

**Marcin Charciarek**

**Relations between the idea and matter  
in concrete architecture**



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ZDJĘCIE NA OKŁADCE

Le Corbusier, kościół św. Piotra, Fatimy, 2006



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*The building is a sort of a body, composed, as all other bodies, from a shape and from matter: of these, the first is created by the ingenuity of man, and matter is taken from nature. This requires mind and thought, the second: preparation and choice\*.*

## Introduction

### The motivation behind this work

The aesthetics of architecture as an autonomous art is based on the properties of the material this art operates with – as per the opinion concerning the sense of form presented by the majority of experts who discuss the significance of the origin of form in the arts. Architectural form, as *m a t t e r* given shape, is derived from an idea, without which matter becomes a phenomenon with no properties whatsoever. The creative mind, in the process of unifying material with an immaterial idea bestows an aesthetic dimension upon this relationship and creates the possibility of perceiving architectural unity within it.

In architecture, it is ideas that define the patterns of physical objects and vice versa – the sensual perception of physical objects leads to a search for reflections of ideas as patterns. Objects participate in ideas just as ideas are present in physical objects. The formal intention of the artist – the architect – and the matter of art are as close to each other as to practically being born as one, and the inability to separate them defines the anticipation of the unity and indivisibility of a work. A work of architecture that can emerge from this process defines an aesthetic phenomenon in which basic elements produce a combined result. It is not enough for this result to be an effect of the form alone and it is not sufficient to merely define the material of this shape. The art of architecture is based on an effective synthesis of these two elements – as architecture is created as a complete work based on them. The shaping of the idea of architecture and the forming of its matter is a single, indivisible process, and the “intensity” that is produced between the idea and its matter is the foundation for interpreting this interdependence – its identification.

However, one should remember that architecture, like other arts, has never been an expression of a specific ideal or some concrete idea – it was and remains an expression of every ideal or idea that the designer can give a proper form to\*\*.

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\* L.B. Alberti, *Książ dziesięć o sztuce budowania*, Warszawa 1960, p. 16.

\*\* H. Read, *Meaning of Art*, Baltimore 1961, p. 19.

This is because of the multi-threaded specificity of the architectural art, as well as because of the individual will to interpret reality on the part of the architect. The perfection and beauty of architecture cannot, therefore, exist without clear intentions of transforming matter and the deformation of the idea, the so-called fiction of art, which embodies the sense of the history of the architectural art.

It was awareness of the multitude of means in use by architects – the designers of concrete architecture – that became the intention behind taking up the subject, with the aim of presenting the relationships behind creative ideas and the matter of concrete, either reinforced or not, and its constitutive function in defining architectural space. The attempt to find these symptoms of the aesthetisation of concrete matter (both on the side of the extreme and on the side of emulators), which should be considered an attempt at defining architecture as an art in pursuit of perfection and signs of originality appear to be an essential element of the work. It is commonly believed that concrete has become a synonym of aesthetic transformation in contemporary architecture, in which the power to create values and meanings demands that ugliness should be proclaimed as beauty and what was previously seen as beauty is to be cast down. Originality and recognisability have become synonyms of quality, often achieved through a negation and reversal of meaning. It can be achieved by a relationship with the material that is different than the generally accepted one.

Framing the entirety of the work as a metaphor of our times, the author attempts to contribute to a broad spectrum of an often-discussed subject – the role and significance of concrete in Modernist and Postmodern architectural styles. The work is intended to be a contribution to discourse concordant with the opinion that a work of architecture, in its “open narrative”, is a source of inexhaustible meanings and interpretations. It also encourages a description of art that cannot be boiled down to the level of mere games with structural systems and models.

The focus on the subject and the manner of framing it are also a result of the author’s interest in the relationship between the ideas behind works of architecture and their physical implementation. It is also tied with a belief in the existence of unique ways to present the genesis of concrete architecture. The vast scope of currently disseminated knowledge about this subject demanded the use of examples presenting proof of the permanence and longevity of the architecture which uses concrete as a lasting means of architectural expression. In light of the presented examples, the overarching sense here is an attempt at identifying patterns of architecture – and among them: pretexts and motivations used by designers who want to effectuate a realised state for their work. The pursuit of this model in the Museum of the Imagination of art of the twentieth and the twenty-first century signifies the simultaneous existence of all aesthetic periods and their accomplishments

in our conscious. And although this model is presented in a convoluted form, it is an effort that is involuntarily derived from taking on the challenge of describing the extant state.

Therefore, this work is a collection of the possible definitions, terms, theories and views that treat architecture as one of the most significant cultural and aesthetic creations of humankind. It was the author's intention to attempt to find potential – both fictitious and factual – scenarios of architectural theory, thought and practice.

### **Argument**

Under the assumption that architecture has a formal reference in relationships between ideas and matter, it appears justified to pursue similar relationships in creating architecture using concrete. The subject of *concrete architecture*, defined as above, can become the reason to acknowledge the connections between concrete prototypes and their emulation or – later – their extension and interpretation. The statement featured in the title of the work – concerning the investigation of relationships between ideas and the matter of concrete – has become the *de facto* foundation for defining multi-threaded formal and semantic meanings of concrete itself in architecture. Likewise, the titular argument forms a basis for distinguishing two main assumptions that define the formula of architecture's perceivable and impressive characteristics: the *materialisation of ideas* and the *idealisation of concrete*.

### **Method**

The method used in the work is based on the specific “inversion” set in the title – the presentation of concrete architecture through its ideational/conceptual (formal) representation along with an attempt at idealising the material of concrete intended to supplement this image. The method, understood as the dissertation's conceptual framework as presented in the titles of its sections, is responsible for a certain interchangeable play of terms: *idea–matter*; *idealisation–materialisation*. This match of terms of sorts is not merely a play on words, but sets a principle of analysing architecture. First – it allows for a more complete perception of objects from a certain distance; second – through a speculative “proximity” to concrete, it permits the supplementation of the semantic characteristics of the material itself. Such deliberations, treated as a principle of approximation – have allowed the content of the work to be defined, as in it, the same object, type and architectural model can be analysed in various ways. This provides an occasion to present the problem through an attempt at defining the physical senses of architecture.

### **Objective of the study**

Finding dependencies between architectural ideas and the concrete matter of architecture is the main objective of this dissertation. The notion of concrete architecture also hides another, broader lead that the work follows, and which is an attempt at establishing a general identification of objects in defining architectural space (read: art) and its meaning (read: content). However, the problem range of the work has been limited to the problem in which concrete, along with the ideas contained within, has become the material forming the contemporary image of architecture. The presentation of these multi-threaded relations can be considered to frame the work as a history of an idea or a narrative about structures in which we seek to find relationships between their material, formal (concrete shape – formal structure) and logical components (ideas and notions of architecture – ideational structure).

Another cornerstone of the dissertation is the demonstration of differences and similarities between individual architectural ideas. Examples indicate that works, although built on the basis of the same idea and using the same material, create worlds of forms and meanings that can be surprisingly distant from one another.

### **Problem range, time range and subject constraints**

Assuredly, the science of aesthetics is built on a world of experience. This is why when one wants to make a precise assessment of and characterise its essence, one would first have to stimulate this experience of the world, of which it is a secondary expression. Every scientific view (including the one presented herein) is therefore burdened by the naive question about the meaning of the matter to some degree.

