed at searching for appropriate forms of human habitation. Creative activities, owing to the creation of a large number of drawings and paintings that feature diagrams of initial forms, followed by sculptures inspired by them, aim at identifying biomorphic solutions, spatial forms that match the site of the study. Methodically, in order to achieve the goal, an original research and artistic concept was designed whose non-obvious results make it possible to treat the given task as a divergence problem. The essential artistic part comprised creating small-scale sculptures of clay, which were later to be placed in appropriately selected places. The photographic documentation offered the possibility to work at the analytical and comparative level, with an account of the obtained effects and their potential. Ultimately, the author seeks an answer to how to design houses in this region. The

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Agnieszka Kurkowska DR [PhD], adiunkt assistant professor at Wydział Architektury Politechniki Gdańskiej [The Faculty of Architecture, Gdańsk University of Technology. An architect and participant in artistic projects. An author and co-author of architectural objects and urban composition, as well as of small useable forms. She works on the theory of architecture (inhabitable space) and the space architecture shares with art. Additionally, she takes a vivid interest in general education in architecture. She has authored scientific publications; she has participated in art exhibitions (intentional projects, photography, sculpture, painting) and acted as a curator thereof. She touches the world with the form. She draws, sculpts and situates clay objects to verify whether the place accepts them. She seeks a sense of compliance. For her, compliance directs the attempts at creating forms. The author suspends her thoughts between what is known and what is expected by her. Her experiences create forms. Her forms are woven from dreams and arranged from experience; they touch with hope, their well-thought shape borrowed from the place and donated to the place. Forms that can accommodate houses as shelters safely embedded in the Kashubian landscape. Forms that sound of the forest. Outline and contact plane.They define the course of the relationship. She expects them to confirm the purpose of her search. This stage of the process carries the fear of failure but is also marked with the hope of adaptation. The most important aspect is the touch extended along the irregularity of the object. Touching the ground and air. Touching the backgrounds. The emanated smell and the evoked sensation. Transience that gives meaning.

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results come in the form of a complete multi-element set of biomorphic forms; directly or indirectly transformable into architectural objects, they provide model hints to classifiable sets of features conducive to arriving at a match with a place. The creative method proves appropriate for architectural design, as it constitutes its initial stage in the case of inhabiting natural environments. It yields favourable forecasts for creating a catalogue of design guidelines for residential buildings located in the area of the Kashubian Lake District.

Subjects: Art & Visual Culture; Design; Cultural Studies

Keywords: natural conditions; Kashubian Lake District; house; bimorphic forms; bionics; divergence problem

1. Introduction

Located in northern Poland, the Kashubian Lake District provides an interesting study area due to its heterogeneity, as well as geographical and botanical complexity. Historical stratifications intertwined with manifestations of the contemporary Kashubian culture can be found in the region.[1]

As an architect, the author seeks a solution to a research problem: the multi-layered habitation in buildings designed according to natural and cultural conditions.

Except for its cities, the Kashubian Lake District region offers habitation in close proximity to nature, among forests, meadows, fields, and lakes. The area is characterized by a unique, post-glacial topographic shape. The indigenous inhabitants are aware of the places they dwell in, as well as the accompanying seasonal variability. However, the modern way of life, economic changes paired with the climate crisis, and the visible scarcity of resources are prompting a significant change in how we think about the buildings we inhabit. The search for a new, pro-ecological formula for a house could be conducted along the trail of biomorphic structures that take account of local conditions.

The current trend to search for pro-ecological solutions[2] stems from reports on the planet's condition. The currently observed necessary trends include minimizing the aggravation of the existing situation, maximizing the use of renewable resources, and relying on location values. The author follows these trends.

Culturally, the study area belongs to the Kashubia region located in northern Poland; the area is marked with an autonomous identity and characteristic rural development (cf: Knyba, 1987). However, due to the archaization of historical premises for designing villages and architectural objects that constitute the regional Kashubian heritage, it seems reasonable to search for a new urbanization formula for agricultural and post-agricultural areas. The development rhythm was formerly determined by the width of fields, as well as by the structure of farms with obligatory orchards and gardens. Nowadays, these determinants are far from contemporary. Other possible ways to search for indications for new settlement forms seem worth exploring.

Having conducted thematic studies, the author decided[3] to seek creative inspiration from natural elements and make an attempt to answer the question of the potential forms of habitation objects on-site by "listening" to the region on various scales, i.e., from the broad historical context to the micro-scale of the botanical structure of the forest floor. The concept of shaping forms as biomorphic ones was adopted as an assumption, as it seemed a promising way to obtain innovative solutions. The project was launched in 2016 and is still in progress. The present article will refer to selected fragments of the collected documentation, so as to present several process stages across the described results.

The activities conducted within the project were aimed at creating forms embedded in the realities of selected locations in the Kashubian Lake District, specifically in the area of Lake Wdzydzkie, nearby the village of Przytarnia, and the hamlets of Joniny Małe, Joniny Wielkie, and Wygoda (Karsin commune, Kościerzyna poviat). Finding a solution to the problem of the appropriate biomorphic forms for a given place was based on divergent thinking. Rather than striving for one optimal formula of an adaptable algorithm, the author sees the problem as open to diversity and various solution paths. The creative process offers possibilities for such structuring of the work. However, this approach means high labor intensity, as an individual thought leads to several sketches, each with several sculptures, each of which may result in the alteration of the subsequent work stage. To determine emerging options, the results were synthesized based on grouping the effects derived from independent solution paths. Divergent thinking allows for innovation; it allows for non-obvious, non-algorithmic creations. The work attempts to determine and describe the proper method to search for objects that match the place. This goal requires analysis and selection, both conducted in the subsequent research process stage. However, the greatest potential seems to be contained in the open, unrestricted phase, as it allows for errors and experiments.

