The Eugeniusz Geppert Academy of Art and Design in Wrocław
Faculty of Ceramics and Glass

The transition between industrial and natural landscape within the realm of abstract ceramics

Doctoral thesis in the field of the arts, in the discipline – fine arts and art conservation

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2021

European Funds
Knowledge Education Development

THE EUGENIUSZ GEPPERT ACADEMY OF ART AND DESIGN IN WROCLAW

European Union
European Social Fund

POWR.03.05.00-00-Z021/17-00
Internationalization of education, a competent teaching staff and modern management as a guarantee of quality and international presence of the Academy of Art and Design in Wrocław.

The project is co-financed by the European Union from the European Social Fund.

Abstract

Modern civilisational development is characterised by swift changes. Postindustialisation has become one of them. In the majority of countries the fast-paced development of industrial architecture was followed by its even faster decay, and as a result, a large number of industrial buildings remain standing without use, while slowly degrading.

The purpose of my research is to, with the help of art, actualize the topic of rethinking the artifacts of the industrial past, in particular, the revitalization of abandoned industrial buildings.

This paper mainly expresses the idea that during my research and creative process, I found a common point between matter created as a result of the disintegration of the industrial architectural environment, its transformation into a natural landscape and ceramic material. This project is multilevel since it concerns the historical heritage, and also explores the possibilities of clay as experimental material. In my work, I explore and test a wide range of techniques for processing and coating ceramic objects as well as firing methods.

In the context of my research, I refer to the fact that abandoned industrial buildings appear as a materialized memory. I assume what industrial ruins can tell us about ourselves and our past experience. I appeal to the beholder through the combination of multiple markers within ceramic objects, such as texture, size and color, assuming that they can trigger individual associations. Therefore this series of works explore the idea that a piece of non-representational art can make a chain of association with certain feelings or images that a person has seen before.

Not only in different eras, but also in the eyes of different social groups, each person, the same vanishing architectural heritage as well as works of abstract art, will be understood differently, giving the opportunity to discover new meanings.

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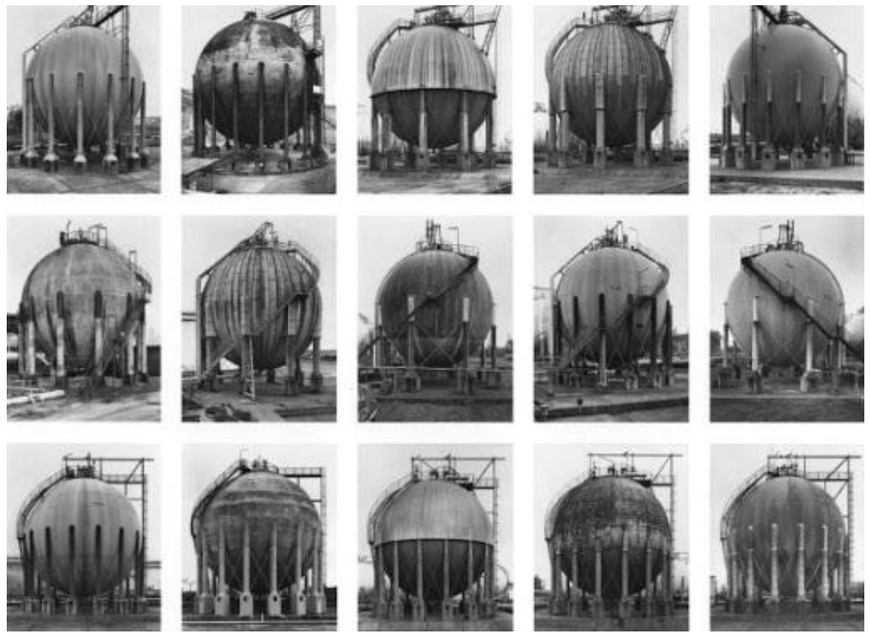
Introduction

The study “The transition between industrial and natural landscape within the realm of abstract ceramics” is a multi-level project, which consists of the following main conceptual areas:

- rethinking the industrial landscape in the context of preserving the industrial heritage;
- architectural ruin as matter and the significance of the medium in the visualization of this idea;
- creating hint-markers for possible influence on the viewer’s perception of non-representational artworks.

The first conceptual direction and starting point of the visual side of the art project is the topic of industrial heritage, namely the industrial landscape. The idea to develop a holistic concept was spurred by rising issues of rethinking the industrial heritage and the actual images of industrial buildings. I was fascinated by the works of Hilla and Bernard Becher, a couple who photographed the disappearing industrial architecture around Europe and North America starting from the late 1950s. For me the buildings (see Illustr. 1) in their photos look fascinating and look more like sculptural objects.



1. Bernd and Hilla Becher, Gas tanks 1983-92

It made me think about the current state of some of the industrial buildings, including in my country - Ukraine (Illustr. 2), which remain unused and without maintenance. It is a known fact that many industrial facilities have changed functions or ceased operations due to econom-

ic and socio-industrial changes that occurred with the transition of society from the industrial to the post-industrial period. As a response, some countries started extensive restructuring of non-functioning industrial areas. In Ukraine this process is just starting, the problem of repurposing non-functioning industrial structures still remains unresolved, many of them remain abandoned and are gradually collapsing, dissolving into the natural landscape. For this reason I put the image of the old, abandoned and decaying factories and warehouses in the middle of my doctoral research.

2. Wine factory in Lviv, Ukraine

The next direction is the appeal to the concept of “ruin” as a certain matter or substance that goes beyond the historical context and begins living its own life, changing under the influence of natural factors. I focus on the shape-forming potential of the destruction process and emphasize that the main medium I work with is clay, which in itself is the result of decay processes. In my art-works I draw analogies between these matters. This determined the direction of technological experiments, to which much of my research is devoted.

In this paper, I also provide examples of ceramicists’ visions of the industrial landscape which were most influential for me. Their works in different ways demonstrate individual artistic attitude to the topic of rethinking of industrial structures.

The final conceptual component of my project is the idea that the works can make a chain of association with feelings or images that a person has experienced before. Therefore the art-works have particular textures, sizes, and colours, the combination of which can evoke individual associations. I refer to the study of the perception of abstract art and the general mechanism of human perception, the ability or even the need of a human being to recognize abstract objects, which is largely based on individual experience. Basically, I refer to my own associations with certain visual spaces within industrial architecture. I transfer markers that are meaningful to me into artistic objects. It should be noted that this concept does not involve the collection of complete feedback from the viewer. I assume that my works interact with the beholder on an intuitive level, sometimes evoking certain associations, sometimes not, depending on the previous experience of each person.

1. Conceptual basis of doctoral research: industrial landscape as part of a complex issue of the industrial past. Rethinking industrial heritage from the point of view of industrial archeology.

One of the main goals of my research is to demonstrate the idea of the transition between industrial and natural landscape through the medium of clay. Through the process of research and creation, I also tried to establish the connection between visual art and the issue of rethinking industrial heritage, in addition to industrial archeology.

I view this subject through the lens of my personal experience with the industrial landscape in Ukraine. Visual patterns of industrial structures resonate in my mind, emerging from adolescent memories. With my current project, I would like to actualize the rethinking of the industrial past and the processes of revitalisation (post)industrial buildings.

First of all, to fully understand the topic one should turn to the influence of the technological advance and effects of industrialisation. As a matter of fact, the industrial landscape is a part of the complex question of industrial heritage, a consequence of technological progress, which fundamentally transformed society and its economic organization during the 18th and 19th centuries. The changes in the methods of manufacturing objects, resulting in an economic and social transformation were called "industrial revolution." It is worth noting that over time, industry has had an influence on the society, environment and the landscape. The Industrial Revolution, when agrarian and handicraft economies shifted rapidly to industrial, began in the United Kingdom in the 18th century and later spread around the world. The period of handicrafts changed to large-scale, resource-driven and labor-intensive production. Humans and animals, the traditional sources of power in the production process were replaced by water, then later by steam power, gas and electricity. "This signified the beginning of a historical phenomenon that has affected an ever-greater part of the human population, the landscape, and even the climate of our planet and continues to the present day."[1]

Although the mentioned historical period covers a relatively recent past, in the 1950s Industrial Archeology, a separate discipline which studies it, was formed. This relatively recent discipline originated in the United Kingdom. It deals with industrial heritage, the constructs and processes of human industrial organization and labor. In the 1950s the post-war renewal led to the destruction of much of the landscape associated with early industrialization[2]. These structures were viewed as a part of history and deserved to be rethought and preserved in one way or another. It becomes generally accepted that industrial archaeology is the branch of archaeology that deals with industrial heritage, the constructs and processes of human industrial organization and labor. Additionally,

[1] https://link.springer.com/referenceworkentry/10.1007%2F978-1-4419-0465-2_1769 [access: 5.03.2021]

[2] https://www.eolss.net/Sample-Chapters/C04/E6-21-01-11.pdf [access: 5.03.2021]

Industrial heritage by definition encompasses a broad array of objects, structures, landscapes and historical practices. Simply put, industrial heritage includes all of the social and material cultures directly or indirectly related to the people engaged in the creation of infrastructure and the production and distribution of raw materials, objects and energy. Industrial archaeology (IA) is the documentation and study of this social and material culture. As a practice, IA began with a distinct focus on identifying and documenting Industrial Revolution era sites and structures. But as the field matured into a discipline it grew to encompass much broader temporal and thematic domains including domestic sites and twentieth-century landscapes, broader topical areas such as technological evolution and environmental destruction and broader contributing disciplines including architecture, sociology.[3]

Industrial archaeologists have usually been concerned with the preservation of structures from past decades. Due to the economic and social production changes that took place with the gradual transition of society from the industrial to the post-industrial period, as well as the change of function or cessation of many industrial enterprises, which cannot fulfil their direct functions. This functionality change, renewal of technology and privatization are inevitable and pose a particular threat to historic buildings and areas. The technological tradition and the industrial engineering tradition are being interrupted because the architecture of the industrial era will not revive. At present, the decline of industrial activity in many countries has created another subdiscipline looking at the reuse of industrial sites and structures creating an archaeology of deindustrialization.

After all, when large-scale industry left the cities and deindustrialization took place, the restoration of buildings and the urban environment began. As a result of which, they were given back their lost purpose or given a new one. Areas of industrial facilities are increasingly attracting the attention of researchers because of their territorial and resource potential. Most parts of the city are already in use and every year there is a growing need to expand and develop the functions of the city. Industrial areas can be considered as a territorial reserve of the city.

I considered the industrial heritage mainly through my artistic interests and concept, which is closely related with the tangible embodiment, which includes: buildings, constructions, elements of infrastructure, equipment, machinery, artifacts and sites. I also take interest in this topic because the rethinking and revitalization of industrial architecture in Ukraine started relatively recently and this process continues to this day. Many buildings have been abandoned, they are slowly collapsing, dissolving in the natural landscape.