This work does not present any type of taxonomy between the ageless combination of notions that idea–matter is – said taxonomy should be found and studied in the appropriate range of literature presented in its dedicated section and at the appropriate library. The work is also an attempt at popularising concrete – it appears that the use of concrete in architecture, which has been practised for over a century, requires no further proof in the defence and justification of the reason behind its use by designers.

The subject pertains to contemporary aesthetics in twentieth- and early twenty-first-century architecture, while acknowledging the category of contemporaneity – the collection of all that has been created as a continuation of or is an antagonism to Modernism. This monograph is defined by the scope of the examples that exist simultaneously in the body of the history of European architecture, including its later international references. The matter is similar with the chronology of the work, whose time and problem range – c o n t e m p o r a r y a r c h i t e c t u r e – appears

to be a self-referring period. In the opinion of the author, regardless of the will to present subsequent architectural expressions, concrete architecture has a more or less well-defined context in terms of cause and effect, one that first references a pattern and is followed by its repetition and the eventual later facts of interpretation and aesthetic deterioration. The author is aware of the possibility of expanding the scope of the work to include additional examples to illustrate the argument, yet the main objective was to define the most significant works that define the overarching notion of the relationship between ideas and matter in concrete architecture. This effort is also an attempt at creating a collection within individual imagination, although it appears (as stated by Gadamer) that, while desiring to see what others have gathered, we will never come into possession of nor find such a collection\*\*\*.

Those examples that are placed beyond the formal discussion (panel block projects, concrete structures) or are the result of purely utilitarian considerations (dams, silos, etc.) have been ignored in the work.

### **Object and state of the art**

The literature concerning concrete architecture is as rich and vast as the spectrum of its sources, which includes studies on the history and theory of contemporary architecture. On the one hand, this includes mythogenic literature – which presents the superior role of concrete matter in the ideas of contemporary architecture, while on the other – one that demythologises concrete, exposing the crisis of the concrete idea and its associated “deterioration” of matter. This process, concerning the relationship between the aesthetic durability and continued existence of ideas and concrete, has become the basis for the appropriate formulation of the work’s problem range.

In order to build a terminological basis, the author delineated an area of study that would define the dissertation’s terminological range – its aesthetic sources and philosophical or iconological bases. In this respect, examples of the works used by the author include: *Studia z estetyki* by R. Ingarden and *The Visible and the Invisible* by M. Merleau-Ponty, including other items essential to the state of the art: *Zarys estetyki* by M. Gołaszewska or *Origins of Form in Art* and *The Meaning of Art* by H. Read.

Among the publications that define the world of research on architecture created in concrete, the first to be listed should be those that set the materialist foundations of contemporary architecture: G. Semper’s *The Four Elements of Architecture*, and the guidebook for Modernists – *Space, Time and Architecture: The Growth of a New Tradition* by S. Giedion, and contemporary monographs presenting the

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\*\*\* H.G. Gadamer, *Aktualność piękna*, Warszawa 1993, p. 65.

material sources of modern architecture, including N. Pevsner's *Pioneers of the Modern Movement* or K. Frampton's *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture*. The field of pursuing the meanings of contemporary architecture also includes books by Ch. Norberg-Schulz: *Existence, Space and Architecture* and *Meaning in Western Architecture*.

The field of the history of architectural ideas could not be complete without Ch. Jencks' *Late-Modern Architecture* and *Le Corbusier and the Tragic View of Architecture*.

Among the broad range of literature concerning the main subject of the dissertation – concrete – an appropriate position has been given to P. Collins' studies published in the 1950s and 60s: *Changing Ideals in Modern Architecture* and *Concrete: The Vision of the New Architecture*, in addition to monographs published in recent years that continue to discuss the matter of the meaning and “identity” of concrete: J.L. Cohen and G.M. Moeller's *Liquid Stone: New architecture in Concrete* and A. Forty's *Concrete and Culture. A Material History*. Both books summarise the aesthetic and cultural impact that concrete had on the architecture and culture of the twentieth century.

Among Polish positions, particular attention should be directed at the two-part publication *Architektura betonowa 2001* and *Architektura betonowa 2006*, published by the Concrete Producers Association and edited by Professor Dariusz Kozłowski, which includes papers by Polish experts on concrete architecture that describe its most prominent examples in Poland.

## Literature

The collected listing of literature and other sources on the subject has been limited to those items which, in the opinion of the author, confine the range of the subject matter to the problem's synthesis. This has been aided by works found in the literature on architectural theory, the theory of aesthetics, philosophy, the visual arts or material technology. Among the many publications concerning concrete architecture, the following are the most noteworthy:

- architectural treatises, e.g. Le Corbusier, *Vers une architecture*,
- monographs on the history of architecture, e.g. A. Monestiroli, *The Metope and the Triglyph*, or Ch. Jencks, *Post-Modern Architecture*,
- monographs on the history of architecture with a particular emphasis on the role of concrete and reinforced concrete, e.g. C. Simonnet, *Le béton, histoire d'un matériau* or C. Croft, *Concrete Architecture*,
- monographs on concrete architecture or that present the work of specific key figures in concrete architecture, e.g. F. Dal Co, *Tadao Andō. Complete Works* or R. McCarter, *Louis Kahn and Nature of Concrete* (“Concrete International”),

- publications by trade publishing houses that demonstrate the impact of concrete technology on architectural style, e.g. N. Régnier, *Livio Vacchini, “compositeur” d’architecture* („Construction moderne”),
- conference proceedings and publications concerning matter – the material of architecture, e.g. A. Markowska, *Rachel Whiteread: attempts at not building* (“Technical Transactions”),
- works referring to the problems of aesthetic theory and philosophy, e.g. G. Deleuze, *Difference and Repetition* or L. Pareyson, *Estetica. Teoria della formatività*,
- articles published in architectural journals and other periodicals, either national or international, e.g. T. Andō, *La Capella sull’acqua e la chiesa della luce* (“The Japan Architect”).
- online sources and websites, e.g. <http://www.lafarge.com>.

This marked categorisation of the literature justifies its broad listing. The list of cited references, forming the primary terminological and substantive basis of the dissertation, was expanded to include those scholarly sources which act as its appropriate supplementation or can help direct the argument.

### **Illustrations**

The collection of attached illustrations is a supplement to the text. In sections I and II, illustrations form a reference to attempts at manifesting forms in concrete – at materialising ideas in contemporary concrete architecture. In section III, illustrations act as commentary on examples of the use of concrete as a tool in idealising architecture. Limiting the collection of photographs and drawings resulted from the intent to present the most distinctive formulas that define the examples in question. All illustrations were selected so as to pertain to their respective places within the text and constitute that which is essential in or even inseparable from discussing architecture – they supplement words by presenting the hypothetical or actual state of reality – an image, drawing or structure.



# I. The pursuit of an idea – the discovery of matter, or defining concrete architecture

## 1. The immaterial and material structure of a work of architecture

Architecture is an art that is dependent on its material. The idea and the form derived from it manifest in specific matter – a material that sets the boundaries of the form. It is thanks to matter that the immaterial world of ideas and ideals, thoughts and words, concepts and sketches, transports art into the space of physical values that can be subjected to a final assessment and experience. Architecture does not differ from other arts in this respect. Similarly as in painting or sculpture, the transformation of a concept into an actual object gives architecture the meaning of an art encapsulated in the relationship between the configuration of a shape and the qualities of matter. The selection of the existential basis for a work of art is of decisive significance to its shape, and ultimately – to its value. Idea and matter are therefore inseparable in architecture – just as form and matter merge to form an aesthetic unity. The sense of the art of architecture is therefore contained in the relationships between a previously devised configuration of the idea and the properties of matter.