2. Methodology

2.1. Stages of work

While creating, the author moves on a micro-scale (stages 1–5, cf. Figure 1 with the work methodology diagram) in the physical layer. It means following the trail of the bionic relationships[4] she seeks. Direct observation of the structures of biological forms, as well as processes visible to humans in close relationship with nature (such as the shape of the bark on a fallen tree trunk), paired with a change in the observer's perspective (e.g., the forest floor perspective), make it possible to conduct a study of the commonly experienced natural phenomena (not only in a close-up of a static observer). These phenomena provide verifiable and available research material that can inspire and provide background for artistic activities (e.g., seasonal drying of wetlands and seasonal retreat of lake shorelines).[5] However, the creative and research perspective accounts for the macro scale (stages 1–5 - taking into account the context of activities,

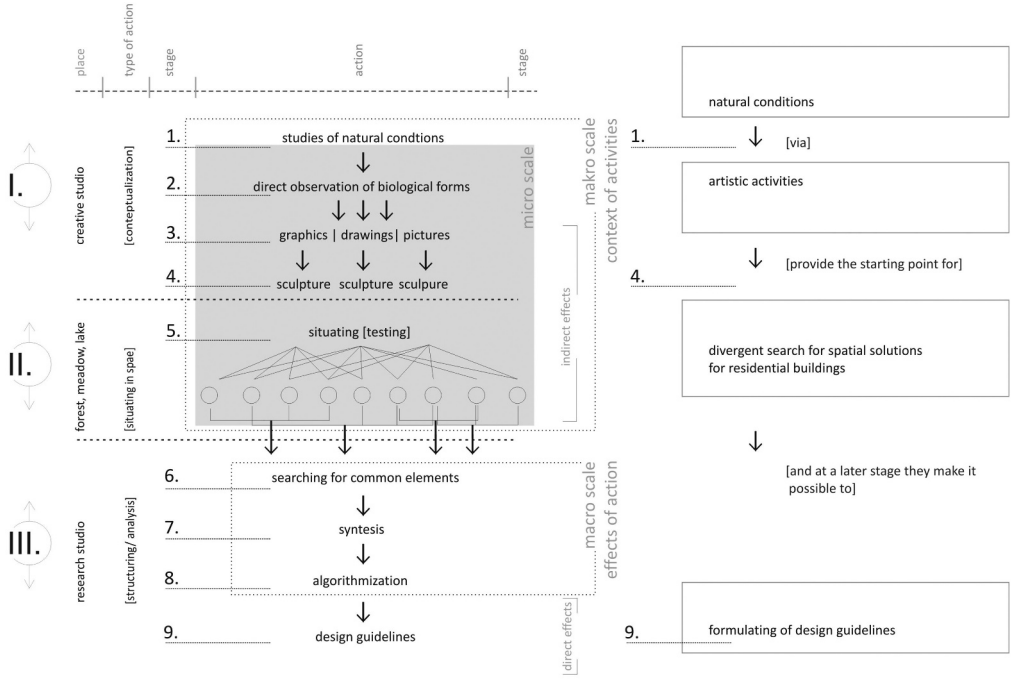

Figure 1. The work methodology scheme, A. Kurkowska.

whereas stages 6–9 refer to the effects of activities). It includes a broad, multifaceted (natural and cultural, landscape-related and environmental) context of specific activities and demanded effects. Thus, the thesis emerged that by means of artistic activities (stages 1–4) inspired by the above, natural conditions could provide a starting point for a divergent search for spatial solutions to be applied in residential buildings (stages 5–9) and, in the long run, to formulate design guidelines (stage 9). The author's original project may be seen as an attempt to fashion a systematic work tool with which verifiable, comparable results could be obtained.

It should be remembered that creation should be understood asspecial design, design that means not only the arrangement of space, but alsotime, meanings and communicatio. (Kurkowska, 2015, p.111)

The methods applied during the work and research these are: study of documents to deepen knowledge in the field of geography, history, and flora of the selected area (including studying the place and identifying its objective features and properties in a stage 1) as well as the observational method at the initial phase (stage 2) stage; the; Methods based on divergent thinking were applied: the creative method to seek artistic means of expression in the selection of shapes and forms (based on the observed existing biological forms) at stages 3 and 4 and the experimental method in further work (stage 5), when ready-made sculptures are placed in selected locations with the use of critical analysis and creative intuition, that allow for randomness incorporating an immediate reflection (an analogy with the *case-study* method or the method of individual cases can be noticed). At the following stage, the observational method to allow for examining the degree of similarity or match owing to the analytical and comparative technique (stage 6) comes back. Subsequently, the following stages occur in the further work phase: synthesis (stage 7), algorithmization (stage 8) and pre-initiated, formulated guidelines for designing (stage 9) are to be supplemented in the long run.

The creative method mentioned above is heuristic in nature. By allowing intuitive action based on accumulated resources of knowledge and objectified experience and being based on divergent thinking, it leads to innovative solutions whose uniqueness stems precisely from the synergistic coexistence of measurable and immeasurable elements (especially in terms of feelings and moods, particularly the feeling of matching the place).

The diagram containing with the work methodology scheme (Figure 1) illustrates the chronology but also assigns the tools and methods used to clearly present the structure to individual stages. The individual stages can be grouped into three main sections, which are distinguished by the basic place of work on the project. Section 5 is basically conducted in the creative studio; it includes stage 1 - studies of conditions, stage 2 - direct observation of biological forms (in the environment and in the studio: prepared specimens), stage 3 - making graphics, drawings and paintings, stage 4 – studio-based carving. In section 5, indirect effects are created in the form of the aforementioned, autonomous artworks. Section 2 comprises the time-consuming stage 5 which requires creative testing and photographs taken in the field, in the forest, in the meadow, by the river, lake, swamp, on a forest road, etc. Section 3 is performed in the research studio and includes four stages that use the direct effects of the work, i.e., stage 6 - searching for common elements for the completed and arranged sculptures, stage 7 - synthesis of the collected data, stage 8 - recording guidelines and creating a set of formulas for individual types of forms, stage 9 - moving on to the formulation of design guidelines.

2.2. Research background

The activities conducted within the author's original project may be confronted with two artistic trends in contemporary art, i.e., *land art* and—derived from it - *site-specific*.[6] The main assumption behind *land art* (in other words: *Earth art*) includes artistic activity conducted within the space of the earth or the natural environment. In the case of the author's original project described in the present article, both the natural surroundings and the entire earthly space of the selected site play

a key role. The interference in the landscape is equally important, along with the transformation of its fragment introduced in order to perform an artistic action. This activity is seen as an intermediate stage; this fact, however, which does not affect its classification can (and does[7]) function autonomously as this stage of work. *Land art* is mainly associated with large-scale works, usually installed permanently in a transformed landscape (cf.: Beardsley, 1998; Kastner & Wallis, 1998; Weilacher, 1999). The following parts of the present article present works set in selected places only temporarily. The crucial aspect of these works lies in the process documented by the photographic record. However, *land art* has also a more intimate or processual dimension, as exemplified by the works of Ana Mendieta [8] or Jacek Tylicki.[9] It should also be remembered that man, as Kastner and Wallis point out (Kastner & Wallis, 1998, p. 11), is both physically and mentally conditioned to study nature. This way of exploring the world is intuitively natural for him, so it's worth taking up this trail.