[3] https://link.springer.com/referenceworkentry/10.1007%2F978-1-4419-0465-2_1919 [access: 5.03.2021]

2. Industrial landscape revealed in the practice of ceramic artists.

The industrial landscape appeared with the development of large-scale production and urban construction. With the flow of time industrial structures have transformed, changing their appearance, shape and function. Some of them have been repurposed, some remain abandoned. However, I believe that buildings which constitute the industrial landscape are active assets with enormous potential in the field of architecture and urban planning. The topic of industrial landscape is revealed in the practice of numerous artists who work with the medium of clay. The most prominent among them are: Juan Orti, Enric Mestre, Irina Razumovskaya, Alexander Lichtveld, Sara Jeffries.

The most influential for me were works of Mestre, Razumovskaya and Jeffries. Irina Razumovskaya and Sara Jeffries take simple shapes, which often refer to industrial ruins, and combine them with complex textures. Enric Mestre, on the other hand, reveals the architectural environment simplified in minimalistic shapes. In my point of view, his sculptures refer to industrial landscape, even though he doesn't declare it anywhere. I share the views of all three aforementioned artists and for this reason, I chose to work with the synthesis of their concepts, creating contrast of straight lines and plains with rough surfaces.

Irina Razumovskaya was born in 1990 in Leningrad, USSR (now Russian Federation). She graduated from the State Academy of Art and Design in Saint Petersburg, Russia, as well as the Royal College of Art in London, United Kingdom, where she achieved her MA in Ceramics and Glass. Irina Razumovskaya is a member of the International Academy of Ceramics and she is currently employed as a tutor at Royal College of Art.[4]

Razumovskaya creates minimalistic abstract ceramics sculptures and installations. She makes simple shapes using wheel throwing, press molding and develops her own techniques through detailed experiments of ceramic surfaces.

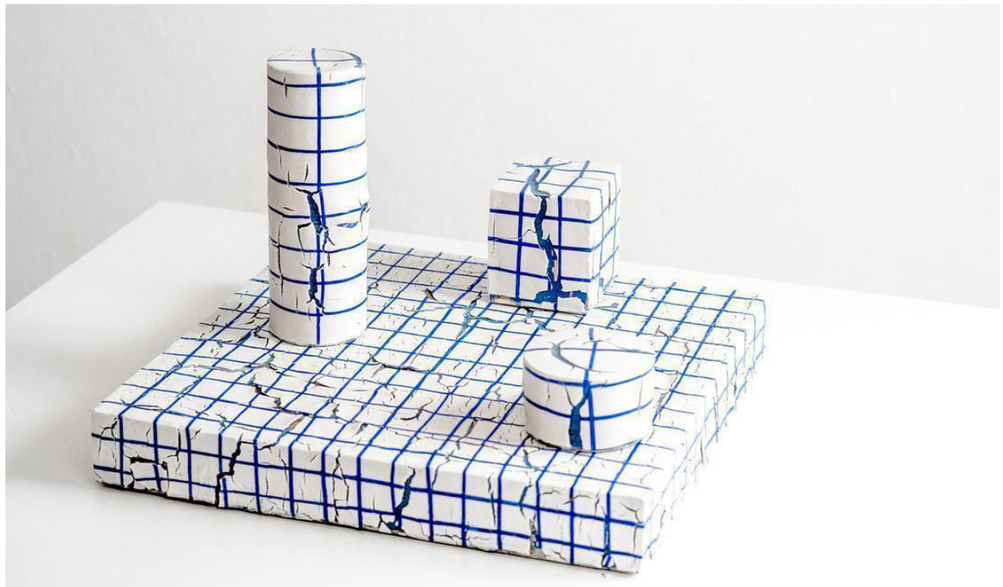
The artist says: "At the core of my practice is subtle imagery, like the aging of architecture where rigid things are softened with a touch of time… In my practice I evade tacking any narrative to my work, letting myself work intuitively using my aesthetic preferences and tacit knowledge".

She makes viewers reconsider familiar objects and draws attention to the common elements of architecture and their transformation. For instance, in the piece "Stairs" from "Built" series (see Illustr. 3), a simple geometrical shape can be perceived as half-destroyed remains of a stairway. It menacingly overhangs disrupting the space, looking as if it's about to crumble and fall off. In this series the artist works with a variety of textures, where peeling layers of the ceramics surfaces respond to irreversibility of time.

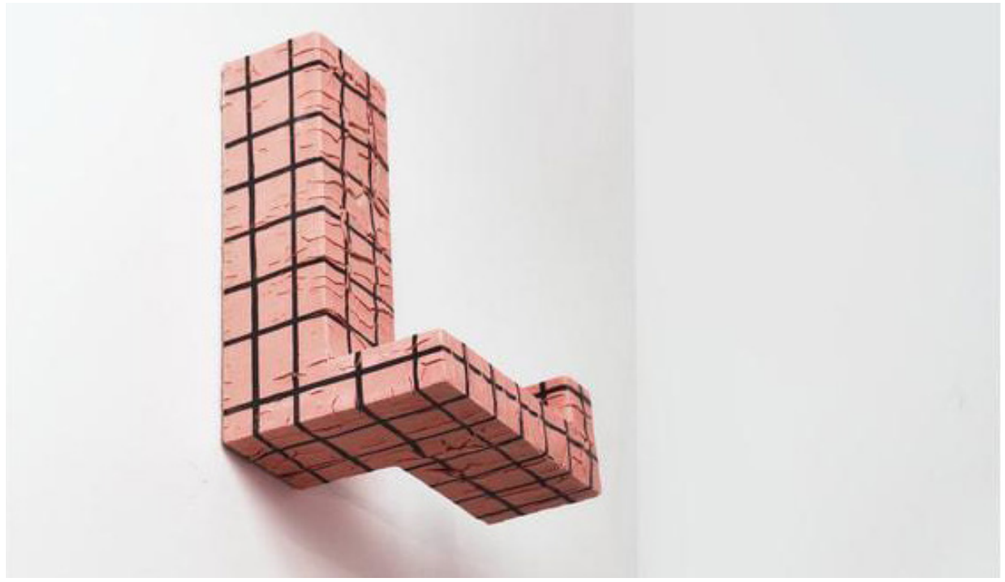
[4] http://www.irina-r.ru/bio.html [access: 5.02.2021]

3. From Built series, Stairs, 2019, 70 x 28 x 10 cm

In her "Grid" series (Illustr. 4, 5) Razumovskaya uses a grid pattern on the surface of the objects either referring to the tiled walls and floors of industrial interior or allude to the bars of a cage where a human being is hostage of the industrial environment.



4. From Grid series, "City through bars", 2018, 45 x 55 x 55cm



5. From Grid series, “Factory” I, 2018, 32 x 12 x 22 cm

The artist also works with multiple object compositions. A perfect example of her multiple object compositions is the “Construct” series (Illustr. 6). The artwork consists of simple geometric shapes, which when properly arranged, create an impression of architectural forms of an industrial city. Irina Razumovskaya uses a simple palette of warm colors, shades of grey and brick-red. The combined colors and shapes of the objects allude to the smog-covered horizons of an industrial megapolis.

6. From Construct series, “Construct”, 2016. 40 x 25 x 25 cm

The contrast of smooth lines of the cylindrical shapes looks consistent and well-balanced with the sharp cubic lines. Axially symmetric shapes, at first glance looking like functional ceramics (tableware) are devoid of their original purpose and refer to architectural forms, for instance water towers, silos etc..

Analyzing her artistic practice and views, we can draw an analogy with some of my artistic concepts. I assume that we both share similar visual surroundings, coming from the post-Soviet background. The process of renovation, rethinking and repurposing of industrial structures in post-Soviet countries began several decades later than in the West. Taking this fact into consideration, one can say that we both were witnesses to the decay and transformation of the aforementioned structures. The seemingly prosaic process of decay is an inseparable part of being, as all of these structures once were part of nature, their gradual destruction returns them to their initial state. I believe there is something poetic to it. I could relate to the words of Irina Razumovskaya in one of her interviews: “I’ve learned to find beauty everywhere. My main inspirations are very unromantic... I use dilapidation, forms of simple household objects, machines, or architectural details for my inspiration.”[5]

Another artist who created his own environments, in the way of remaking the landscape, is Enric Mestre. He represents the older generation of sculptor ceramists. Born in 1936, he studied at San Carlos Fine Arts School in Valencia and the ceramics school in Manises.[6] Mestre was a member of International Academy of Ceramics and has participated in numerous exhibitions around the world, among them are more than 35 solo shows. He is considered one of the key sculptors of the Spanish school.[7]

His sculptural objects are simple and harmonious, reminiscent of architectural constructions or conundrum objects. The artist creates geometric abstract forms using slab-built techniques. His artworks are distinguished by the simple palette, smooth surfaces that focus attention on the sharpness of the edges. In the opinion of Frank Nievergelt “Mestre creates ... works of a multiple and disconcerting appearance, which only by seeing them become spatial constellations. Thus, from an apparently static world, from the lived construction, from the measurements and proportions of frankly exemplary architectural works, he leads us to the cubic density and monumentality of his work.”[8]

In his art practice, Enric Mestre perfectly balances abstract, sculptural and architectural shapes. Though sculptural forms are carefully planned and developed, Mestre with his works insists on intuition – as if obeying a kind of constructive poetics.[9]

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[5] Ceramic Review, Issue 287, September-October 2017, p. 66-67, https://www.ceramicreview.com/issues/ceramic-review-issue-287/ [access: 13.01.2021]

[6] https://www.ceramicarchitectures.com/the-geometric-world-of-sculptor-ceramist-enric-mestre/ [access: 13.01.2021]

[7] http://enricmestre.com/en/curriculum/ [access: 13.01.2021]

[8] http://enricmestre.com/arquitectura-para-la-mirada/ [access: 13.01.2021]

[9] https://modernshapes.com/artiste/6-enric-mestre-sculptures [access: 12.01.2021]

7. Stoneware sculpture I, 16 x 36 x 17 cm

“Stoneware sculpture” masterfully works with the negative space, thanks to the sharp silhouette which alludes to the monumental forms of the brutalist architecture and industrial landscape (Illustr. 7). In addition to this, by using the inner space of the abstract sculptures he creates complex labyrinths complementing the abstinent external form. The smooth texture outlines the sharpness of straight lines and the rusted metal color refers to the iron constructions.