**1.1. Genesis.** Referring to fragments of Plato's *Timaios* is a certain hypothetical comparison of the significance of concrete in the transformation of architecture of the start of the twentieth century. The protagonist describes the world as chaos devoid of unity and harmony, wherein the fundamental act of the creator was to introduce order into the matter of the world through an idea<sup>1</sup>. Similarly, the world prior to Modernism, filled with matter without connection to ideas, awaited a demiurge who would free architectural substance from its shapelessness and give form its ideation. The image of existing yet undefined matter was to be presented anew, according to patterns provided by perfect ideas. It was even assumed that the more ideas are featured in matter, the more beautiful, perfect and genuine its shape, while the world of matter, due to its mutability and fragility, is merely the subject of judgements and impressions. Ideas and objects, entities and phenomena, although of unequal manifestation in reality and perfection, are bound together and define the degree of the perfection of the architectural world. The architect-creator has come to redefine

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<sup>1</sup> Plato, *Timaios*, Kritias, Kęty 2002.

the notion of the perfect relationship between formal principle and architectural material. New types of matter were to create new visible objects. That which had been invisible was defined through words and images – using traditional tools that translate the contemporary mind.

In technical and aesthetic terms, the use of concrete, steel and glass laid at the base of the myth of the development of the modern movement in architecture. People became convinced that the use of new materials would lead to a revision of the classical understanding of form, similarly as giving materials an unprecedented role – that of a conveyor of values – would lead to changes in the very process of defining architectural space. The perfection of this pattern was to mean the perfection of architectural space. The revolution that happened in architecture did not change that which constitutes the fundamental principle of the lasting of all manifestations of art – the confirmation that the human mind has the natural inclination to elevate itself above matter into an abstract sphere of concepts, along with a will to create original ideas.

This thought, forming the principle of the pursuit of new art, is not merely the source of the myth of Pygmalion's statue, but creates the image of the entire history of architecture. Indeed, it appears that the characteristic of every type of matter is its definition by a historical evolution, which constitutes a ceaseless return to the source and a pursuit of beginnings, a search for connections to the first ideas or defining the identity of matter through ideas. Throughout history, these transformations produced their own consequences for architecture: they allowed it be given expression in a metaphorical or transcendental atmosphere. In the antiquity of temples, beauty was a synthesis of idea and matter, and the buildings atop the Parthenon – an act of the petrification of perfection presented in white Pentelic marble. Throughout the following centuries, buildings “lost weight”, walls appeared to dematerialise, giving an expression to man's pursuit of the absolute – they were given a type of sublimation synonymous with beauty. They took on an appearance and spirituality that was distant from the patterns of Classical buildings.

Similarly, at the start of the twentieth century, architects tried to find new patterns, using materials that had been known and described for decades. After a period of affluence and losing itself in decorative arts, architecture – the art of the mind and the senses – began to overpower the “hard” matter of the work, to breathe into it a new zeitgeist. However, in order to create a new relationship between the zeitgeist and matter, Modernism had to radically destroy and dismantle the old visible world, in which “old” architectural mimesis, unfit to the content of the image of expressive creativity, were separated and subjected to a new synthesis of idea and matter. The testimony of order and harmony between both elements constantly testified to spiritual strength and once again became an example of the ceaseless construction of the world.

The “founding myth” of contemporaneity was given a date (1915) when Le Corbusier, discovering the spatial shape of the *Dom-ino* system, modelled it in the hardest of matter – in concrete. The simple, rational system, which created an innovative space and a new quality of architecture, defined the border of its identity; its formal objectivisation and new durability. The architect wrote about this in *Vers une architecture*, expressing his acceptance not only of the new technical potential, but also the dependencies between non-materialised ideas:

[...] You fix me to a place and my eyes regard it. They behold something which expresses a thought. A thought which reveals itself without word or sound, but solely by means of shapes which stand in a certain relationship to one another. These shapes are such that they are clearly revealed in light. The relationships between them have not necessarily any reference to what is practical or descriptive. They are a mathematical creation of your mind. They are the language of Architecture. By the use of inert materials and starting from conditions more or less utilitarian, you have established certain relationships which gave aroused my emotions. This is architecture<sup>2</sup>.

The relationships that Le Corbusier wrote about were nothing else than an attempt at searching for the perfection of new construction materials in order to find a universal pattern to the multitude of architectural ideas. Describing them became a new language of architecture – one that was mathematical, poetic and a visual creation of the minds of his co-believers – those who, by adapting “dead materials” to the requirements of architecture, defined relationships that touch the imagination of the recipient and the user. “When appropriate relations are in place, a work takes possession of us. Architecture is «relationships», it is a «pure product of the human mind»”<sup>3</sup> – so concluded Le Corbusier when he diagnosed the rational desires and subconscious intentions of designers.

In essence – thanks to concrete, regardless whether reinforced or not, the world has cast away the manual forming of stone forms in favour of technical and technological ideas made to last years. The world no longer needed stone, it needed “superstone”, whose supply would be inexhaustible and its structural and aesthetic potential – boundless. Thanks to the introduction of reinforced concrete, the relationships between new aesthetics and technology in construction achieved unprecedented richness and variety. Jan Rowan, a critic of “Progressive Architecture”, described this state of design vitality as an awakening of the profession in a time when almost every architect had a design on their drawing board and intended to build it using raw concrete<sup>4</sup>. Architecture became “material” in a new manner.

<sup>2</sup> Le Corbusier, *Towards a New Architecture*, transl. by Frederick Etchels, New York 1986, p. 154.

<sup>3</sup> Le Corbusier, *Towards a New Architecture*, transl. by Frederick Etchels, New York 1986, p. 179.

<sup>4</sup> R. Legault, *The Semantic of Exposed Concrete*, [in:] J.L. Cohen, *Liquide Stone: New Architecture in Concrete*, New York 2006, p. 46.