As mentioned above, the author studies the natural and cultural resources of selected places together with their closer and further surroundings. She investigates the present and history. A similar action is taken by artists working within the *site-specific* trend; for them, it is usually important to study the cultural matrix of a place (more in Wilson, 2002). The similarity also consists in the intention that accompanied the works created by the author. Namely, she aims to arrive at objects' proper functioning and layouts in a precisely defined place. Another common element refers to searching for and revealing meanings hidden in space. Along the creation process, these meanings are being processed and can be distinguished in the finished presentation.

2.3. Aims of the work

The aim of research and activities in the analyzed project comprises the aforementioned creative search, followed by the creation of a set of forms together with their urban composition, by means of which the expected compatibility with the environment was achieved (developed with the use of the method mentioned and described below in detail). The obtained and documented set of solutions was designed to verify the assumptions and prove the thesis's validity. However, the project will likely evolve towards project activities *sensu sticte*. The abovementioned project sees both its starting point and its goal in adding to the research on inhabitation, whose aspects are explored by the author in parallel projects. Despite its non-obvious formula, the method described in the present article may prove helpful. It is planned that the target effect of the project, both at this completed stage and the subsequent one, is to determine and specify the regional values of the Kashubian Lake District and to offer a description of how residential constructions can be adapted. The analyzes below were conducted to verify the validity of the assumptions and the method's effectiveness. This was achieved by the result assessment (although illustrated only by a few cases selected out of over a hundred documented papers, each representing a separate problem solution), presented by the author towards the end of the present paper. Local *genius loci*, if transferred to cultural forms, could offer a remedy against the shortage of contemporary habitation forms (understood as both architectural objects and their urban planning connections). The study of the achieved indirect creative effects may channel the search for alternative solutions and non-obvious formulas in the architectural and regional design field on an urban scale.

3. Cultural and natural conditions of the Kashubian Lake District

Kashubia is a cultural region that occupies a part of the Gdańsk Pomerania region, where the Kashubian Lake District is located. Historically, Kashubia occupies an area along a vertical strip from the sea (west of the Hel Peninsula) to the Tuchola Forest; slightly culturally diverse sub-areas can be distinguished (Seaside Strip, Northern Kashubia, Central Kashubia, Western Kashubia, and Southern Kashubia). The tradition of regional construction in Kashubia dates back several centuries. Unfortunately, following 1945, and especially since 1970, the disappearance of traditional construction has been noticeable, including folk construction (erected with no participation of an architect, but based on craftsmanship and popularized verified functional schemes, in-depth knowledge of the material properties and the necessary techniques for their assembly, and respect for the local design). However, prior to their disappearance, a large variety of forms and a diversity

of solutions for the internal residential house layout could be observed, even though certain spatial modules, as well as craftsmanship and design schemes were implemented. (Sadkowski, 2001, p. 37) Individual privately-owned objects or certain groupings thereof can still be found while visiting these areas. However, the largest grouping of purely historical objects is housed by a -museum,[10] i.e., by the Kashubian Ethnographic Park in Wdzydze Kiszewskie. The park is meant for the exhibition in an open area.

The Kashubian Lake District offers a good example of a high natural value area and easy access from the city (Gdańsk, Sopot, Gdynia, Chojnice, Kościerzyna). These aspects are among the reasons for the study, as the area may serve the purpose of potential migration or seasonal settlement. Located relatively close to the Tri-City, the Kashubian Lake District (also referred to as the Kartuskie Lake District) constitutes a physical and geographical mesoregion within the Eastern Pomeranian Lake District macroregion (Szafer & Zarzycki, 1972). According to a geobotanical classification, the Kashubian Lake District belongs to the Kartuzy District of the Pomeranian Lake District (Szafer & Zarzycki, 1972).

The Kashubian Lake District is covered by forests to quite a considerable degree, as compared to the neighboring mesoregions (Roleksa, Szwagrzyk, 2018, pp. 28–47). Deciduous and mixed forests predominate in the area. Commonly, forests cover areas where the terrain is too difficult for agriculture, such as hills, river valleys, and places with soil quality being too poor for agriculture. Additionally, the Kashubian Lake District is the center of lobelia lakes (Kraska, 2018, pp. 27–36). These unique formations occur practically only in Pomerania, whereas most are located in the Kashubian Lake District. As areas of unique natural features, they have been included in the Natura 2000 program and are under protection. The unique feature of lobelia lakes lies in the high transparency of their water (Heinrich, 2004, pp. 29–36). In the mesoregion, 24 nature reserves with a total area of 1055 ha have been established, as well as two Landscape Parks, i.e., Kaszubski National Park and Trójmiejski National Park.[11] This proves the high natural attractiveness of the described area.

The oldest traces of human existence in the Kashubian Lake District date back to the older Stone Age. In the Bronze Age, the area was inhabited by the Kashubian group of the Lusatian culture (Sulima, 2006, p. 165). In the following years, various other cultures, more or less related to each other, appeared in the area. At that time, mainly the northern part of the region was inhabited, mostly in the vicinity of water bodies, for obvious practical reasons (transport, food, production, necessary daily activities). In Kashubia, elements of regional folk architecture can be noticed on various scales. They can be found in the landscape as urban spatial formations, such as buildings together with the layout of fields and roads; as spatial dispositions within the village and the farmstead itself; and, subsequently, in the very structure of the building (form, structure, detail, material) together with its furnished interior.

In Kashubia, forms typical for this region emerged. These include building layouts and spatial organization schemes on a village, a homestead, and a residential house scale. Additionally, object forms that remain in unique relationships with nature, and accompanying small architecture have developed (Górka, 2011, p. 12; Pokropek, 1976). Construction in the Kashubia region matches the local topographical conditions. Architectural objects are located in accordance with the landform and the location conditions in force during construction and currently (both legal regulations and common practice). The effect achieved over the centuries exudes harmony and spatial order, although it is increasingly disturbed by modern projects. In the past, rural construction dominated the area (in the form of homesteads that occupied individual plots). Currently, the space is shared with suburban buildings, mainly seasonal holiday houses.

In the presented author's original project, regional values[12] are sought not only on the landscape scale, with the observation of the specific spatial expression given to topographic formations, but also on the micro-scale. In the latter case, a small fragment of reality is examined, including a fragment of the undergrowth, the edge of a meadow, or a section of a water reservoir

shore, sometimes even a specific tree trunk. The premise on which the selection is made refers to the visual affinity with the landscape frames characteristic of the researched region.