8. Stoneware sculpture II, 47 x 13 x 17 cm.

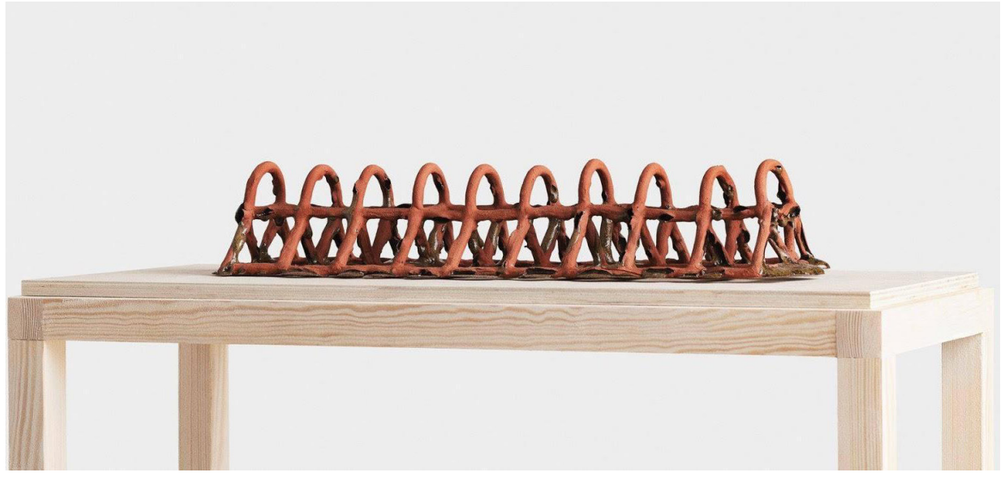
In “Stoneware sculpture II” (Illustr. 8), Eric Mestre plays with meanings and perception. He creates an object, in its proportions resembling a brick, a module, of which I associate with the architecture of megapolices. The balance of this static sculpture is broken by diagonal cuts, which create movement and dimension, a metaphorical conflict of two rooftops in dense development.

One can interpret Enric Mestre’s works in different ways. Sometimes they carry no resemblance with ceramics due to the clear-cut lines and surfaces which mimic metal. From my perspective the artist certainly draws his inspiration from the visual surrounding – the city, creating strict geometric order, balancing between slanted and straight lines. His cold solid shapes, viewed as a whole, create an impression of lifeless districts of an industrial city.

The last artist I want to introduce is Sara Jeffries. A Danish artist who comes from photography and craft ceramics backgrounds.[10] She creates sculptural translations of her photographs in clay mixed with other materials.

She was born 1986 in Nyborg, Denmark. Jeffries graduated from The Royal Danish Academy of Fine Arts, School of Design in Bornholm, Denmark in 2019. She previously studied BA Fine Art Photography in 2015 at Camberwell College of Arts,United Kingdom. Now Sara Jeffries works as a studio artist in Bornholm.

The artist experiments with overfired low-firing clay - earthenware, which is mixed with stoneware in various proportions. This approach results in melting or bending of parts from low-firing clay, often causing unexpected outcomes.



9.“Construction, disintegrate” stoneware and earthenware, 10 x 48 x 13, 2019

In her art piece, “Construction, disintegrate”(Illustr. 9), Sara Jeffries seems to imitate the patterns of metal constructions of industrial objects.

[10] https://www.sarajeffries.com/ [access: 15.01.2021]

10. “Construction, disintegrate” stoneware and earthenware, 10 x 48 x 13, 2019

She constructed the sculpture applying hand-building techniques. The clay for coils was mixed in a way that the low-firing clay is covered with a thin layer of high-firing clay. As a result, after high firing the low-firing clay started boiling and breaking out on the surface, tearing through the high-firing clay (Illustr. 10). The colors of the sculpture, the shades of brown-red and the contrast between glazed and matt surfaces imitate the surface of deeply corroded metal.

Sometimes her works exist on the verge of collapse. For instance, “Construction, collapse”(Illustr. 11) owing its shape to the deformation during firing. Its lines and curves look very natural. I think it would be very difficult to achieve that kind of shape on purpose.

11. “Construction, collapse”, stoneware and earthenware, 17 x 43 x 21, 2019, Denmark

It’s interesting how the artist works with space, her structures open for airflow appear incredibly light.

All the presented works of the chosen artists are examples of abstract art. I didn’t choose them by chance, as the idea of reinterpreting everyday objects and perceptible concepts by avoiding the narrative is very close to me. Despite the fact that my works are examples of abstract art, their shape, colour and texture are the carriers of information which can be specifically interpreted by the beholder as architectural elements in the context of transition between industrial and natural landscape.

The given examples exhibit how fundamentally different results can be achieved using the same material and basic techniques. Ceramics remains relevant and flexible, and suits different kinds of artistic expression.

Irina Razumovskaya and Sara Jeffries demonstrate admiration of textures of decay, man-made objects devoured by nature and transformation of the form. Enric Mestre, on the other hand, focuses on creating simple monumental forms. In summary, these works do not capture the real state of the industrial landscape, they rather show the individual artistic attitude and rethinking of industrial objects and a conceptual approach to the topic.

3. Overview of basic mechanisms of human perception, in particular, perception of abstract art. Their significance for my project.

The objective of this chapter is to introduce the theoretical basis of my research, which concerns the theory of art, psychology and neuroaesthetics[11]. Herein I would like to provide an overview of the mechanism of human perception in general, and the perception of abstract art. In addition, I want to draw attention to possible means of influencing the perception of abstract art by beholder, for example, the creation of "hint markers". In my opinion, these markers in their own way help the beholder to recognise objects or even create a story around abstract ceramic sculptures, because the beholder tends to do this unconsciously, regardless of the fact whether they are pieces of abstract or representational art.

This idea is one of the main conceptual threads of my doctoral research and artistic practice in general.

Taking the perception into account, it is worth mentioning that we receive information from the environment through sense organs, which are part of a sensory system, which in its turn receives sensory inputs and transmits this information to the brain. For a long time it remained a question for psychologists how to explain the process by which the physical energy received by sense organs forms the basis of perceptual experience.

The scientists' hypotheses were divided on whether perception relies directly on the information present in the environment or not. That was also the time when the idea that perceptual processes are not direct, but rather depend on the perceiver's expectations and knowledge as well as the information available in the stimulus itself, was proposed. This refers to the theories of James Gibson (1966) who proposed a direct theory of perception which is a 'bottom-up' theory, and Richard Gregory (1970) who proposed a constructivist (indirect) theory of perception which is a 'top- down' theory. Gibson's theory suggests that perception involves innate mechanisms forged by evolution and that no learning is required. This suggests that perception is necessary for survival – without perception we would live in a very dangerous environment. Our ancestors would have needed perception to escape from harmful predators, suggesting perception is evolutionary[12]. Instead, Gregory claimed that perception is constructive, therefore in the perception of the world around us we rely on the context and our high-level knowledge to correctly interpret the new information[13]. Once the brain makes the analogy between the new and the familiar, it gains access to the vast information it has already acquired about such objects during previous encounters. In many respects, a good part of what people perceive is memory, rather than sensory input proper. Eventually, researchers acknowledged that perception and cognition are both combinations of bottom-up and top-down influences[14].

The perception of abstract art is largely subject to the same processes as the recognition and understanding of the world around us.[15] This theory has had a great influence on my research, because I consider the works of this series not only as a means of artistic expression, but also as a visual information medium for the viewer . Therefore, it is important for me that the information markers I created respond in the beholder's mind. This idea determined the course of the study and influenced the shape, size, texture and color of the ceramic objects. It is based on the fact that visual recognition is shaped by memory and expectations accumulated from lifelong interactions with objects. Our memories facilitate the analysis of visual information[16].

My artworks concern the idea of remaking the relationship between a person's memory and abandoned industrial structures. All visual information carried by my ceramic objects and their combination in space can work as triggers for associations. First of all I transfer markers that are meaningful to me into artistic objects. The most informative part for me are textures, so I focused on their development. Through technological experiments, I tried to create ceramic surfaces that represent a variety of textures which appear in the process of transforming architectural structures into the natural landscape, namely, surfaces of objects referring to industrial archeology and remains of architectural ruins, relief textures of lichens and fungi on the surfaces of ruins. I assume that my works interact with the beholder on an intuitive level, sometimes causing certain associations, sometimes not, depending on the previous experience and memories of each person. I treat the beholder himself as a character (protagonist?) of what he sees in my artworks.

My project is built around the idea that perceptual experience depends on the involvement of the experiencer. In art history, this idea is captured by Ernst Gombrich's[17] 'beholder's share'. In neuroscience, it traces to Helmholtz's[18] concept of 'perception as inference', which is enjoyigrenewed prominence in the guise of 'prediction error minimization' or the 'Bayesian brain'[19].

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[11] Neuroesthetics is a subfield of cognitive neuroscience that studies the biological mechanisms and psychological processes evoked in the creator or the spectator when adopting an esthetic orientation toward an artistic or nonartistic object in the course of interacting with it. These psychological processes are related to perception, cognition, emotion, evaluation, social, and contextual aspects. https://www.researchgate.net/publication/277075886_Neuroesthetics [access: 12.04.2021]

[12] https://www.simplypsychology.org/perception-theories.html [access: 2.04.2021]

[13] R. Gregory, The Intelligent Eye, London, Weidenfeld & Nicolson, 1970, p. 156-162

[14] https://journals.sagepub.com/doi/full/10.1177/0963721420984403 [access: 20.03.2021]

[15] N.Tishby, D.Polani, Information theory of decisions and actions, New York, Springer, 2011 p. 601–636

[16] https://www.researchgate.net/publication/239524956_Visual_Predictions_in_the_Orbitofrontal_Cortex_Rely_on_Associative_Content [access: 5.03.2021]

[17] Professor Sir Ernst Gombrich OM (1909-2001)art historian, studied at the Theresianum and then at the Second Institute of Art History at the University of Vienna under Julius von Schlosser (1928-33). He worked as a Research Assistant and collaborator with the museum curator and Freudian analyst Ernst Kris. He joined the Warburg Institute in London as a Research Assistant in 1936. During World War 2 he was employed by the BBC as a Radio Monitor. After the war, he rejoined the Warburg Institute and became its Director in 1959. His major publications include The Story of Art (1950), Art and Illusion: A Study in the Psychology of Pictorial Representation (1960), etc. https://gombrich.co.uk/ [access: 5.03.2021]

[18] Hermann Ludwig Ferdinand Helmholtz (1821- 1894) a German physicist and physician who made significant contributions in several scientific fields. He studied at the Berlin Military Academy, in 1842 gained a Doctor of Medicine. From 1855 he took the chair of physiology and pathology in Königsberg. Other chairs followed, in Bonn (1855 to 1858) and Heidelberg (1858 to 1871). From 1871, Helmholtz became professor of physics and taught at the University of Berlin. In the late 1880s, he became the founding president of the Physikalisch-Technische Reichsanstalt in Charlottenburg. https://www.helmholtz.de/en/about-us/the-association/history/hermann-von-helmholtz/ [access: 7.03.2021]

[19] The Bayesian brain considers the brain as a statistical organ of hierarchical inference that predicts current and