However, its source did not change. Bereft of the perfection of forms and their appropriate meaning for a time, it found its place amongst ideas – refreshing inventions, concepts, stylistic threads and ingenious expressions. The vision of a new world, in its democratic aesthetic, was so powerful and attractive in its neutral expression, that concrete suddenly became the model matter for speculative thinking about architecture. Critic Paul Damaz confirmed this full, physical manifestation of the idea as a permanent state of modernity:

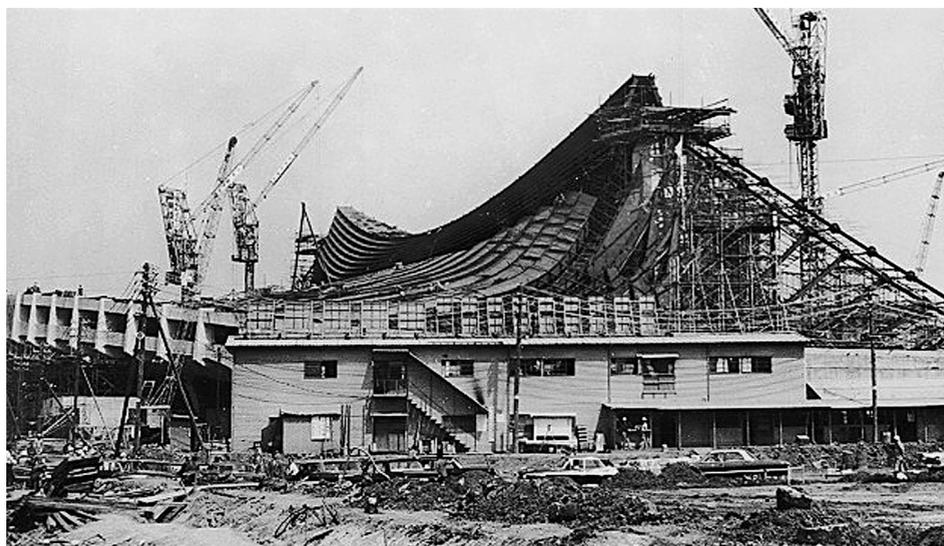
Arguing that the materialism of our civilisation translated the materialism of our architecture, and that we should refrain from judging it. He was also of the opinion that the Modern Movement, if anything, was primarily impacted by invigorating ideas. He also believed that the work of art was a symbol, an expression of immateriality through materiality<sup>5</sup>.

The optimistic overview of concrete reality was not disrupted by its accompanying distance and lack of acceptance to the assessment of building a “world of concrete”. Many opponents treated concrete buildings as uninteresting structures placed amidst a natural landscape, belonging to the same category as highways, silos or other works of engineering. It was believed that they are expressionless objects built from a poor-quality material – cement. The voice of Frank Lloyd Wright, who did not hide his need to decorate concrete so as to improve its amorphous, characterless expression, was symbolic of those times. Even towards the end of the 1930s, the acclaimed critic Adrian Stokes claimed that despite western architectural tradition had always been based on a universally understood idea of carving in a material, this new material – reinforced concrete – despite its unprecedented and unnatural plasticity, was not capable, because of its artificial origin, of reflecting any sort of flamboyance. He even wrote of the “death of architecture” made from stone – a material that renewed the formal and semantic strength of architecture thanks to its natural richness. He predicted that the work of architecture will no longer serve as a source in which the carving of a spatial concept had always renewed its strength.

Even today, Rem Koolhaas, in a similarly sceptical tone, acknowledges these “traumatic” deeds of the pioneers of Modernism as those akin to the builders of Noah’s Ark (or its countless versions), symbolising a unique opportunity to save old architecture from disaster (ill. I.1–I.2). According to the Dutch architect, the use of concrete became a form of objectivising every immature decision in its uncritical approach to matter. The prevalence and ordinariness of the use of concrete hid in them those qualities which had absorbed all earlier and current wild meanings. Koolhaas expresses this in a contemporary (ironic) recipe for architecture, which

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<sup>5</sup> P. Damaz, *Art in European Architecture/Synthèse des arts*, New York 1956, p. 32.



III. I.1. National Congress, Oscar Niemeyer, Brasilia, 1950

III. I.2. Olympic Stadium, Kenzo Tange, Tokyo, 1964

results in the full freedom in form. This formation takes place as follows. First, one should erect a structure of formwork. Afterwards, we should place rebar inside, the dimensions of which directly result from rational calculations of a structural engineer and the emotions of an architect. Then, grey liquid is poured directly into empty, speculative antiforms, allowed to manifest itself in the form of absolutely material structures<sup>6</sup>. This image of contemporary architecture is one of a material that first allows itself to be freely shaped, only to unexpectedly become rock-hard with the capacity to last for decades. Liquid stone can uplift the emptiness of an architect's idea equally effectively as the most original meanings of architecture.

**1.2. Concrete – a matrix of ideas and a metaphor. Matter and the material of a work.** Concrete<sup>7</sup> does not exist on its own as matter. Frank Lloyd Wright believed that concrete is stone created in a form, and that it was the form of shuttering or, most importantly, the form chosen in the mind of the designer that gave it an aesthetic and technical sense in architecture<sup>8</sup>. Cyrille Simonnet described the status of concrete in the same manner: as a state of matter without an initial image<sup>9</sup>, which, among other materials – thanks to its “liquid” nature – has no determinable model, no original form that can be transferred through some form of projection. Produced as a result of chemical engineering, mathematical or aesthetic thought, raw and reinforced concrete are always associated with a reference to a certain state, whose image never appears to be finished or complete.

Thanks to its ability to transform, concrete appears to be a “matrix” of architectural ideas – it is the most “imaginable” material trace and footprint of the formal expressions it communicates. As an unbound and composite substance (a mixture of aggregate, water and cement), it constitutes a synonym of Aristotle's “primal matter” (*materia prima* – πρώτη ύλη)<sup>10</sup>, which, in terms of its properties,

<sup>6</sup> R. Koolhaas writes: „[...] It is no coincidence that each reinforced-concrete building sites, with its mad clutter of shuttering, resembles Noah's project: an inexplicably land-locked shipyard. What Noah needed was reinforced concrete. What Modern Architecture needs is a flood”, [in:] R. Koolhaas, *Delirious New York. A Retroactive Manifesto for Manhattan*, New York 1994, p. 249.

<sup>7</sup> P. Collins, *Concrete: The Vision of the New Architecture*, Montreal 2004, p. 19. The critic defines the etymology of the French term *béton* as derived from “earth house” technology (French. *pisé*; Eng. rammed earth; Sp. *tapial*; Port. *taipa*). Even today, houses are built by laying and mixing layers of soil, lime and aggregate and their subsequent battering. Collins quotes J.F. Blondel and his *Cours d'Architecture* (1770), which describes the building of houses using a material called *mortier de Betum* (Vol. 5, p. 425); *Betum* in Old French denotes a non-uniform mass composed of materials with varying composition and fraction.

<sup>8</sup> P. Salminen, *Piękno betonu*, [in:] *I Biennale Architektury. Kraków 1985*, Kraków 1985, p. 111.

<sup>9</sup> C. Simonnet, *Le Béton en représentation – La Mémoire photographique de l'entreprise Hennebique 1890–1930*, Paris 1993, p. 55-75.

<sup>10</sup> Aristotles, *Metafizyka*, Book Z (VII), Warszawa 2009, p. 142-143.

is “potential”, a metaphysical “substrate of architectural change”. It is only a name, a value, a characteristic that has the capacity to take on a shape – it is a universal body. In the sense of a finished substance, a finished material, hardened concrete becomes a “second matter” – a shape whose properties physically become the building blocks for the idea/metaphor determined by the designer. Both categories of matter constitute the proper object of the architect’s work – as a physically treated object, as a “substrate” – a bed for all architectural forms, but also as an “abstract” – which presents its qualities and the meanings bestowed by the architect.

In both states, concrete “gains the privilege” of being a metaphor – a transfer of the properties that create new and unique meanings of architecture. Concrete, with its “fleeting”, semi-liquid nature, appears to be more of an element rather than a body or substance, in the same sense as we call fire, water, earth and air – as something that is a rule given form, which shows similar properties even where there is but a fragment of it<sup>11</sup>. Louis Kahn pointed to this aspect, highlighting the properties of concrete. Robert McCarter wrote that one must know the nature of concrete and what it really wants to be. He claimed that concrete wanted to become granite and yet it will never become it. To him, the rebar played the role of a secret creator who causes this so-called poured stone to appear as a wondrous creation of the human mind. He argued that if concrete wanted to be anything, it would be a creation of the mind<sup>12</sup>.