4. The search for spatial solutions conditioned by nature and the author's original project

Nowadays, should we, as postulated by Wolfgang Welsch (2002), experience and cognize the world only based on the already established patterns? Or should a person who measures everything according to themselves distinguish between the known and understandable phenomena from the unknown and inexperienced ones, separating them and determining ones impossible to cognize? (Welsch, 2002, p. 169). It seems a worthy experiment to investigate the possibility of creating environmentally conditioned forms of habitation (architectural objects and layouts thereof) in a non-obvious way, not necessarily amenable to objective analysis. Perhaps subjective values that result from the everyday experience of not fully understood phenomena, such as the unique place atmosphere, could enrich the habitation process. Attempts can be made to recreate such a mood or to achieve it through artistic activities. In art, unlimited matter can be formed according to creative intuition while rejecting additional necessities (such as building technical requirements). This fact serves as yet another argument in favor of selecting artistic material for the presented project. This challenge provided an incentive for the conducted studies and tests. The results demonstrated proposals for situating cultural objects in the natural environment of the Kashubian Lake District. Observation and thematic studies prompted a conclusion that the area features a rather diverse landscape and natural environment. Thus, this place would offer a chance to perform various tests when moving over short distances. This assumption worked very well in the project.

The study of the target habitation forms was based on the observations of nature and an attempt at a cultural transposition thereof using a graphic outline, painting expression, sculptural form, and photographic situational analysis. The sketch/painting—sculpture - situating—photography constitute subsequent elements of the process in the author's original project based on research and artistic activities. The very thinking about interference in space can be understood as the emergence of an architectural object. Creating a drawing and modeling planes and solids is an art; the whole process is complemented by technical knowledge, allowing for the object's physical existence and proper equipment.

Sketches in the form of words combine linearity with a mark (cf. Figure 2, Figure 8, 9).

At the sculpting stage, naturally hardened clay is used as the material. According to the design assumptions, self-made clay sculptures are to be used. The author places them in specific landscape arrangements, such as on the forest floor, on the road, on the shore of the lake, in the coastal zone of a lake, on fallen trunks, in tree bark, by the stream, in a swamp, in a meadow between tree branches, in bush branches, among the roots, or the leaf litter. Their location also constitutes an element of the creative process subject to reflection and verification. To meet the criteria adopted by the author, the pre-approved solutions are photographically documented (Figure 3). The cyclically growing collection of photographs serves as documentation of subsequent trails or their alternative versions manifested in the form of ready-made spatial layouts *in situ*. The current collection was created over six years (2016–2022), in the spring and summer periods. This stage allows for formulating initial conclusions and guidelines for further work on the issue.

Metaphorical images of the archetypal shelter form in many variants display its adaptability to various conditions. The context serves both as an inspiration and a problematic task, the answer to which lies in a specific form of shelter adapted to its surroundings and corresponding to the

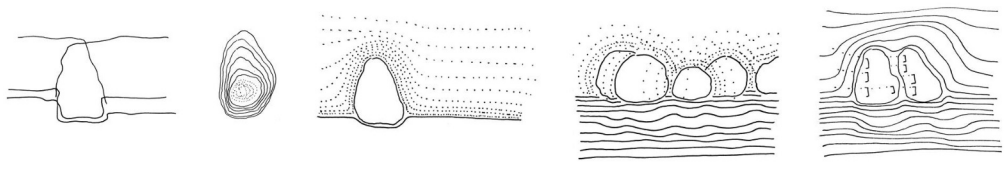

Figure 2. Schronienia [shelters], graphics: layouts of the sculpture in a natural landscape, 2023, A. Kurkowska.

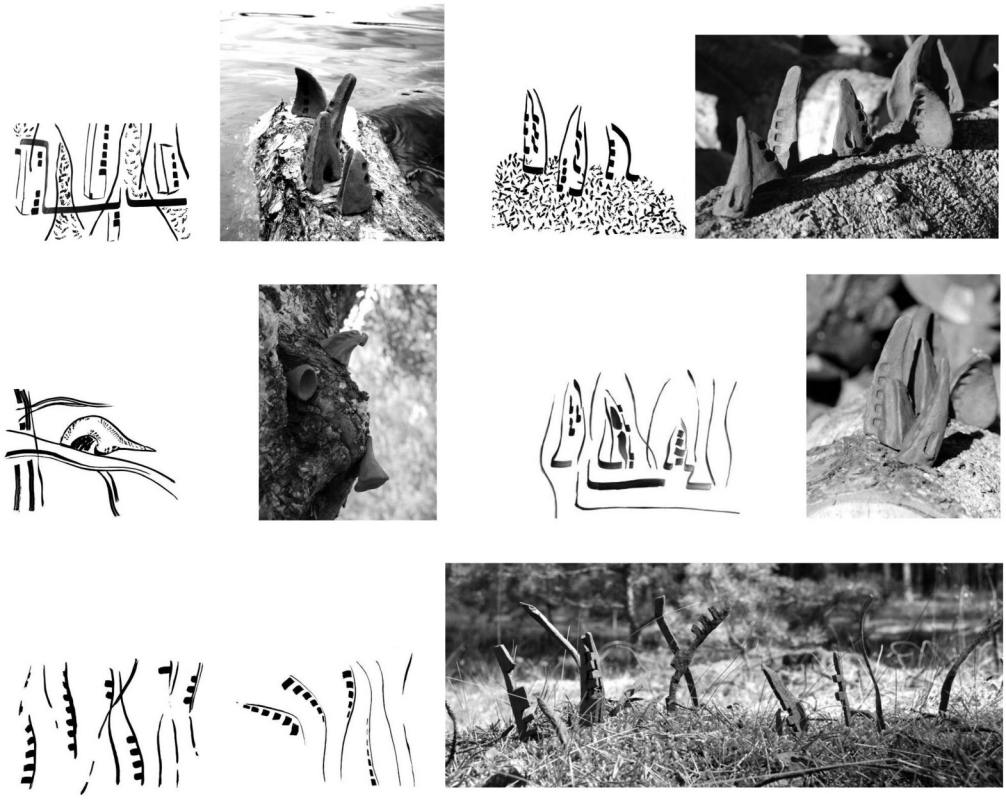

Figure 3. Graphics and layouts of sculptures in a natural landscape, the hamlet of Joniny Wielkie, Karsin commune, A. Kurkowska.

existing spatial situation. As mentioned previously, the thesis on the great natural potential of the Kashubian Lake District was adopted in the creative activities undertaken. The creative tests were conducted to provide an ideological simulation of possible target conditions. All field layouts were prepared in Kashubia, nearby Lake Wdzydzkie. Given its scent, sound, nature, topography, and regional culture, which changes annually, the Kashubian Lake District provides a unique context. It is a context conducive to habitation.