The shared idea is that our perceptual experience – whether of the world, of ourselves, or of an artwork – depends on the active 'top-down' interpretation of sensory input. Perception becomes a generative act, in which perceptual, cognitive, affective, and sociocultural expectations conspire to shape the brain's 'best guess' of the causes of sensory signals[20]. I would like to cover more of the topic of the psychological aspect of art discovered by Alois Riegl in the early twentieth century, he called this phenomenon 'the beholder's involvement'. The scientist claimed that art is incomplete without the perceptual and emotional involvement of the viewer. The ability to interpret art in personal terms and adding meaning in accordance to what has been seen. Later Gombrich elaborated and popularized this concept and called it "the beholder's share"[21]. It describes a process of active completion of an image through a guided process in which the viewer's The The perceptual expectations and memories are projected onto and into an image. Helmholtzian notion that perceptual content is constitutively shaped by (explicit and implicit) expectations finds a natural complement in Gombrich's beholder's share.[22] Eric Kandel, in his insightful 'The Age of Insight', puts it this way: "The insight that the beholder's perception involves a top-down inference convinced Gombrich that there is no 'innocent eye': that is, all visual perception is based on classifying concepts and interpreting visual information. One cannot perceive that which one cannot classify."[23] In order to simplify this classification, and hence the perception I deliberately inserted certain information markers, as I mentioned earlier. Therefore, I can not classify my work as an example of pure abstract art, I am also close to the ideas of the Impressionists. After all, as Anil Seth[24] aptly noted: in impressionism "... viewer's contribution to perception is especially evident ... and explores the idea that the painted image provides, not a detailed pictorial representation of some external situation, but the raw material to ignite perceptual and associative representations."[25] My artworks are rather partially faithful representations of beholder's daily visual experience. Through the use of visual cues, I try to create conditions for the viewer that can become a starting point in the story that they will complement themself, relying on their unique

future events on the basis of past experience. According to this theory, the mind makes sense of the world by assigning probabilities to hypotheses that best explain (usually sparse and ambiguous) sensory data – and continually updating these hypotheses according to standard probabilistic rules of inference. https://www.fil.ion.ucl.ac.uk/bayesian-brain/ [access: 7.03.2021]

[20] https://psyarxiv.com/zvbkp/ [access: 1.03.2021]

[21] E. H. Gombrich, Art and Illusion: A Study in the Psychology of Pictorial Representation, New York, Pantheon Books, 1960, p. 132.

[22] https://psyarxiv.com/zvbkp/ [access: 6.04.2021]

[23] E. R. Kandel The Age of Insight: The Quest to Understand the Unconscious in Art, Mind, and Brain, from Vienna 1900 to the Present, New York, Random House, 2012, p.204.

[24] Anil Seth is Professor of Cognitive and Computational Neuroscience at the University of Sussex and Founding Co-Director of the Sackler Centre for Consciousness Science. He is also a Wellcome Trust Engagement Fellow, a Senior Fellow of the Canadian Institute for Advanced Research, and is Editor-in-Chief of Neuroscience of Consciousness (Oxford University Press). In his work, Anil seeks to understand the biological basis of consciousness by bringing together research across neuroscience, mathematics, artificial intelligence, computer science, psychology, philosophy and psychiatry. https://psyarxiv.com/zvbkp/ [access: 6.04.2021]

[25] https://psyarxiv.com/zvbkp/ [access: 6.04.2021]

prior experiences. These ideas were the impetus for my long technological searches and research, which are described in the next part.

To sum up, in contrast to the processing of daily objects, art is free from the functional restrictions imposed on the visual system during our daily life. Art is very often engaged in finding new ways to organize and represent objects and scenery. Also supported by recent experimental studies, Vered Aviv[26], the scientist whose experiments I mentioned earlier in this section, claimed that abstract art frees our brain from the dominance of reality, enabling the brain to flow within its inner states, creating new emotional and cognitive associations. The success of art in attracting a person's brain suggests that it has an important cognitive and emotional role.[27]

[26] Vered Aviv works at the meeting point between art and science. She completed her doctorate in the field of Neuroscience at the Hebrew University of Jerusalem and National Institutes of Health Maryland USA, after studying BSc.in Biology and MSc. in Neurophysiology. Her research topics were focused on the communication process within nerve cells. Her postdoctoral research at the Physiology Department at the Hadassah Medical School of Jerusalem was devoted to study the effect of calcium ions on nerve cells. https://www.jamd.ac.il/en/content/dr-vered-aviv [access: 7.04.2021]

[27] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3937809/# [access: 7.04.2021]

4. Implementation of the artistic concept of my research.

"When everything is lined up, it starts to have its own logic, and I have no control over it. That is another way for me to be dominated by objects. They start telling their own story... When objects start to have their own life - you cannot control… And then all of a sudden, I realize that is very much what I am experiencing in my life." Aki Sasamoto[28]

4.1 Shape, color, texture of artworks. Form shaping potential of the destruction process.

In this part, I propose to consider the concept of "architectural ruins and decay" in a broad sense in terms of the shape forming process. I also want to focus on how this idea has affected the visual part of my work, namely their shape and surface.

For me, ruins are a space in which the past does not end, they exist as a way of reflection, nostalgia and melancholy, their incomplete form gives an outlet for one's imagination and interpretation. This incompleteness can be seen as synonymous with instability or an open structure that guarantees its presence in the future, because the process of extinction and transformation is practically endless.[29] Taking the idea of destruction of the industrial landscape (human made landscape) and its further transformation into the natural landscape (matter) as the basis for my project, I emphasize that the main medium I work with is the result of decay itself. I consider the medium as a metaphor, because clay is a plastic sedimentary rock formed in its present form due to the processes of destruction.[30] For me, destruction is a continuous process of creating new forms and meanings, due to the transition of matter from one state to another. In my works I try to capture this change and point out the beauty of the object, by the means of minute details to show its primary function, belonging and essence.

Robert Ginsberg's definition of the shape forming potential of the process of destruction and ruin as a form is very close to me: "The ruin liberates form from its subservience to function. Forms, such as arched windows, remain, but they regain their selfhood as forms, while their former functions are cast out of the window… A shaping up comes from the tearing down."[31] I agree that the process of destruction creates new shapes, lines, shades of colours, and relations, moreover, this idea has determined the shape of my work. Therefore, the series of works made during the doctoral study consist of (abstract) nonrepresentational ceramic objects and compositions, as I assume, resemble parts of the destroyed industrial structures. I also use architectural elements

[28] Interview of artist Aki Sasamoto https://www.youtube.com/watch?v=ceaf1vosJPw [access: 20.04.2021]

[29] Interview with Alexander Paperno: "A ruin is a space in which the past does not end" https://artguide.com/posts/1887 [access: 7.04.2021]

[30] I refer to information from Ukrainian Encyclopedia in the field of "Mining And Earth Sciences" https://ela.kpi.ua/bitstream/123456789/30662/1/VUE_TRG_Girnytstvo.pdf [access: 7.04.2021]

[31] R. Ginsberg, The Aesthetics of Ruins, Amsterdam - New York, Rodopi, 2004, p. 15.

as a part of work or composition. The plinth cornices or stair constructions, I reinterpret them without reference to specific images or with significant changes when only some elements remain from the original source. Forms created by destruction that are in a constant process of renewal and change, seem quite random to me, so following this vision, I often did not have accurate sketches before sculpting, and estimated the approximate size and ratio of the sides of the object (such planning was also necessary in terms of technical aspects of the work - such as calculating the wall thickness of the object).

An important component of the "random" shape created by destruction, I consider relief textures, which could be more informative for the viewer than the form. Therefore, the shape of ceramic objects on the information load becomes secondary or equivalent to the surface of the object.

Relief textures are an active visual element of my work, they change the perception of shape, as they affect the outlines of the object and create additional effects of light and shade on the overall shape. Also the height and the surface pattern affects the integrity of the form, and contains information markers to create associations-analogies. After all, when a person sees the texture, they often recognize not only visual but also tactile characteristics, without even touching it, because, as we know, sense organs are interconnected. This reaction is based on previous interactions with similar materials.[32] In my art-work I use combinations of different textures to show tension and contrast between the straight smooth sides of the element and the rough surface, as well as a combination of matte and glossy surfaces. Equally important, I believe, is the use of colour contrast and nuance. Taking this fact into account I experimented a lot with coloured masses and clay based chemical mixtures, additionally changing the colour of the clay body by reduction firing - raku or saggar firing in an electric kiln. I spent a lot of time trying to achieve colours and shades which, in my opinion, could meet the conceptual and aesthetic requirements of the project and relate to the destruction of industrial structures, because colouring of ceramic objects in combination with texture and shape is one of the key carriers of information, and a starting point for creating associations. Sometimes certain combinations did not fully follow the original idea, but were subject to my aesthetic preferences and were a hint, rather than a direct reference to the image of a particular surface. In general, I was focused on working with gray clay with a high content of chamotte grogs.

After firing, they had a yellowish colour with small, contrasting, close-set speckles of dark gray grogs. Using such a surface, I draw analogies not only with the surface of architectural ruins, but with the image of white noise, which I associate with the rumble caused by the process of industrial production. In some cases, I reduced this active contrast with saggar firing in an electric kiln or making it completely invisible due to raku firing. In the first case, the reduction firing reduced the tonal contrast, in the second the clay body acquired a deep black colour with a metallic sheen. Such surfaces are more reminiscent of natural stone, or the material the origin of which is difficult to determine, something between natural and artificial.

[32] https://elr.tnpu.edu.ua/pluginfile.php/59956/mod_resource/content/1/Vlastivosti_prostorovoji_formi.pdf [access: 17.04.2021]

Work with coloured masses was based on the use of porcelain mass and coloured porcelain grogs. It is ought to be noted here that the use of this mass significantly affected the shape of the object, because the porcelain I used is not the most suitable one for manual molding, so I had less control over the shape than in the case of working with stoneware.

I used different combinations of colours for masses and grogs, but I consider the combination of muted pink and red, and dark green (almost black) to be the most successful one. In my opinion, such a clay mix resembles a brick surface. Another successful combination of texture and colour is a mass based on porcelain and low-firing grogs, which melted after high-firing. As a result, I acquired textures with the alternation of matted and glazed surfaces of dark brown and white colour. I believe the given combination draws analogies with brick surfaces as well. I was striving to keep my artworks in a simple palette, in some works by using muted shades of gray, in some on the contrary, by exhibiting the active colours of the destroyed structures. It was important for me to come up with the combinations of colour and texture that would send the beholder back to the existing surfaces without blatantly copying them.

To summarise the aforesaid, it should be noted that the visual appearance of my works largely depends on the experiments that were run and technological capabilities of the main medium - clay. This determined the direction of transformation of the shape of objects and their surface during the study. Sometimes it was difficult to plan the final form of a ceramic object ahead, because the created relief textures and colours changed the shape and its perception on each stage of work. The shapes of the art-works refer to the shapes of ruins, to the complexity and accidentality of their composition, created by nature.

As a matter of fact, in my artworks I did not give direct reference to industrial landscape, and referred to the image of "ruin" as a part of abstract architectural space. This is due to the fact that in this study, I was interested not only in the industrial landscape itself, but also the matter created by the transition of human made structures to natural ones. I presume that an important function of the ruined and decayed industrial space is mute communication with the beholder, because the ruins, in my opinion, allow to accumulate and broadcast the universal experience.