Concrete as a metaphor is the first poetic figure (or meaning), which, in a metaphorical game, takes on the likeness of other types of matter, borrowing their characteristics. This understanding – as a similarity or comparison, which results in ambiguousness, supposition, relation or analogy – is the fundamental, although narrowed-down, definition of metaphor in architecture<sup>13</sup>. In a broader sense, its semantic interpretation is obtained by holistically understanding the emergent spatial, formal and contextual relationships, which collate distant meanings into one. The means to create such a trace is the conceptual and material language of architecture, in which the content of a work leaves us in a space beyond logic and the function of a structure, transporting us into the fiction of art.

Therefore, it appears that the matter of concrete is nothing but content, the principle behind a work. It constitutes a reference to the solid wall of Plato’s cave, in which the unreality of the entire real world is reflected in a “poetic shadow”. Broken and scattered light creates fantastic patterns and shapes, whose perception is dependent on the perspective, knowledge and sensitivity of the viewer. Understanding the

<sup>11</sup> M. Merleau-Ponty, *Widzialne i niewidzialne*, Warszawa 1996, p. 144.

<sup>12</sup> R. McCarter, *Louis Kahn and Nature of Concrete*, Concrete International (32) 12, Farmington Hills, 2009, p. 26-33.

<sup>13</sup> Aristotle, *Poetyka, Retoryka*, Warszawa 1988, p. 351-353.

idea depends on the shape of the image projected “upon” matter and transformed “within” it. And if it is indeed true that we start to see first and to think later, because “the sensual world is older than the world of thought”<sup>14</sup>, then astonishment at matter and the shapes structured through it is the very start of discovering architecture. The metaphor of such a structure is used to discover the actual, fundamental bedrock for all of architecture, as the sense of “fundamentality” lies in searching for the real and metaphorical pattern of architecture.

Today, concrete, which initially borrowed forms and qualities from a different material, exists as an autonomous building material, supported by its own syntax and mythology that has been gathered over the past century. This reminds us of a situation from Umberto Eco’s novel entitled *The Island of the Day Before*, in which one of the protagonists creates an Aristotelian machine – a construct for creating metaphors. The author of the invention believed that by collecting the substances and atoms of concepts, he had created an infinite depth of new and original meanings for newly created objects. The protagonist named the keenness of the manner of discovering relations between them their metaphoric capacity<sup>15</sup>. Thus, concrete, along with its appropriate proportion of components and meanings, its excess of additives or a lack thereof, implies a paradigm of an abstract image, one of force, mass, structure, weight or lightness, rigidity, but also beauty and ugliness – the aesthetic category directly linked with it. For as Ficino stated, matter is, by nature, ugly: “[...] bodies cannot be beauty, as today they are beautiful, while tomorrow [...] they will be beautiless”<sup>16</sup>.

Concrete appears to be an entity that is somewhat “hidden” in the minds of designers, a matter which includes the mystery of the diversity of form and hidden meaning. According to this argument, concrete becomes a synonym of the notion of matter in which the matter that comprises a body cannot be considered identical to the body itself, as instead the body has to be seen as a sort of a *p h a s e* – a state that matter enters temporarily. The well-known presentation of a single brick by Louis Kahn, which demonstrates the transformation of matter from nondescript clay into a formed *m a t e r i a l* which becomes the starting point for an arch or a cathedral, is an example that illustrates this type of transformation well. Therefore, matter is that which undergoes transformation and yet retains its identity. This is

<sup>14</sup> M. Merleau-Ponty, *Oko i umysł. Szkice o malarstwie*, Gdańsk 1996, p. 205.

<sup>15</sup> U. Eco, *Wyspa dnia poprzedniego*, Warszawa 1995, p. 71-79.

<sup>16</sup> W. Tatarkiewicz, *Historia estetyki*, v. 3, Warszawa 1991, p. 104. It appears that ugliness is indeed inseparable from the notion of the novelty of things. Although avant-garde movements referred to the idea of “disrupting the balance of all senses”, contrary to what is popularly believed, ugliness is not a category (an intended goal) of architecture. It is a category of the recipients of architecture, its viewers who are unaccustomed to the open aesthetic of contemporary architecture. All movements that deliberately deform and decompose are a clear example of abiding by the rules of composition rather than its lack.

why concrete – as “matter” and “material” – appears as a foundation for all manners of poetics based on the rules of similarity, which are both the determination of giving a form a metaphor and proof of the “rupture” and “disruption” of the initial meaning.

Aristotle calls the moment when the “potential” of matter (its potency) manifests itself (combines with its form) an *act* – the finding the goal. To Luigi Pareyson, the father of Italian hermeneutics, the relation between formation and matter is likewise an act, which he describes as the self-determination of formal intent (or formative intent), which matter takes on. The philosopher describes this relationship as adoption (*adozione*) – the adaptation of matter to a formal intent; the lack of matter in a form denotes a sterile dream and an infertile goal, while matter itself, which is not predestined to fulfil its formal calling, is not a matter of art, but a shapeless mass, devoid of requirements and potential<sup>17</sup>.

In light of the difficulty in defining the notions of “matter” and “material” and their various versions in philosophy, aesthetics, physics and the natural sciences, we are left with intuitively studying the role these notions play in these disciplines, in which they function not as fundamental terms but as an explanatory and theoretical element.

“Matter” is an open term, each time presenting itself to us differently, its essence “does not yield to us”. Yet this difficulty in defining it determines the manner of its existence. The meaning of the word “matter” has transformed over time (even meaning different things to different people at the same time). Therefore, we should assume that “matter”, in its basic meaning, is a base term – denoting the material or substance used to build the world, works and objects in the broadest sense – comprising their physical dimension, which has its basis in the analysis and taxonomy of properties. Kazimierz Ajdukiewicz, although he writes about the perpetuated ambiguity in defining matter, proposes a fully clear and obvious definition:

[...] and we will not waver when we are tasked with the judgement of an object, whether we are to call it matter or refuse it this term. [...] Matter – is merely a body<sup>18</sup>.

Thus, we can discuss a physical object – an object made from a substance defined by a physical property – as a cognitive property that is determinable by rational study<sup>19</sup>.

<sup>17</sup> L. Pareyson, *Estetyka. Teoria formatywności*, part 1. *Styl, treść i materia w sztuce*, Kraków 2009, p. 56-57.

<sup>18</sup> K. Ajdukiewicz, *Język i poznanie*, vol. 2, *Wybór pism z lat 1945–1963*, Warszawa 1965, p. 61.

<sup>19</sup> M. Gołaszewska, *Świadomość piękna*, chapter: *Pytania o tworzywo i techniki artystyczne*, Warszawa 1970, p. 259. The author writes: “The physical side of a work of art plays a greater role in places where artistic work connects with workmanship – such as in sculpture, acting, painting, and, of

The shape of a work of art is therefore framed in matter, which has been given an artistic significance through appropriate creative acts, only to transform into a specific, physical object through material. The material shape is therefore formed from matter along with artistic intent. This is why it can be said that the aesthetic of architecture as a separate art is based on the aesthetic of the material of this art – timber, stone, steel, concrete; and it is in the character of these materials that we must seek some principle, some appropriateness of means that serve a purpose – form and function.