Working on-site with local material enables physical and symbolic interactions. It provides unique impressions and inspiration but also provides ongoing verification.

The undertaken interventions use the previously prepared small-scale clay objects. They indicate several aspects of the potential advantages offered by specific locations. These advantages include easy access to surface water, the protection against the wind offered by slopes and escarpments, the environmental biodiversity represented by the abundance of species that form the biocoenosis of the place, the possibility of blending into the landform thanks to its undulations and numerous depressions, the potential of using renewable energy sources (large, permanent water reservoirs, elevations, sunny slopes), beneficial lighting conditions (layouts of intersected forests, swamps, meadows, and fields). The natural layout of the existing elements was also taken advantage of to physically embed the author's original objects in or upon them; this approach provides engineering indications for the development of static models for potential buildings.

Intuitive, ideological forms have been created that might direct future potential planning and architectural activities towards shaping objects based on the noticed dependencies (that result from natural conditions). It is important that the examined relationships are acknowledged on various levels, primarily by identifying both the physical and objective aspects (supported by the search for bionic forms and regional cultural patterns) and those of a psychological nature, subjective by nature.

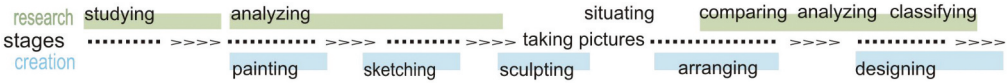

Figure 4. Stages of the process —a diagram presenting the

The process of the creative work itself was based on such aspects as the personal experience of the researched area, the knowledge of the regional culture, the subjective perception of the house as a shelter, the professional knowledge of the subject, and intuition while looking for lines, convergence points between the observed natural objects and the emerging creative idea of the architectural object layout.

The individual stages (Figure 4), which *de facto* consist in autonomous objects, simultaneously serve as fragments of the process aimed at searching for an architectural form for the residential object. The presented processuality (Figure 5) draws attention to specific aspects of architectural design, such as its interdisciplinarity, time for reflection, evolution, and the multifaceted nature of inspirations contributing to the final building form.

Sculptures located in micro-scale layouts, but also in the natural landscape of the Kashubian region, attract attention to the very beginning of the search for forms and the way they are grouped and located in space. The method in the author's project proved to refer to the character of natural conditions (Figure 6 and 2). The contribution of natural conditions to the presented examples indicates the potential direction of actual architectural and urban-planning activities. So what are the tools used in the project? They include creating sculptures based on the principle of mimicry (i.e., conscious assimilation to the surrounding natural elements), adjusting the sculpture scale to the selected environment (owing to which the arranged systems are not dominated by the located objects), observing the natural shape of the ground while arranging *in situ* (following topography, following the shape of a stone, trunk, escarpment crown; repetition of lines found on site).

Having analyzed the documentary photographic material, a great deal of similarity was noticed in the course of the lines that define the shapes of the photographed objects at various scales. Photographs presenting landscape frames and outdoor painting attempts revealed lines analogous to the ones observed in the undergrowth (Figure 7 and 8). This similarity probably stems partly from the general laws of physics and climatic determinants (influence of wind, frost, and sun) and geographical determinants (the underlying geology and soil structure). However, it provokes thoughts on creating a classification of these situations. Individual hills or their

Figure 5. The process of structuring a biomorphic sculpture: a set of initial elements, merging, forming, shaping, individualizing them. A. Kurkowska.

Figure 6. The creative process according to the author's method: sketching, painting, sculpting, situating, A. Kurkowska.

Figure 7. Selected examples of photography with landscape frames—analytical and painting stage of the project, Przytarnia, Lipinko 2021–22.

Figure 8. Selected examples of outdoor painting—the analytical and painting stage of the project, Joniny Wielkie 2020,.

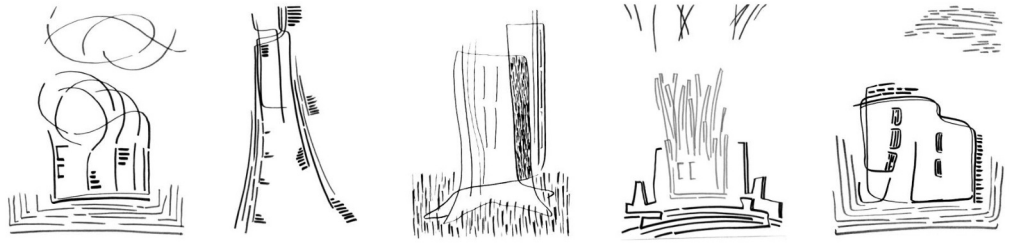

Figure 9. Selected examples of sketches—the graphic stage of the project, Joniny Wielkie 2020.

Figure 10. Selected examples of studio painting—the painting stage of the project, Męcikał, Joniny Wielkie 2016–19.

Figure 11. Selected examples of sculptures—the sculpting stage of the project, Joniny Wielkie 2018–20.

overlapping series offer a different spatial potential, which is easier to verify when changing the scale, as is the case in the author's original activities.

A particular work strategy was adopted in the project. In individual years, the author worked on new ideas Figure 9; these differed slightly from each other but were comparable owing to the

repetition of the scale and the method. The author takes notes, makes graphic sketches, takes photographs, paints, and sculpts. These activities are basically conducted in *situ*, but constitute part of the data and experience collection process. The author has performed numerous source queries, local visits to rural and forest areas (including lakes and watercourses), and has made some paintings in studio conditions. The project was launched in 2016. Over the years, the time spent on the activities and the multi-directional development thereof made it possible to return to the project regularly in the spring and summer seasons. Each sketch has its own sculptural or pictorial interpretation Figure 10 and 11. The collection of objects has become quite extensive. To date, dozens of objects and sets thereof have been created, as well as hundreds of photographs still awaiting full verification. This study deals with a specific aspect of the project; thus, selected examples that illustrate the categories identified since the commencement of the initial analysis will be presented. At this stage, the project was analyzed to verify the effect and, at the same time, the validity of the adopted research thesis. Another aim was to check the desirability and direction of further work.