4.2 Experiments in the field of ceramics technology and their influence on the visualization of the idea of "ruin as matter"

This chapter focuses on the technological research which allowed me to form and change visual and tactile markers, namely colour and texture, to achieve the result which will satisfy aesthetic and conceptual requirements of the project.

As covered in the previous chapters, one of the key lines of research is rethinking the idea of the way texture and colour affect the perception of shape.

I roughly divided my experiments into working with:

- mechanical treatment of the fired ceramic surface - applying sandblasting technique[33];
- clay mixtures;
- glazing.

I would start by introducing the experiments of mechanical treatment of a ceramic surface, because in my opinion they have become crucial for the subsequent experiments in the course of research. In these experiments my approach was partly based on the idea that ceramic objects face the same factors of destruction as architectural objects, for instance exposure to air, water, organisms and temperature fluctuation. For this reason working with mimicking "time-worn" ceramic surfaces lies in the basis of my artwork creation process. I focus on "exposure to air", namely pressurised air; optimized and amplified the effects through the means of sandblasting (see Illustr. 12).

12. Examples of sandblasted surface of my artwork (on the left);
Image of concrete rubble wall (on the right).

[33] Sandblasting refers to the abrasive technique of smoothing, cleaning, and molding a rough, hard surface by pressurizing solid particles at high speed onto the material's surface. Sandblasting is used for a number of different purposes, including cleaning and decorating. https://www.ehow.com/way_5568885_sand-blasting-techniques.html [access: 4.04.2021].

This method has opened a wide range of possibilities in terms of working with texture and laying the foundation for further experiments. First of all, this treatment removes softer particles of base clay and opens up chamotte grogs[34], sometimes even making small holes in a shape (see Illustr. 13.).

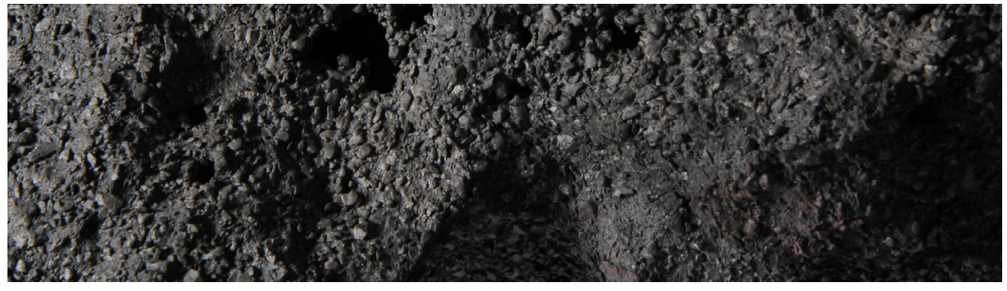
13. The image of the sandblasted surface of my work with small holes in a shape.

Sandblasting of stoneware pieces creates a texture resembling stone or fractured concrete surface (Fig. 1). The first test results defined methods of forming clay and properties of ceramic objects. For this reason, I started creating my ceramic works using the handbuilding technique. The parts which were to be sandblasted, were built with thin walls in order to reduce the time of sandblasting openings in them. The weight of such objects' percent of weight in volume appeared to be small and was reduced after sandblasting. Thereby this approach supports the concept even more: sandblasted objects, whilst appearing bulky and heavy, in reality are quite light and brittle. The massive industrial buildings which once changed the horizon also now appear to be quite fragile and helpless against time and nature.

Specifically for this project I conducted a number of experiments and developed several types of clay with different types of base clay and grogs. With each subsequent test the field for experiments expanded. The first step taken was creating the following clay mixes:

1. Based on stoneware with commercially available grogs with up to 3mm grogs mash. I attempted different proportions but the combination which worked perfectly from a technological and visual perspective was based on local grey clay in the quantity of 60%, 20% of 2 mm, and 20% of 3 mm grogs (see Illustr. 14).

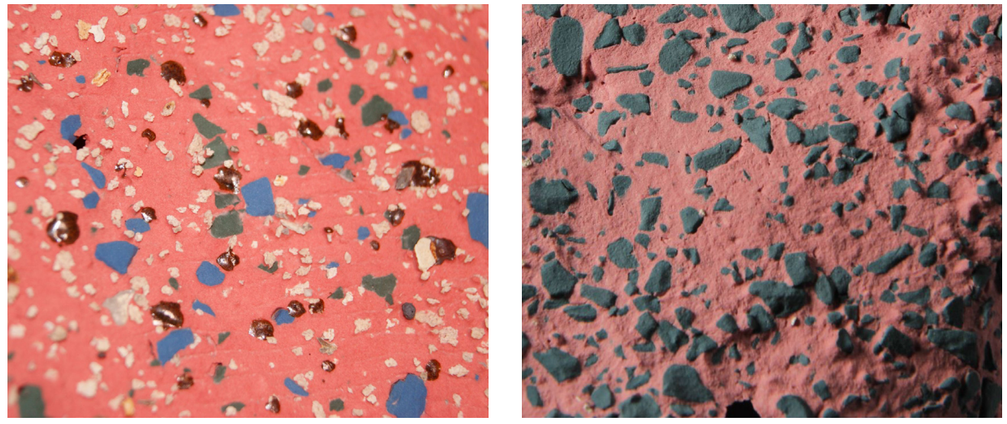
[34] Grog is a generic term referring to granular material made by grinding brick or other fired ceramic (although it can also be made by crushing certain natural minerals or artificially by calcining mineral and grinding it). Grogs are added to bodies to improve drying performance, reduce drying shrinkage, improve fired abrasion resistance, reduce thermal expansion, reduce fired shrinkage, reduce density, impart visual character, etc. https://digitalfire.com/material/grog [access: 4.04.2021].



14. Example of the surface of an artwork made of clay mix based on local gray clay and commercially available grogs (2mm and 3mm). This work has black coloring because of using raku firing technique.

2. Made of porcelain with cellulose fiber[35] and self-made grogs. To specify, the production of grogs presented me with an opportunity to control their size, colour and eventually their surface texture: matted or glossy. I produced several variations of porcelain based mixes:

- coloured porcelain with cellulose fiber mixed with self-made grogs also made of coloured porcelain which have a different colour to the base clay. After bisque firing, the surface of work was treated with sandblasting. The next and final step,which completely showed the colour of the colored stains, was high firing (see Illustr. 15). This clay mix allowed me to create a surface that resembles the surface of a brick made of red clay mixed with larger visible minerals, rocks, or brick fragments floating in the finer clay body[36] (see Illustr. 16).



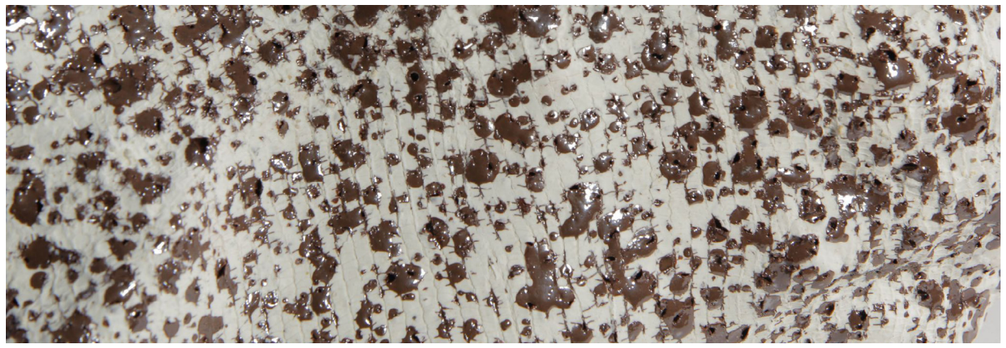
15. The two examples of work's surface made of coloured porcelain with cellulose fiber and self-made grogs from coloured porcelain.

[35] Due to the fact that I mixed the basic clay with a lot of self-made grogs, which evidently have lower shrinkage than the base clay, I reinforced the mass with cellulose fiber to prevent it from cracking, in other words, I made a kind of paper clay. Such a mass allowed me to obtain a consistency that contains quite a large amount of grogs and at the same time does not show negative effects during drying and firing.

[36] http://washingtonbricks.com/brickglossary.html [access: 1.04.2021].

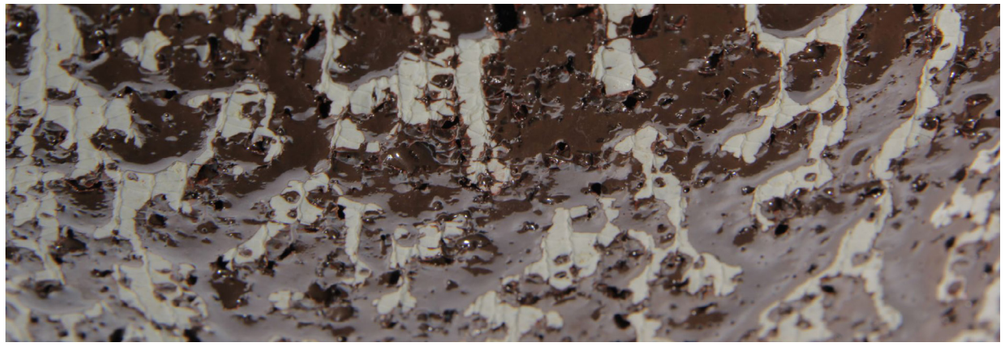
16. Examples of brick that contain larger visible minerals, rocks, or brick fragments. Some of these clasts are natural components of the clay, some may have been purposely added to the mix, which is referred to as grog.[37]

- porcelain with cellulose fiber mixed with self-made grogs made of low firing clay, local polish clay “Kadyna”. These grogs melted on high firing leaving small craters in a clay body and small shiny spots all over the surface. Also the textured surface of this clay mix looks different with and without sandblasting (see Illustr. 17, 18).
  In both cases, low firing stones melt and leak out. However, after sandblasting these grogs show more intensively on the surface, resembling drops of glaze running down the body of work. From my perspective, some of the objects made out of clay with malting grogs are reminiscent of bricks with splashes of iron oxide. In some other cases, it resembles rusted iron surfaces (see Illustr. 19, 20).



17. Examples of surface made out of a mix of porcelain, cellulose fiber and self-made grogs from local low firing clay - “Kadyna”. This sample demonstrates surface without applying sandblasting technique fired at 1320°C.

[37] http://washingtonbricks.com/brickglossary.html [access: 23.04.2021]



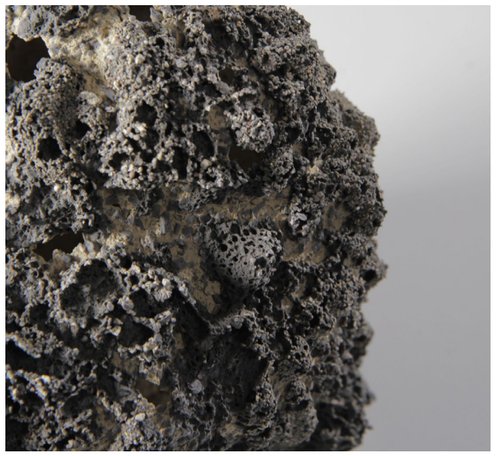
18. Examples of surface made out of a mix of porcelain, cellulose fiber and self-made grogs from local low firing clay - “Kadyna”. This sample demonstrates sandblasted surface fired at 1320°C.