Roman Ingarden discusses equating the notion of the “content” of a work of art with the notion of “matter”, and “matter” with the notion of “material”. The philosopher defines “matter” as the entirety of physical reality, and “material” as one of its sections, which comprises individual objects. Therefore, matter exists before the work – as a resource (e.g. steel, stone, liquid concrete, etc.) which must be “shaped” through content, an idea, a meaning, so as to “produce” a certain work out of it. Material, in turn, is defined as something which is found inside a work and only provides it with a particular selection of properties (material or structural properties), but also grants the work a specificity through its concreteness and technical use<sup>20</sup>.

Maria Gołaszewska thought it particularly important that we understand the dual meaning of this word: matter is intended for something – and thus, a resource from which a work of art has been made (stone, canvas, paint, words, sounds, etc.) and the material of something – is that which remains in the work, which is more or less visible in it, fulfilling the role of an artistically active component and forms the foundation of the physical qualities of a work of art (e.g. the type of marble, hardened concrete). Matter is the element of a work of art that allows it to be qualified as an actual object – a thing, a process, a cultural product or phenomenon<sup>21</sup>. Władysław Stróżewski introduces a similar distinction, calling matter the foundation of a work and material an element of its structure – which is used to see it<sup>22</sup>.

Therefore, let us assume that, in architecture, matter is that which comprises a work, that is a component defined through meaning; while material is that which remains in it. In architecture, matter precedes material (it is a recording of

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course, in architecture. However, there is a difference in the approach to the creative act and the matter of a work. [...] Architecture appears to be the exception in this state of affairs, as architects possess so-called architectural imagination, which gives them the ability to compose buildings directly in the construction materials at their disposal”.

<sup>20</sup> R. Ingarden, *Esencjalne zagadnienie formy i treści*, [in:] *Studia z estetyki*, vol. 2, Warszawa 1958, p. 432-433.

<sup>21</sup> M. Gołaszewska, *Zarys estetyki*, Warszawa 1983, p. 215.

<sup>22</sup> W. Stróżewski, *Dialektyka twórczości*, Kraków 1983, p. 97.

an idea, a concept initially presented as a drawing or sketch, for instance), as it is the foundation of a work – and therefore, it is everything that comprises the work prior to its construction. In this context, material is a precisely formulated building block, which has shape, dimensions and its own specificity. As a physical work – matter and material can be identical in various works – as one can create many works of architecture from the same wood, stone and concrete with the same chemical composition. However, it is the shape of the idea that constitutes the reason thanks to which architecture enters the world of semantic expression.

### **1.3. The dualism of architectural works. Does concrete architecture exist?**

Architectural theories discuss spaces, plans, massings and cross-sections – the methods of defining them. All of these elements are bound by ideas. They are thus elements that take on the meaning of materialisation – the manifestation of the idea behind a work of architecture. The co-dependency that divides architectural theory (as the entirety of aesthetics) into ideas and matter is an elementary relationship of cause and effect, whose aesthetic consequences lay at the foundation of defining the differences between the past and the present, the organisation of spiritual and intellectual life, the goals and desires of the creators of architecture. It is one of the many fundamental binary oppositions, in which one of a pair's elements is dominant and the other – supplemental. The dominance of one notion over another has always defined the identification and expression of individual stylistic categories.

The overarching significance of the idea<sup>23</sup> in architecture is proven by the fact that ever since the Renaissance, some designers have believed that the unique value of art is derived from the design of the entire architectural shape, regardless of its material – and this view is shared by many today. The reason behind this thinking is the fact the *i d e a* has become the synonym of *p e r f e c t i o n* over the centuries. This was obvious in light of the continued existence of Classical sources. All designers found this concordant with the Neoplatonic theory of assigning the highest value to ideas in every branch of the arts<sup>24</sup>. Gio Ponti wrote a text that is

<sup>23</sup> In a problem scope defined as such, one should acknowledge the aesthetic view of differentiating the notion of the “idea” – which is an attribute and semantic synonym for “thought” – the initial aesthetic cause, from the notion of “matter” – an object that can be perceived through the senses and which is the tangible constituent of all objects. The architectural idea, although treated as the component of a work, regardless of one's convictions, is an incalculable and non-measurable value, and is any quality that denotes a “manner of construction”. See: R. Ingarden, *Studia z estetyki*, vol. 2, Warszawa 1958, p. 422.

<sup>24</sup> To Marsilio Ficini, a Renaissance artist, all works of mankind were images (*imagines*), wrought in the image of divine ideas; in this manner, art is placed in the narrow confines of the sensual repetition of some order that has set for all eternity in its immaterial perfection. The theorist expressed his notable conviction as to both things being linked, although it was the immaterial

the ultimate and absolute acknowledgement of the dominance of the idea over matter to many already in 1957:

Architecture, as a visual and abstract fact, is colourless. [...] We can “design” it in terms of colour (or colours) and material (or materials), but if we acknowledge its purely architectural assessment, its architectural essence, its architectural significance, then we must treat all architecture as colourless. Like a sculpture. As a phenomenon of the form of a shape. Architecture is therefore naturally white<sup>25</sup>.

In Gio Ponti’s statement, architecture exists above all else as an indivisible whole, in a conceptual design or model, in which one can solve that which ought to be translated into a specific material. The transparent idea is to define the *legibility* of architecture.

On the other hand, the history of architecture as a history of engineering has become an element of the construction of the real world by perfecting tools and materials. The obvious nature of this fact was confirmed at the start of the twentieth century in the words of the precursor of concrete’s use – Auguste Perret, who said that out of all the arts, architecture is the most dependent on material conditions<sup>26</sup>. Antonio Monestiroli directly states that architecture, as a physical construct, is the *building of an idea*, which is why the role of structure and the material logic of an edifice must be recognisable along with the idea it embodies<sup>27</sup>. He boiled the problem down to the conclusion that, in architecture, matter indeed cannot be seen as equal to the idea of a work of art, but one can see matter as embodying an idea. This is why the art of architecture, in its most important manifestations, has always been an effective means of reconciling all manners of material and ideational elements into a harmonious whole. The very choice of the idea and matter of a work of art and the manner of its formation expresses its author’s personal relationship to the matter of the world, and even to the existence of mankind itself. This specific co-dependence in the presentation of ideas appears to be a presentation of the

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idea that should define the material object. Soon after, Leone Battista Alberti expanded the border of defining architecture, as he pointed out that buildings are composed of a shape – an outline (*lineamentis*) and matter (*materia*), wherein the drawing is a product of the mind, while matter is a product of nature; therefore, its choice and concordance with the idea is necessary. Alberti defined the dependency between the design formulated by the mind and the choice and structuring of matter; L.B. Alberti, *Księg dziesięć o sztuce budowania*, Warszawa 1960, p. 19.

<sup>25</sup> G. Ponti, *Amate l’architettura; „l’architettura è un cristallo”*, Genova 1957, p. 80 (transl. by M. Ch.).

<sup>26</sup> A. Perret, *Contribution à une théorie de l’architecture*, Paris 1952, quoted from: M. Pabich, *Mario Botta. Nikt nie rodzi się architektem*, Łódź 2013, p. 183.