5. The classification of the effects of activities to date

Due to the multithreaded nature of the issue and the various effects, several selection criteria were adopted when arranging and presenting thematic or substantive trails of the author's activities. Additionally, the classifications help organize solutions from several perspectives, when various features and values become a key for comparison or a deciding factor in creating categories that are juxtaposed for comparisons. The following classifications can be applied

(1) The thematic classification, i.e., following topography, blending into the environment, exploring border spaces, recomposition with biomorphic elements;
(2) The formal classification, i.e., in terms of individualizing the form of sculptural objects;
(3) The compositional classification.

The thematic classification can be presented as the first classification trail (Figure 12). The guiding principle with which to select places for specific objects assigns them to a specific category. Thus, the following methods can be distinguished under this classification: following topography, merging with the environment Figure 13, or exploring border spaces. Thematic categorization seems the most accurate method to illustrate the problem faced by the tool employed in order to search for architectural structures under the natural conditions of the Kashubian Lake District.

The classified categories group the created compositions; they suggest which real spaces may be referred to by the analyzed set of examples. The locations selected for the project have similar

Figure 12. Selected examples by thematic categories, in order: following the topography, blending into the environment, or exploring border spaces.

Figure 13. Blending into the environment.

counterparts in the Kashubian landscape. These comprise areas with good location accessibility, a specific topographic shape, and free of trees. There are wooded zones, forests, gardens, wetlands in meadows, etc. At the same time, the locations include border zones where the land meets the lake water border surface, areas of river channels, ponds, and forest swamps. The author's original activities explore similar places with the abovementioned assumption of a scale change. Minimized equivalents of potential architectural facilities are located in an area adequate to their scale at a distance of up to several building heights between individual elements.

Verifying the location on the water reservoir shore, or even on the edge of a puddle formed in the forest due to heavy rainfall Figure 14 can be seen as an example of exploring research and creative borders.

Following the topography may be illustrated by an attempt to embed objects in the escarpment or along the tree trunk layout, following the shape of the stone, or by arranging elements in line with the course of the tree roots part that protrudes above the ground, or arranging them inside a crack of dried peat in a swamp. Moreover, activities aimed at placing objects in a dense "undergrowth" would result in the emerging objects being favorably blended into the surroundings or being wrapped in nature. Figure 12 On the target scale, the "undergrowth" plants would have to consist of shrubs (e.g., hazel or elder and a meadow of tall grasses surrounding them or a dense

Figure 14. Mimicry forms.

Figure 15. Exploration of border spaces.

orchard filled with shrubs). Objects, together with their target scale, would have to balance the proportions between the "earth-sheltered" part and the one elevated above the vegetation level. Blending in with the environment can also be achieved by likening the introduced forms to natural ones, such as plants (live or the remains thereof), stones, and soil. Figure 15 Visual similarity ffers visually perceived assimilation. This action is derived from the mimicry phenomenon and is quite commonly applied in bionics activities.

Separately, activities with biomorphic elements that result in recomposing existing places on the premises of bionic analogies can be mentioned. Figure 16 The forms used in the layout emerged due to autonomous reflections on the form adapted to the existing nature. Ephemeral objects refer to shapes with their form. They repeat the existing directions; they reproduce the observed formal relations. Given such connotations, they return to the places that form the artist's collection of experiences.

Through the author's original sculptures, affinities and sources are investigated. They demonstrate a degree of the match but also carry the content of their own. Supplemented with the author's message, the sculptures introduce cultural values; they change the expression and mood of the place while maintaining the experience of consistency.

Figure 16. Recomposition with bimorphic elements, A. Kurkowska.

Figure 17. Selected examples according to the classification in terms of individualizing the form of sculptural objects (in order: the first and second type), A. Kurkowska.

The formal division accounts for different creative approaches under the method. Thus, the effect achieved to date can be divided into two groups, namely, solutions obtained through schematic, repetitive forms with the use of similarity and solutions in which a set of forms consists of a group of non-identical sculptures with a unique shape that nevertheless constitute an artistic whole. (Figure 17, 18).

This division results from various creative strategies that have successfully yielded specific research tools. The forms used to create the layouts served as the categorizing factor. Two types of forms were applied in the work, i.e., the schematic and individualized ones. They result in different creative trails and the division of research tools into the two subcategories mentioned above.

As already stated, schematic forms, but also ones without mimicry features (similar to the environment), were used for solutions of the first type. Solutions suggested by compositions and developed under this type pay more attention to possible general placement solutions, without individualized forms being considered at this stage Figure 18. The second type utilizes complex forms with unique shapes that create sets of a biomorphic outline. Each time, proposals developed in this way consider the values of individual elements from the set. The proposals honor and even emphasize the diverse character and distinctiveness of the individual elements Figure 19; they make these elements dedicated to the place. On the other hand, the first type of solutions gives freedom of consideration without such strong specific connotations.

Each type of solution serves particular observations; it makes it possible to assess another aspect of situational values, either a more general or specific one. Each solution type represents

Figure 18. Placing the schematic forms, A. Kurkowska.

Figure 19. Location of biomorphic forms I, A. Kurkowska.

a specific level of commitment to resolving the detail. It is saturated with a peculiar nature of the links and references considered.

Therefore, both types of solutions mentioned above come with distinct characteristic features. While the first type is less personal, more open and adaptable, the second one, being subjectively embedded, more deeply rooted, and specifically assigned to a given situation, is better defined for the selected location. The first type of solution seems more universal, whereas the second one allows studying one place or a group of very similar places, making it difficult to study general relationships.

Each type of solution offers a different level of detail for consideration and dedicated conclusions. It requires a different level of commitment. It prompts a conclusion that the first type of solution, being a research tool, allows focusing attention on the course of the line; it enables easy corrections while working on the layout; it leaves more room for imagination. On the other hand, the second type of solution seems more concretized and engaged more strongly at this stage in obtaining a satisfactory effect. It creates a closed composition while simultaneously making it possible to delve into the specific qualities of the effect obtained.

Yet, a third compositional method may be used while ordering and indicating the types of solutions, namely, the division within the implemented activities regarding the compactness of the created layouts of forms. In this case, the examples may be divided into cohesive and dispersed compositions. Figure 20 In cohesive compositions, groupings occur within a specific area or based on a densely filled line. Dispersed compositions, however, can be subdivided depending on, for example, the number of directions applied in the composition. Further division criteria can also be adopted in the classification based on composition guidelines, but this particular one is important from the level of the analyzed features.

Figure 20. Selected examples according to compositional classification—linear, grid, free layout, A. Kurkowska.