19. Spotted bricks, a pattern of dark spots on the surface of face brick caused by iron or manganese oxides.[38]

20. Spotted bricks

[38] http://washingtonbricks.com/brickglossary.html [access: 1.04.2021].

I have also carried out a number of experiments to create glazed relief coating which could actively change the texture of the works. At first I worked with volcanic, or so called lava glazes, which in my opinion are the most textural. Most of the glazes possess this property because of Silicon Carbide powder which produces gases at the end of a high firing and creates glaze bubbles[39]. In my tests I started experimenting with the percentage of Silicon carbide in the glaze and its mesh, from 2% to 18% of the general mass, particle size from 90 to 800 me-shand up to different coating processes and layer thickness. Additionally, I fired tests both in a regular way and submerged into containers with quartz sand (there were two variations with different fraction and shade of the sand) and sandblasted them after firing (see Illustr. 21, 22).

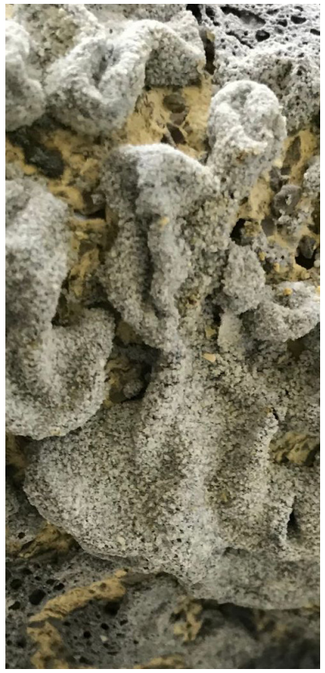


21. Test of black lava glaze fired submerged into containers with quartz sand 0,7-1,2mm particle size. The test piece was sandblasted after high firing.
22. Test of gray lava glaze fired submerged into containers with white quartz sand 0.5-0.7mm particle size.

Among other things, sandblasting of glazed surfaces had an exceptionally positive visual result. This is due to the fact that the structure of the volcanic glazing is based on roughly speaking, "air bubbles", most of which are immediately under the surface. Sandblasting removed the thin film covering the bubbles and revealed the porous areas of the work.

The achieved result resembles the natural shapes even more, surfaces formed with volcanic glazing bear likeness to the surfaces of the ruined buildings or just fragments of walls covered with organic matter. I associate this coating with a surface covered with patches of moss or fungus (see Illustr. 23, 24, 25).

[39] https://digitalfire.com/picture/2675 [access: 1.04.2021].



23. Lichen Lecanora hybocarpa;
24. Cladonia rangiferina, also known as reindeer lichen;
25. Test of lava glaze fired submerged into containers with white quartz sand 0.5-0.7mm particle size.

The previously mentioned tests with volcanic glazing inspired the next stage of research: the development of clay mixes which would serve as coating for ceramic shapes. These mixes melt at 1200ºC and act as something between an engobe and glazing, common ceramic coatings. The surface of these clay mixes was to resemble the lava glaze but with a more pronounced relief texture. The result can be achieved through bloating (formation of larger bubbles) and blistering (formation of smaller bubbles) of the clay body. It occurs after a clay body matures to the point that the surface seals due to glass development, but before generation of gases from decomposition of organic, carbonate or sulfate materials has completed. The internal pressures bubble the clay (since it has softened to the point of being flexible).[40] In most cases this property of the clay, for instance in craft ceramics, is considered a defect, while I decided to use it as an artistic effect.

As Tony Hansen[41] pointed out: "Bubbling occurs in some clay bodies if they are over fired; others just melt without bloating. Aggravating conditions that produce bloating include the presence of mineral particles (e.g. sulfates) that generate gases during the firing stage at which the body densifies toward zero porosity.

[40] https://digitalfire.com/trouble/body+bloating [access: 3.04.2021].

[41] Tony Hansen is a potter, researcher, author, software engineer and developer of ceramic body and glaze recipes. Author of Digitalfire Insight, Digitalfire Reference Library and Insight-Live.com. https://digitalfire.com/glossary/tony+hansen [access: 23.04.2021].

Clay bodies containing manganese granular particles to produce fired speckle will almost certainly bloat if over fired".[42] Otherwise speaking, bloating of clay is possible to control because it is affected by the presence of particular materials in the clay composition.

The masses I composed contained local clays, among which an important element was a local earthenware "Kadyna", I also added manganese oxide in the proportion of 10-20%. My experiments show that specifically manganese oxide and "Kadyna" are the ingredients which stimulated surface bloating. First, I mixed 4 kinds of clay mass based on the existing recipes (see Illustr. 26) and chose one whereby the texture met the requirements of the concept and started developing it. First of all I wanted to change the colour. Since the colouring ingredients in the mix were "Kadyna" (iron-rich clay) and manganese oxide, the colour was brown.

26. Four examples of different clay mixes. I started to develop the recipe of the clay presented in the second image.

For this reason the only way I can change the colour of the mix is to make it darker. I decided to do so by adding cobalt oxide in the amount of 5-20%. Test samples turned out to be almost black in colour and in case of adding a large amount of cobalt oxide - with green undertone. Their surface was glossy with a metallic sheen but the basic texture of the bubbles appeared to be much worse. Having analysed the results I decided to try adding other metal oxides or their combinations. I mixed seven variations of the mass adding three metal oxides in the measurement of up to 12% of the overall weight of the mass: cobalt, copper and manganese, in different ratios. Later, I chose those two of them which best fit the concept of creating textures resembling existing surfaces (see Illustr. 27). Cobalt oxide prevailed in one of the clays, in the other one the component changing the colour and surface texture was copper oxide. Therefore through experimental work, I was able to develop two types of surfaces - matted and glossy (see Illustr. 28).

[42] https://digitalfire.com/glossary/bloating [access: 1.04.2021].

27. Some examples of clay mixes I made to change the surface texture by adding metal oxides

28. Two types of surfaces I developed for the project. Copper oxide prevails in the first clay, in the second one the component changing the colour and surface texture is cobalt oxide.

At the same time I was working on the development of a mass which, after grinding, could be used as grogs with the property of self glaze - my goal was to achieve a glossy surface of the particles. This idea came up after testing the mix of porcelain mass with grogs from local earthenware (low firing clay). In these tests the grogs made from local earthenware melted after high firing and therefore obtained a glossy surface (* because the sintering point of this earthenware is 1100ºC, and it was fired at the sintering point of porcelain, base clay - 1320ºC). I was satisfied with the way this surface looked as a result, but I needed more control over the colour of the shiny grogs. Since the earthenware I used - "Kadyna" - had a reddish-brown colour, I could only change the colour by darkening. For maximum control of the pigment colour and to simplify the work with coloured masses, it is worth choosing white clay, as it will act as a white background for the pigment. Therefore for mixing the coloured self glaze grogs, I chose porcelain as the base clay and mixed it with the coloured pigment, then added the clear base glaze in different percentages. Clear glaze in this experiment played the role of glass-forming ingredient.

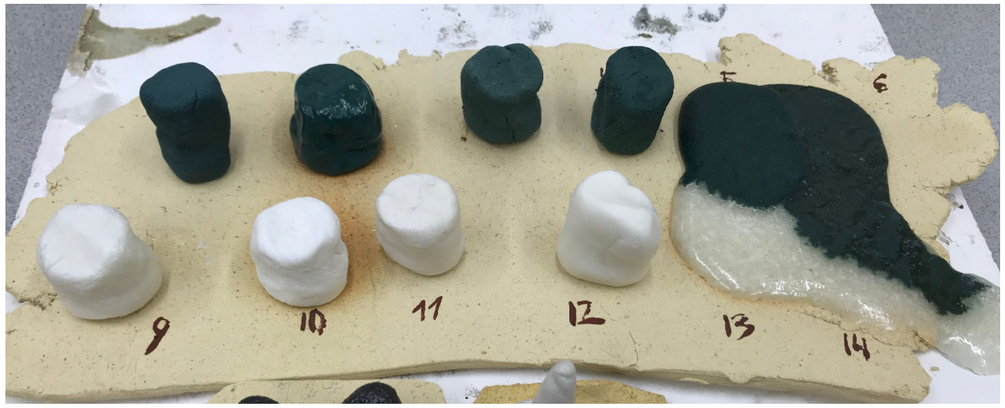
To determine in what proportion the mass begins to become glossy, I made 9 samples with different ratio: 10/90%, 20/80%, 30/70%, 40/60%, 50/50%, 60/40%, 70/30%, 80/20%, 90/10%, where the first number is the percentage of glaze, the second - clay mass (see Illustr. 29). The results of experiments showed that the desired effect can be achieved by adding 50-60% of the glaze to the mass. With a larger amount of glaze, the mass begins to deform and change colour, becoming brighter.

29. These test pieces demonstrate how clay mass changes after adding different ratios of glaze.

It should be noted that these proportions are relevant only in the case of a specific mass with a specific glaze. It also turned out that this mix has some negative nuances too: a high percentage of glaze makes it quite brittle after bisque firing. I mix self-made grogs with the base mass only after bisque firing, so I need these particles to be strong enough not to crumble during mixing with the mass and shaping. Therefore I continued my experiments to determine which material can be used to achieve a glossy surface with a lower content of glaze in the mass. To do this I chose 6 ingredients: several types of transparent glaze, including one low-temperature and several frits, two melters - materials that reduce the sintering temperature of clay, and respectively, its melting point - gerstley borate[43] and hydrated calcium borate. I mixed the above ingredients in proportions of 25% to 75% with two types of clay: parian[44] and porcelain based mass with the addition of stain and a small percentage of cellulose fiber. After high firing at 1200ºC, I got unexpected results (see Illustr. 30).