<sup>27</sup> A. Monestiroli, *Reakcja formy 1. Krótki wykład na temat architektury*, [in:] „Pretekst”, Zeszyty KAM, iss. 3, Kraków 2010, p. 43.

“tension” between the “potentials” of matter and the requirements of conceptual intent., which strives to extract potential out of matter to perfectly, absolutely self-define both things.

This is highly similar to Martin Heidegger’s reading of the phenomenon of architecture, who describes the material aspect of a work of art without confining buildings to their “body”. Materiality, understood by the philosopher in an ontological category as “soil” – the ground (*Erde*) – is more of a process and the source of the structure of every work rather than any sort of proof of a substantive entity. The philosopher finds in it the sense of development into “an inexhaustible fullness of simple means and forms”<sup>28</sup>. It is a type of font, from which all forms of existence and the essence of truth about a work flow. Matter (contrary to material) is that, which disappears in the function of work’s usefulness; it is the component of a work-temple, which does not allow the material to disappear. This trace of the slow “grounding” of the relationships between idea and matter can be clearly seen in the first years of Le Corbusier’s career, the drawing practice of Erich Mendelsohn and the similar early painterly works by Zaha Hadid, in which “the greatness of spiritual passion birthed the miracle of harmony out of chaos”<sup>29</sup>. Traces of this process can be found in the sketches of Louis Kahn wherein he pursued the “pre-form” and highlighted that a building must start from something that is unmeasurable, then go through a phase of a measurable design in order to finally present its intangibility<sup>30</sup>. The architect referred to the ages-old problem of the differences between the creative idea (an emotion for which there is no measurement scale) and matter (nature that is measurable), assuming the distinction between the measure of both categories to be constitutive. To Kahn, the first line drawn on paper is a measure of what could be fully expressed in a specific material:

The question pertains to that which is [measurable] and that which is [unmeasurable]. To him, nature, physical nature, was measurable, while emotions and dreams had no measure, no language, each dream being unique<sup>31</sup>.

Thus, every idea of architecture is created by the materiality of architecture as an object that highlights the identity of the space, the vertical, the horizontal and the curvatures of architecture, but also demonstrates the potential of the material. Matter itself, treated as a fact that possesses objective properties, is not an object of aesthetics and does not belong to a work of art; a material entity does not constitute a work of art – it is its basis and its component. It becomes a subject for the designer

<sup>28</sup> M. Heidegger, *Drogi lasu*, chapter: *Źródło dzieła sztuki*, Kraków 1997, p. 30.

<sup>29</sup> H.R. Morgenthaler, *Jak można pozostać obojętnym wobec sztuki?* [in:] *Erich Mendelsohn. Dynamika i funkcja. Zrealizowane wizje kosmopolitycznego architekta*, Wrocław 2002, p. 21.

<sup>30</sup> R. Twombly, *Louis Kahn: Essentials Texts*, New York–London 2003, p. 69.

<sup>31</sup> *Ibidem*, p. 63.

when they begin to create the form of a work; just as an idea alone cannot become the end result of a work – as it is a pure abstraction.

This dependency directly refers us to the well-known definition of architecture by Adolf Loos, who references the shape of a mound encountered in a forest (“six feet long and three feet wide”) to the elementary identity of architecture. The proportions of this mound, made by shovelling earth and in the shape of a pyramid, along with the soil needed to form it, allow us to identify its purpose: “Suddenly, we grow somber – wrote Loos – and something tells us: someone was buried here”. The form of the earthen monument expresses its purpose – this is architecture<sup>32</sup>.

It appears that the direct cause of the various attempts to define the term “concrete architecture” is the desire to extract a vivid aesthetic relationship, in which concrete has become an ideational, structural, formal and material intent. In this context, the notion of “concrete architecture”<sup>33</sup> (French: *l’architecture du béton*, Italian: *architettura in calcestruzzo*) denotes a definition of actual ideational value (both formal and semantic) of architecture created in concrete – reflected in the building’s aesthetic and structural expression. The term defines a certain scope for attempts at materialising an idea of architectural form, but is also the will of the architect in the idealisation of a selected material. The uncommon attempts at searching for the dominant role of matter as a reflection of what has been happening in the conscious of architects over the past century appears particularly significant. In light of the discursive imbalance of the form – material problem and the shift of the focus from the material to the formal aspect, concrete architecture, in its natural terminological reference, appears to come closer towards measurable engineering and architectural practice. The reversal of the hierarchy appears not to disrupt this “opposition”, merely suggesting an alternative manner of perceiving the idea–matter relationship under conditions of a specific mutability of the world of ideas and forms and the permanent “instability” of matter.

<sup>32</sup> A. Monestiroli, *Osiem definicji architektury*, [in:] *Tryglif i metopa. Dziewięć wykładów o architekturze*, p. 25, [quoted from:] A. Loos, *Architettura*, [in:] *Parole nel vuoto*, Milano 1972, p. 255; see also: A. Loos, *Ornament i zbrodnia. Eseje wybrane*, Tarnów–Warszawa 2013, p. 154.

<sup>33</sup> The source of the term “concrete architecture” can be found in Peter Collins’ work *Concrete: The Vision of the New Architecture*. In it, the author describes the moment of the creation of the English-language term *concrete architecture* as an effect of a lively discussion between members of the Royal Institute of British Architects and the Architectural Association in the years 1868–1876. On the 23rd of July 1875, an article entitled *Concrete Architecture* was published in “Building News”, which used the term to describe the prestige of the use of concrete in architecture [quoted from:] P. Collins, *Concrete: The Vision of the New Architecture*, chapter: *The Search for a New Architecture*, Montreal 2004, p. 98.

Maria Misiągiewicz describes the world of concrete architecture and defines its deciding role in defining architectural space and its key significance to shaping figurative and abstract architectural space. According to Misiągiewicz, concrete architecture is more of a desire to distinguish the motivation of architects rather than a description of a specific style:

[...] Architecture gives shape to abstract, unmeasurable, nondescript matter, which is understood in a metaphysical dimension as an absolute space. Afterwards, the selected construction material transforms the previously devised shapes into physical objects. Architecture always utilises powerful material means. However, keeping in mind the significance of economics, the goal of the art of building is to elevate matter above its level. Experimenting using concrete can be considered an individual pursuit of architecture as a discipline of art, in its various aspects – by breaking all manners of rules, fantastic experience or calm calculation<sup>34</sup>.

In reference to other definition sources, concrete architecture can also appear to be a pure realisation of Aristotelian *hylomorphism*, in which matter (Greek: *Hylē*) is a passive factor subjected to a shape thanks to an active factor, which is form (Greek: *morphe* – shape) – an element that emerges from an idea. In the defining of the problem that form is that which separates and matter is that which can be separated, which is highly important for art – matter must be designed in some way by the artist and, through its natural properties, forms a basis for the formal idea. The example of the metaphor of the *vessel*, which is often cited by historians of ideas, and which is created by appropriate formation in the right matter so as to carry a particular content devised by the author, appears to be a fitting reference to architecture. Form, content and material, by forming the whole, are intended to mutually supplement each other.