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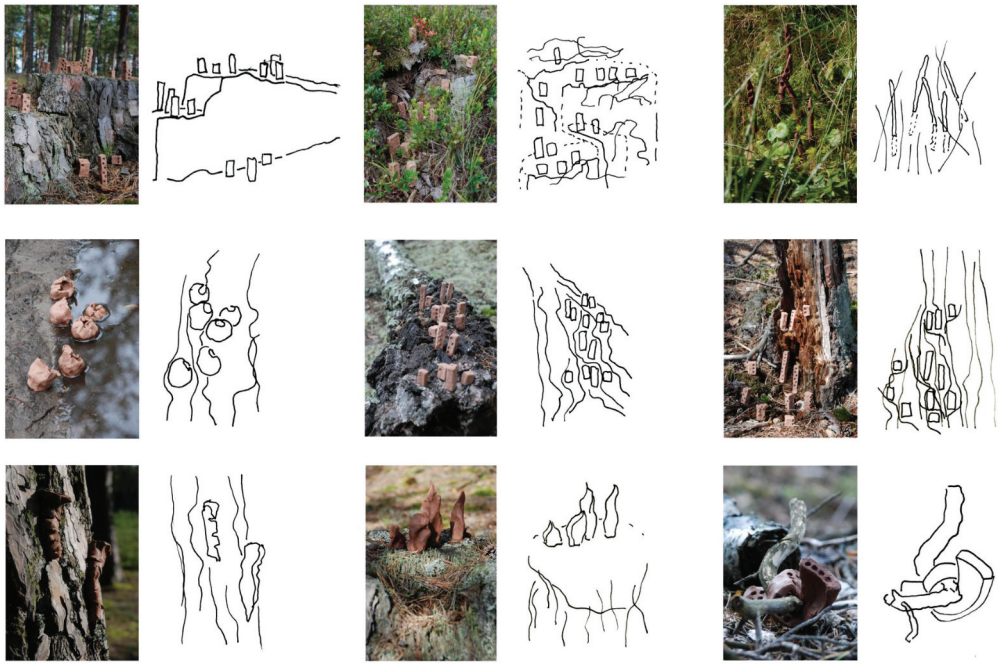

Figure 21. Conceptual sketches of potential urban layouts based on the conducted research—stage of analysis, selected examples, A. Kurkowska.

The indicated classifications seem comprehensive at this stage. However, a different division should be allowed if a different, specific value that has not been taken into account in the adopted division methods is examined.

Carefully studied nature, with its changeability and adaptability, provided inspiration and resulted in a source of design concepts. In individual cases, while comparing the newly-introduced objects to the existing ones, similarities in scale, structure, shape, the use of biomechanical qualities of the ground, the use of insolation, biomimetic analogies referring to the repetition of geometry or location could be noticed. At times, these analogies resulted from transferring observations from another place; elsewhere, the match with a particular solution is visible. Figure 21 The work yielded conceptual sketches of possible proposals for the layouts of objects, their shape, and their location. These illustrate the potential of the effects achieved Figure 21, 22.

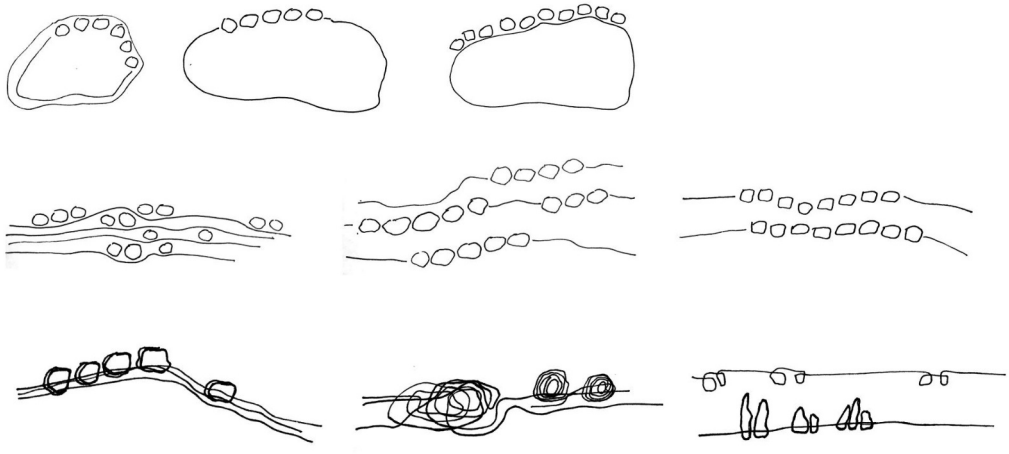

Figure 22. Conceptual sketches of potential urban layouts based on the research - preliminary interpretation of the results for selected examples, A. Kurkowska.

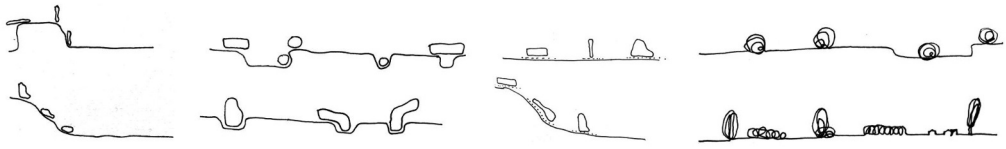

Figure 23. Design hints - diagrams of potential locations for architectural objects being an example of the effect of the process.

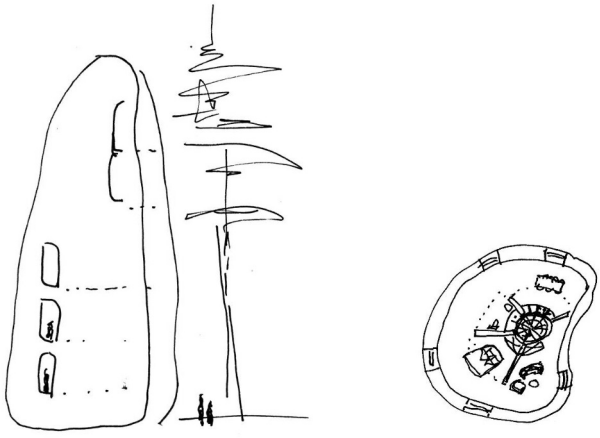

Figure 24. The concept of the architectural design of the house being an example of the effect of the process.