[43] Gerstley Borate is a material commonly used in recipes as a melter. The recipe produces a variegated surface but is difficult to replicate since its fragile mechanism makes it susceptible to variations in thickness, firing schedule, clay body and material supplies. (https://digitalfire.com/material/gerstley+borate [access: 5.04.2021])

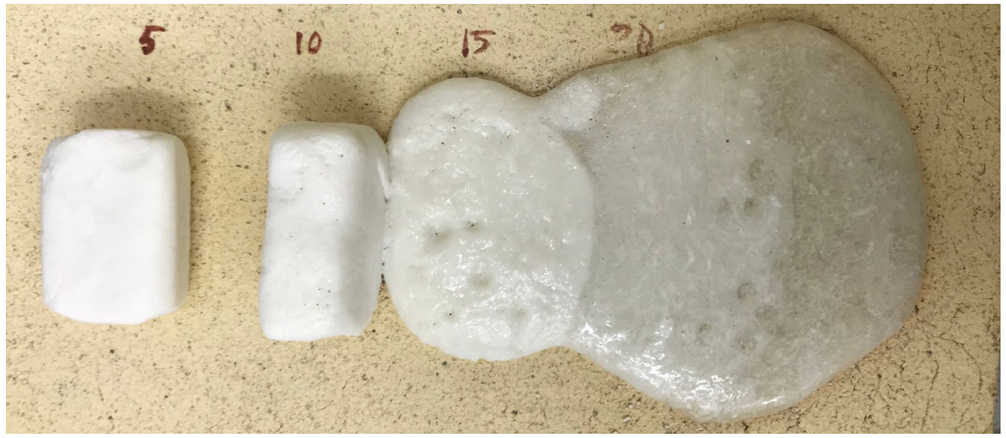
[44] Type of porcelain that became vitrified and marble-like without glaze, which allowed for the reproduction of otherwise large and heavy sculptures. This was developed to imitate bisque-fired porcelain from Sèvres, which was in essence fired but unglazed porcelain. (https://ceramicartsnetwork.org/ceramics-monthly/ceramic-supplies/ceramic-raw-materials/composing-a-workable-parian-clay-body [access: 3.04.2021]



30. The parian and porcelain based mass mixed with (from left to right): frit A3383P, frit 2030, glaze WT 13000, NT 13000, gerstley borate and hydrated calcium borate in proportions of 75% to 25%.

Most of all I was surprised with how the gerstley borate and hydrated calcium borate affected the surface and shape of the test pieces, they completely melted them down, turning them into a glassy glaze-resembling mass. It was obvious that 25% of melter was too much, so the next step was to calculate the required percentage of each of the components in the mass. To do this I mixed the clay mass separately with gerstley borate and hydrated calcium borate at a percentage of 95/5%, 90/20%, 85/15%, 80/20% and 75/25% to calculate the required amount of each melter in each of the tested clays (see Illustr. 31, 32)..

31. Clay samples based on parian mixed with hydrated calcium borate before firing.



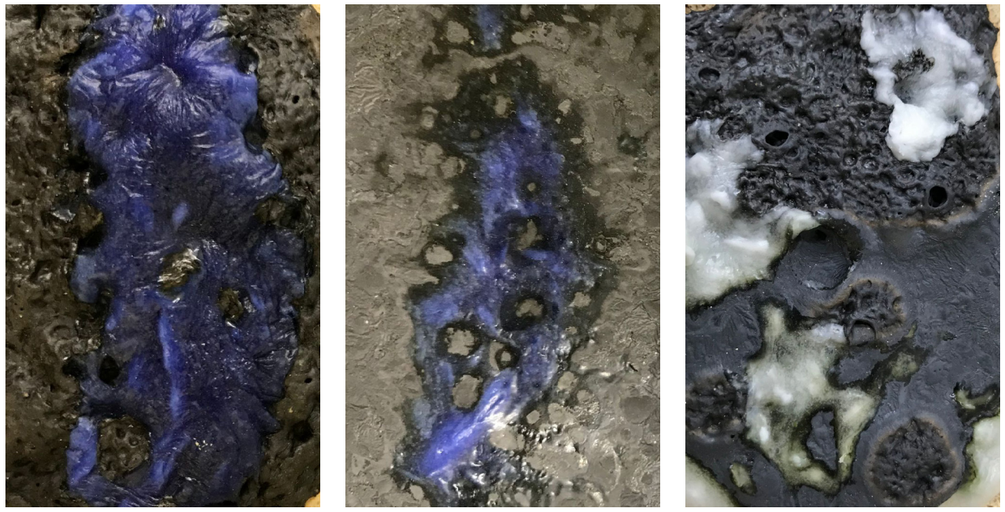
32. Clay samples based on parian mixed with hydrated calcium borate after high firing at 1200 C.

The firing results showed that the deformation starts to appear after adding 15% of melter or more, especially in parian, with a firing temperature lower than ordinary porcelain and it contains glass-forming components which already make it somewhat self glazed and translucent. It is worth noting that the addition of these melters also affects the bloating of the clay body. Also the nature of bloating parian (shape and frequency of craters formed by bubbles) is different in case of each melter. But both hydrated calcium borate and gerstley borate at amounts exceeding 20%, affect the parian in a way that it loses its white color and takes the form of a clear cloudy glass with frozen bubbles inside. When testing the mix of coloured porcelain and cellulose fiber with both melters, bloating was not so significant and was expressed in the form of boiling and swelling of the surface, but without the formation of a crater texture and complete melting of the test piece. After these experiments, I made test pieces of coloured parian with the addition of one of the melters - hydrated calcium borate, the texture of which I consider most suitable for this project. I mixed 6 samples on the basis of different stains with the addition of paper (which in my opinion slightly changes the texture of the mix) (see Illustr. 32).

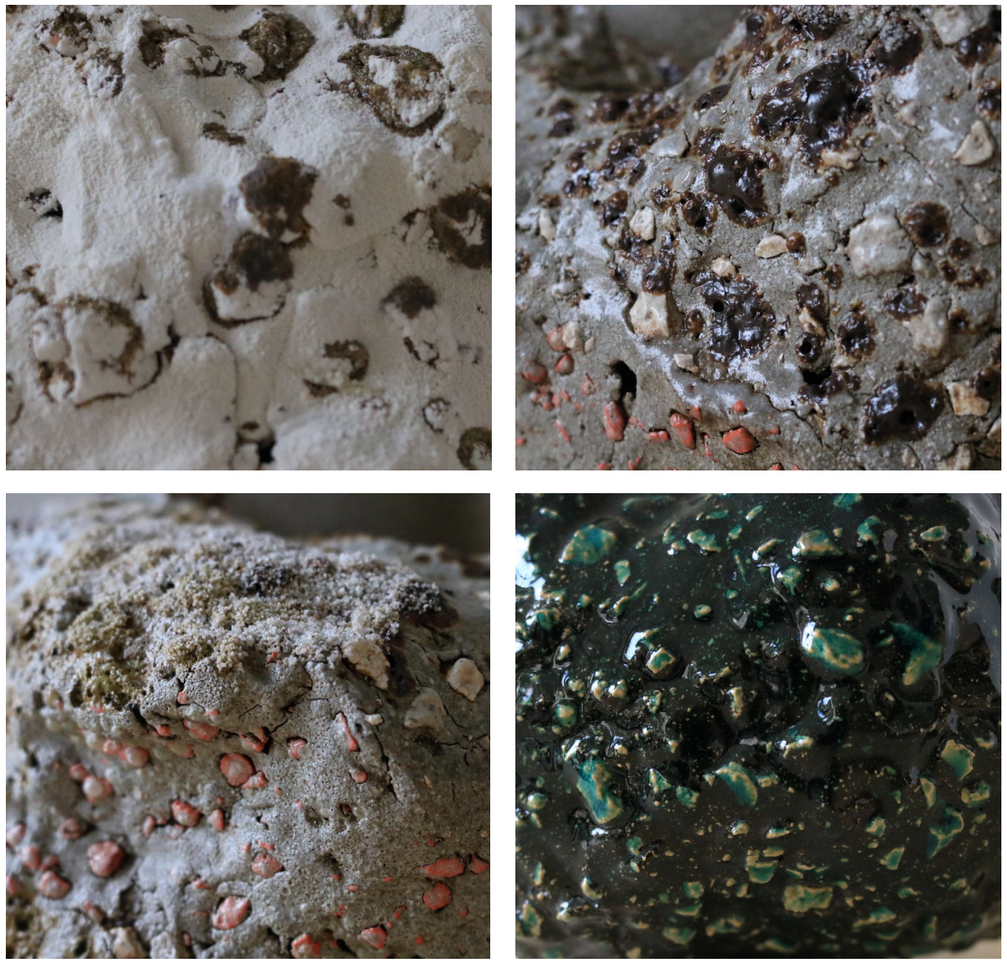
33. Clay samples based on parian mixed with stains, cellulose fiber and hydrated calcium borate.

The obtained results showed that hydrated calcium borate in combination with the glass-like surface enhances the intensity and brightness of the stain colour. After conducting these tests,

I also had the idea to mix and apply self glaze masses with mixes I made to create crater textures reminiscent to volcanic glaze (see Illustr. 33).



34. Examples of surfaces obtained as a result of mixing (superimposing raw mixed masses on top of each other before high firing) of a few types of coating I developed.



35. Examples of surfaces of works that were created on the basis of technological experiments during doctoral research.

My research work consists of a large amount of experimental work in the field of ceramic technology. It is based on the idea that clay mixes and the materials used to cover them form a single substance. An important part of my tests was that often the results of one experiment were developed into another one. I also used different types of decorative coatings, in a way that sometimes it is difficult to distinguish them and understand to which category a particular coating belongs: engobe, glaze, or just a chemical mixture.

In my work, I aim to reinterpret the existing surfaces that visualize the concept of transition between industrial and natural structures.

As I mentioned in the previous chapter, the surface, the nature of the texture and its colour, as I anticipate, could be the impetus for the beholder to make associations with architectural and natural structures. At the same time, the shape of the works, which partly refers to the outlines of industrial ruins and is in fact unreproducible, becomes secondary, and thus perhaps less of an information carrier than the structure itself and the material used. What comes to the fore is the ceramic material obtained as a result of the experiments, which is a metaphor of the matter of architectural ruins, where the transformations of architecture harmonize with the transformations of technological processes in ceramics and in both cases, under the influence of nature, begin to live their own rhythm.

5. Doctoral dissertation: practical part. The series of ceramic objects.

The result of my research “The transition between industrial and natural landscape within the realm of abstract ceramics” is a series of artworks alluding to the crumbled industrial landscape that dissolves into nature. I created objects that imitate the surface and forms of decayed architecture and natural surfaces as much as possible. The art-works of this series can be roughly divided into several categories according to the concept, form and method of execution.

Three-dimensional sculptures, made of sand-blasted chamotte clay. Referring to the form of these objects, they can be interpreted as parts of destroyed walls, while at the same time they resemble natural stones (Illustr. 36-40). All the objects are made in shades of black and gray, sometimes a subtle color of dark green and brown has been introduced, which in my opinion makes them full of the nostalgia I (and I assume also the viewer) feel when looking at ruins. Being extremely fragile forms, they emphasize the defenselessness of industrial architecture against external factors and the passage of time.

36. From series “Parts”
65 x 48 x 30 cm

37. From series “Parts”
63 x 36 x 28 cm
42 x 59 x 35 cm
65 x 48 x 30 cm

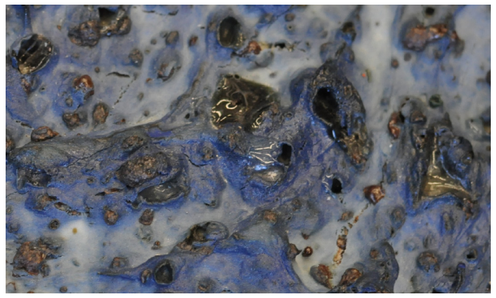
38.