Owing to the collection of various data and having conducted numerous research tests, the project makes it possible to move to the stage at which design guidelines can be formulated; these guidelines are currently being developed by the author. Their nature is illustrated by the attached figures Figure 23, 24. The author attempts to group the guidelines according to the design process stage for which they could provide support. The first group will likely consist of location hints, as they present the potential for urban compositions Figure 22. The second group Figure 23 will comprise the location of individual objects (in systems with intensive urban development and independently, as single objects within extensive development). The third group of hints will likely be strictly related to the building—its possible form and usability, with an indication of potential functional and spatial solutions (as in the example of Figure 24. This stage still needs to be completed in the oil-based stage of work.

6. Conclusion

Architecture deals with spatial creations, sketching of thoughts, setting boundaries, constructing shelters, and co-creating the environment. At the same time, it provides housing for needs and helps stimulate sensations. “Space constantly encompasses our being. (…) dimensions and scale, the quality of its light—all of these qualities depend on our perception of the spatial boundaries defined by elements of form. As space begins to be captured, enclosed, molded, and organized by the elements of mass, architecture comes into being” (Ching Francis, 1979, p. 108).

The above examples show the scope and form of work within the author’s original project. They provide a confirmation to the thesis that through artistic activities inspired by them, natural conditions can serve as a starting point for formulating design guidelines. The author’s original project emerged as an attempt to create a tool for systematic work. A divergent approach to the problem results in various alternatives of non-obvious, innovative solutions. The effects are comparable; they can be classified and analyzed. Regardless of the category, the examples presented in this study illustrate regional values; they allow formulating and cataloging of such values. Studies of natural conditions and creative work have yielded some expected effects. By delving into the structure and examining the regional natural conditions, through successive stages of the methodically performed long-term

work, a catalog of creative solutions was created. The results can be used for further work on unique tailored forms of architectural objects and urban solutions dedicated to a given place.

Owing to the need for insight that motivated the author and inspired the study of the environment, the project is biophilic in its nature. It can also be assigned to biomorphic actions (as it is inspired by natural forms, their relations, processes that accompany existence), when considering the shape of sculptural forms and the inspirations used as their starting point. An attempt was made to understand natural processes (including perishing), but also to remark on their forms and stages, to follow their course, analyze and make theoretical efforts to apply them. All these actions were meant to arrive at a formula for the living space. As postulated in the works by Pallasmaa (Pallasmaa, 2016), architecture needs to return to the role of an intermediary between people and the world. Architectural objects designed as part of the project's continuation could serve as a temporary shelter; they could provide a form of the background against which life and its course could run in harmony with the non-human world. Perhaps this is also the direction of shaping the microenvironment as a place of community (after: Idem, 2014), i.e. one of the forms of searching for pro-social and environmentally integrating solutions.

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Notes

1. Kashubia: a culturally autonomous region in northern Poland, with an autonomous identity and characteristic rural development, with its own language, currently honored by visible respect for local identity and distinctiveness.
2. The provisions of Agenda 2030 of the UN resolution, cf.:https://www.un.org.pl/agenda-2030-rezolucja
3. Thematic studies refer to the study of source materials in the field of the geography and flora of the studied region, comprising the specificity of the lake district area, the history of settlement, focusing on the forms of inhabitation, *in-situ* research of selected places in terms of their particular shape and botanical diversity.
4. Bionics [gr.], a field of knowledge on the border of biology and technical sciences that concerns technical applications of the principles of functioning with regards to living organisms or processes observed in these organisms or in their communities, https://encyklopedia.pwn.pl/haslo/bionika;3877863.html [dostęp: 30.03.2022].
5. Bionics seen as an interdisciplinary science studies the structure and operation of living organisms. Architecture can draw on this research methodology; the results of analyzes of botanical forms (their structure and topographical setting, processes of growth and response to climatic and weather factors) can be transferred to the search within the plastic forms of architectural objects or purely artistic forms that precede them.
6. Based on: https://www.tate.org.uk/art/art-terms/s/site-specific [dostęp: 30.01.2023].
7. Selection of works: intentional project entitled "Schronienie" [Shelter], a series of sculptures and presentation, art festival "Pictures painted with fire" [Obrazy ogniem malowane], Gdański Archipelag Kultury PLAMA [Gdańsk Archipelago of Culture PLAMA], Gdańsk 2016; intentional project "Kapsuły tożsamości" [Capsules of Identity] (cooperation with Maciej Tryba), art festival "Pictures painted with fire" [Obrazy ogniem malowane], Gdański Archipelag Kultury PLAMA [Gdańsk Archipelago of Culture PLAMA], Gdańsk 2018; painting diptych entitled "Dream about Kashubian habitation" [Sen o kaszubskim zamieszkiwaniu], collective exhibition "Przestrzeń Otwarta" [Open Space], Instytut Wzornictwa Politechniki Koszalińskiej [Institute of Design, Koszalin University of Technology], Koszalin 2019; painting exhibition "Istota zamieszkiwania" [The Essence of Hanitation "Stacja Kultura" Istota zamieszkiwania [Municipal Public Library in Rumi]a, Rumia 2020; interdisciplinary exhibition (graphics/painting/sculpture/photography) entitled "Kaszubskie zamieszkiwanie. Studium" [Kashubian habitation. A study], PLAMA Gdański Archipelago of Culture Gdański Archipelag Kultury PLAMA [Gdańsk Archipelago of Culture PLAMA], Gdańsk 2020 (as part of the Scholarship for creators of culture of the Marshal of the Pomeranian Voivodeship, 2020 edition); exhibition of graphics and photographs "Kaszuby bionicznie. Studium formy" [Bionic Kashubia. Form Study], Kaszubski Uniwersytet Ludowy [Kashubian Folk University], Wieżyca 2022; exhibition of paintings and sculptures "dom w lesie. kaszubskie schronienie" [House in the woods. Kashubian Shelter]", "Galeria na piętrze" [Gallery on the first floor], Gdański Archipelag Kultury STACJA ORUNIA [Gdańsk Archipelago of Culture, ORUNIA STATION], Gdańsk 2022–2023
8. This character is especially revealed in the work by Ana Mendieta, i.e., "Untitled" from 1980, Cfr.: https://www.anamendietaartist.com/dostęp.
9. Jacek Tylicki, project „Natural art", commencement 1973. Cf.: http://www.tylicki.com/tylicki-polska.html [accessed: 30.01.2023].
10. Established by Izydora i Teodor Gulgowscy.

11. http://www.gdansk.lasy.gov.pl, Regionalna Dyrekcja Lasów Państwowych w Gdańsku, [accessed: 06.03.2018].
12. Regionalism is understood as an attempt to maintain the aforementioned local characteristics. Pro-regional activities are the opposite of the universalization and uniformization of culture. At the same time, they offer an antidote to the illegibility and sterility of spatial messages.

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