39.

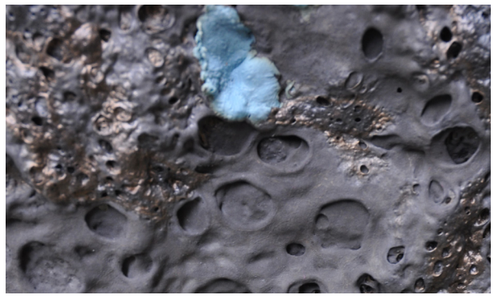
40. From series “Parts”
15 x 16 x 7 cm

Another group of forms consists of flattened objects resembling corroded plates. I was inspired by various architectural textures, which were created in the process of disintegration of industrial objects. I tried to show a rich palette of colors and their shades, referring to the complex, layered discoloration found in abandoned, deteriorating buildings. I interpret these works as “living” matter constantly subjected to external influences, resulting in a distinct relief surface. Flat slab-like objects in combination with three-dimensional laconic ceramic objects made of chamotte clay are a proposal to show the whole multilayer character of architectural details. These objects in their shape and the way they were made are completely different from the previous group of objects. They are rather a free interpretation of real objects as they do not directly refer to existing surfaces, colors and textures. I see them as fragments of walls taken out of context and transferred (placed) in another reality (Illustr. 41-50).

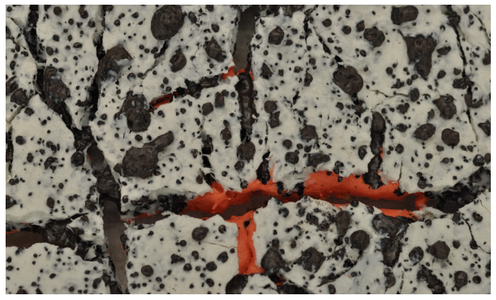
41,42. From series “Surfaces”
28 x 7 x 6 cm
16 x 15 x 5 cm



43,44. From series “Surfaces”
45 x 28 x 2 cm



45, 46. From series “Surfaces”
37 x 32 x 7 cm



47,48. From series “Surfaces”
35 x 54 x 8 cm

49,50. From series “Surfaces”
23 x 72 x 6 cm

51. From series “Found objects”
65 x 15 x 16 cm

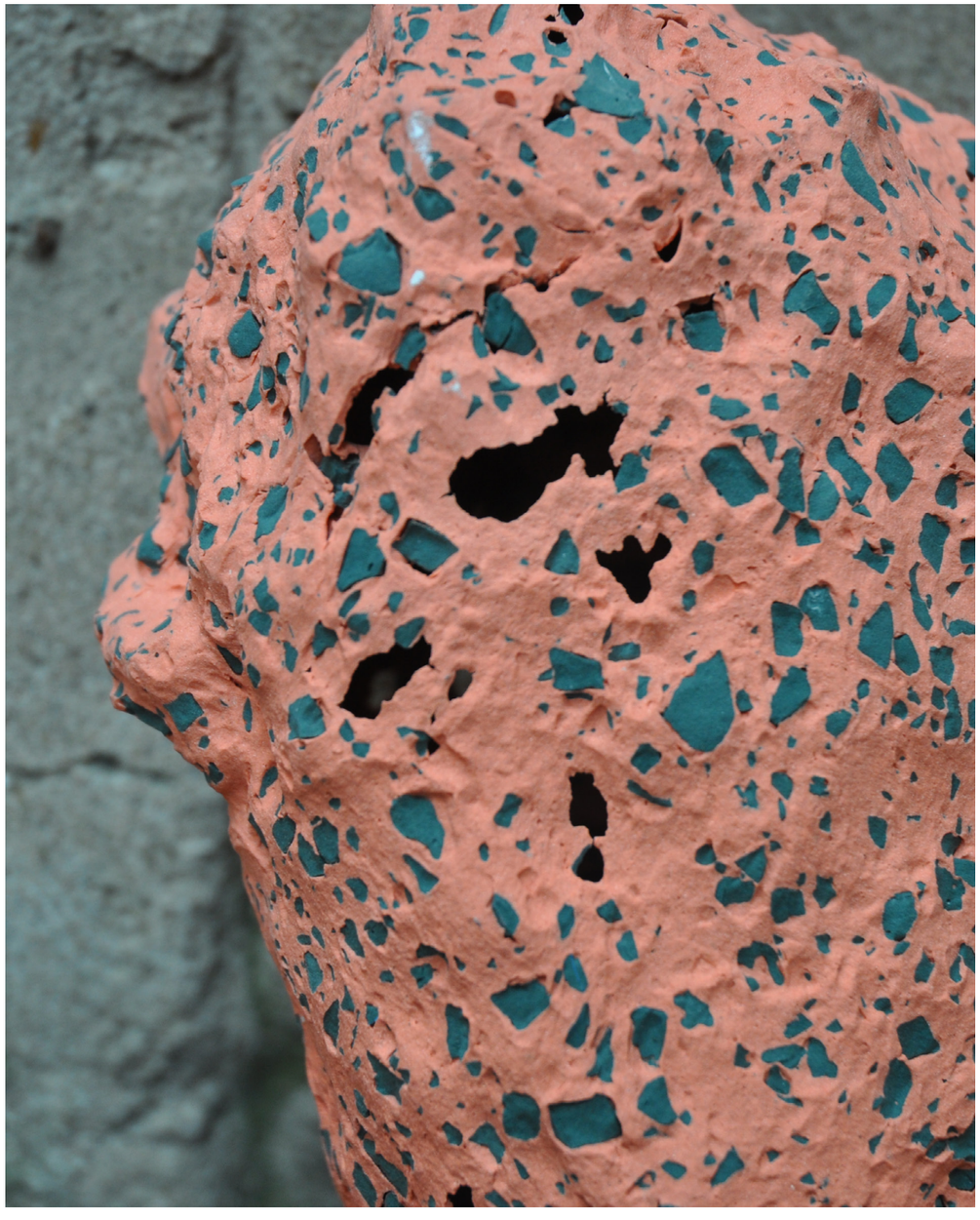
The next group of objects demonstrates another possible direction of transformation of the ruin absorbed by the environment (Illustr. 51-55). They are made of volcanic glaze coated chamotte clay and burnt in a container filled with sand. Thus, I was able to reproduce a stone surface close to natural, covered with lichen or moss. It is important for me to show in different ways the disintegration of architecture and the beauty of this transformation.

52,53. From series “Found objects”
65 x 15 x 16 cm

54, 55. From series “Found objects”
67 x 13 x 12 cm
65 x 15 x 16 cm

The final group of objects are the works made of coloured porcelain mixed with handmade grogs (Illustr. 56,57). They have an atypical rich colour which makes them stand out from the rest. In these works, drew an analogy with the shape and surface of the destroyed red brick. The large number of sandblasted holes and sandblasting of the surface makes them extremely light and demonstrates that they are empty inside. This fact confuses the beholder and makes them want to learn the real weight of the ceramic piece, while questioning how much it refers to the real object.

56,57. From series “Found objects”
21 x 16 x 12 cm
19 x 21 x 11 cm



The collection of ceramic objects, prepared within the framework of my thesis work and consisting of four separate cycles of works, is the result of my research and experimental approach to ceramic matter. They are in fact only the beginning of my journey, they are part of a larger project which I plan to develop over the upcoming years. The time of my thesis research, due to the pandemic period, was not the most comfortable moment to realize such technologically difficult objects. I feel unsatisfied, but at the same time satisfied that I was able to “cooperate” with this uncontrollable matter and tame it enough to realize a collection corresponding to the topic I had in mind.

Conclusion

The industrial landscape is a part of a complex concept of industrial heritage. For me, industrial architecture is a historical past captured in monumental forms, which is why it is so important to rethink and preserve it.

The research is aimed to show the idea of transition between industrial and natural landscape through the medium of clay. As mentioned earlier in this paper, by the process of research and creation, I tried to make a link between the rethinking of industrial heritage and the visual arts. In the research I use the image of the ruin to show the current state of many industrial structures, in my country in particular. For me this image is the best visual expression of the aforementioned idea, as it captures the result of the transformation of the industrial landscape into a natural one. The process of destruction creates new shapes, lines, shades of colors, and relations. I also consider the material of the ruin and the ceramic material, created experimentally, as similar substances. It should be noted that clay, as the main medium, carries an important role in the project. Working with this material imposes certain technological limitations, makes its own adjustments and affects the artistic expression. Nevertheless, for me, ceramics is a material of boundless possibilities, which promotes flexibility of thinking and changes the nature of the creative approach. Therefore, technological experiments played a key role in shaping the end result.

The result of the research was the creation of a series of abstract works that do not contain direct references to the industrial landscape, but rather record its transformation under the influence of natural factors. When creating works of abstract art, I was interested in how they can be perceived by a beholder. As I mentioned earlier in this paper, I assume that all visual information: texture, color and shape carried by my ceramic objects and even a combination of works in space can trigger beholder's associations. I transfer hint markers that are meaningful to me into artistic objects and assume that my works can create certain associations with an industrial landscape, or not, depending on the previous experience and memories of each person.

The series of works created as part of my doctoral research, transfer the theory and concept to practical creation. These abstract ceramic sculptures are a unique display of my creative ideas. Combined with the concept of transition between industrial and natural landscape this series of works has a strong visual impact on the viewer and broadens their understanding of the topic of industrial past and the problematics of preserving industrial heritage. I also believe it contributes to the viewer's perception of reality, because as mentioned in the paper "... abstract art frees our brain from the dominance of reality[45]".

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[45] Article by Vered Aviv "What does the brain tell us about abstract art?" https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3937809/# [access: 7.04.2021]

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Illustrations List

1. Bernd and Hilla Becher, Gas tanks 1983-92, image source: https://i0.wp.com/poczatku-jacyfotograf.pl/wp-content/uploads/2017/05/bernd-hilla-becher-gas-tanks_1983-92.jpg, [access: 3.05.2021].
2. Wine factory in Lviv, Ukraine, 2020.
3. Irina Razumovskaya, Built series, Stairs, 2019, 70 x 28 x 10 cm.
4. Irina Razumovskaya, From Grid series, “City through bars”, 2018, 45 x 55 x 55 cm.
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9. Sara Jeffries, “Construction, disintegrate” stoneware and earthenware, 10 x 48 x 13, 2019.
10. Sara Jeffries, “Construction, disintegrate” stoneware and earthenware, 10 x 48 x 13, 2019.
11. Sara Jeffries, “Construction, collapse”, stoneware and earthenware, 17x43x21, 2019.
12. Examples of sandblasted surface of my artwork; Image of concrete rubble wall, image source: https://ru.freepik.com/free-photo/aged-concrete-with-rocks-and-paint_6398150.htm, [access: 30.04.2021].
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