## 2. Defining concrete space

If we agree with the statement that in every architectural aesthetic the object of interest is a physical object of aesthetic experience, then there must, of course, exist some material base thanks to which this object can come into existence and, most importantly – continue to exist through time. The foundation for this object of aesthetic is the matter of the work, as well as a certain repetition of its composition – an architectural structure, which provides the reason to name the pattern and define the *spatial model*<sup>35</sup>. The sense of spatial repetition and copying is

<sup>34</sup> M. Misiągiewicz, *Forma eksperymentu*, text summarising the sixth edition of the Concrete Architecture competition of 2006, [in:] „Budownictwo–Technologic–Architektura”, iss. 1 (33), 2006, p. 31.

<sup>35</sup> In the past, between the theories of Jacques François Blondel published in *Course of Architecture* (1771–1777) and those that Auguste Choisy featured in his *History of architecture* (1899),

hardly a novel observation and has always constituted a reference for every style. However, at the start of the twentieth century, it manifested itself as the basis of a new understanding of the notion of “architecture”. The rational system of rules upon which an entire theoretical apparatus of the pre-modern period was based on: the relationships between the structure of a building and its architectural form came alive in full force upon the acknowledgement of architecture as a repeatable product. Spatial repetition, the repeating of expression and the copying of structural types became the start of formulating a new language of architecture – a process of discovering and defining “what” is to be built “in what”, and creating the identity of a new architecture.

**2.1. The space and matter of architecture.** Dariusz Kozłowski quotes one of Mahabharata’s stories, in which Yudhishtira is asked what is space. The hero answered by setting his hands wide apart, as if trying to wrap his arms around an invisible object – this is space!<sup>36</sup>. The answer was accurate. Space is defined by its constraints, by a sort of imprisonment through form. The universalism of the presentation of this situation also hides in it an understanding of absolute architectural space. Architecture is a *confined* space, whose sense and understanding is defined by the *matter* selected by the confines’ author. Typically, the setting of the framework of an architectural space is performed by “using” a proper material instrument, while at other times it is matter that becomes space. August Schmarsow, who acknowledged space as constitutive to the construction of architectural art, insisted that it be accepted that the essence of every architectural creation is not form, but the fact that it is a material spatial construct (*Raumgebilde*)<sup>37</sup>. Herbert Read described this relationship in a similar manner, calling architecture a “space enclosed by material”. The critic defines the essence of this synthesis in a work of art, stating that there are two basic elements:

[...] the space and material used to enclose it. To a work of art, which is to emerge in this process, it is essential for these two basic elements to produce a combined result. He argued that it was not enough for this to be a result of

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categories of space gained varying degrees of concretisation depending on context, scale, the importance of a given building or the materials that were used. It was in the twentieth century that space, along with its matter, was given a new expression for creating the ideation of architecture, creating meanings and narratives. The theories of Heinrich Wölfflin and those of Sigfried Giedion, who echoed them in the twentieth century, gave architecture the mark of a composition defined by the German-language term “Raum” (*space* in English) – a space in opposition to the layout of architectural massings, which has its three-dimensional and temporal compositional quality.

<sup>36</sup> D. Kozłowski, *7 przypadków architektury*, [in:] „Pretekst”, Zeszyty KAM, iss. 1, 2004, p. 17.

<sup>37</sup> A. Schmarsow, *The Essence of Architectural Creation*, orig. Das Wesen der Architektonischen, Leipzig 1894, p. 286-287; <http://bibliodaraq.files.wordpress.com/2012/08/schmarsow-a-the-essence-of-architectural-creation.pdf>; accessed: 15.05.2012.

space alone, nor was it enough for the result to pertain solely to the envelope enclose the space. To him, the art of architecture was based on an effective synthesis of these two elements<sup>38</sup>.

Read's words are a reference to a higher and complete theory – the thought of Gottfried Leibniz, who, in the context of defining space, presents judgement not only concerning space itself, but rather its “organization”. Leibniz, who defined space as having its own uniformity, observed that its shape is determined by matter, which provides it with a proper dimension and constraints. Therefore, space is not just matter, but the *r e l a t i o n s h i p* between objects – their order and physical determination<sup>39</sup>.

At the start of the twentieth century, a new matter for the formation and naming of a new space had to be defined. Today it is known – the first to speak was Tony Garnier, who illustrated and commented on the vision of *Cité Industrielle* (1901–1904):

Like all architecture based on false principles [...] ancient architecture is an error. Truth alone is beautiful. In architecture, truth is the result of calculations made to satisfy known necessities with known materials<sup>40</sup>.

Garnier's intentions defined a state of the pursuit of an architecture as a form of a record of an idea – one that still was not fully formalised in actual buildings, but defined by the knowledge and awareness of its designer. The drawn world of the industrial city paved the way for the pursuit of a “new architectural calculation”, which would not have been possible without concrete, which Garnier made references to. The statement by Nikolaus Pevsner is a reminder of this fact, illustrated with a drawing of the portico of Garnier's administrative building. It points not only to intuitive knowledge concerning concrete, but in its formal expression is an invention of the post and slab structure – a configuration unknown prior to 1904. *Cité Industrielle* presented a new world, filled with an imagining of atypical shapes of the city and its architectural structures. In a situation in which no designer could describe the objectives, needs and tools required to build new architecture, Tony Garnier's drawn work was acknowledged as pioneering for all of the architecture of the early twentieth century. The forms used therein were the first to achieve such

<sup>38</sup> H. Read, *O pochodzeniu formy w sztuce*, Warszawa 1973, p. 103.

<sup>39</sup> G.W. Leibniz, *G.W. Leibniz and Samuel Clarke. Correspondence*, ed. by R. Ariew Indianapolis 2000, p. 52. We read: “I do not say that matter and space are the same thing. I only say that there is no space where there is no matter and that space in itself is not an absolute reality. Space and matter differ as time and motion. However, these things, though different, are inseparable”.

<sup>40</sup> N. Pevsner, *Pioneers of Modern Design: From William Morris to Walter Gropius*, Norfolk 1977, p. 181.

a level of visual reduction, which allowed the model architectural logic and the unprecedented manner of construction using concrete to be presented.

It appears that the material of those times, hidden in sketches, drawings and manifestos, was still unnamed and, in a sense, immaterial and instead referred to the visions of the “cut-outs” of form than to visions of actual space. Other graphical ideas: those of Hermann Finsterlin, Lyonel Feiniger or Brunon Taut, although they could have been seen as everything and above everything that had come before, remained merely a discussion of shape – through a lack of grounding in defined matter – and therefore, in a sense, were an image of a lack of their order. These graphical theories were undoubtedly stimulating when confronted with the nineteenth-century vision of academic architecture, but nevertheless they failed to maintain their significance when confronted with the inevitably coming manifestos of the Realism of *Neues Bauen* or Bauhaus Functionalism.

**2.2. The void and the massing. The Pantheon – *Jahrhunderthalle*.** The concept of space created by a form or a play of forms and its opposite – a void within a form, is concordant with thinking about the structure of architectural space. Steen Eiler Rasmussen even claims that some architects are inclined to the “structure”, while others to the “void”, and even that “some architectural periods prefer to create forms, while others prefer voids”<sup>41</sup>. The critic provides an example in Gothic, with its “structural” cathedrals and the Renaissance, represented by the concept of the “voids” of Michelangelo’s Basilica of St. Peter and Paul in Rome. Kenneth Frampton also believes (akin to Gottfried Semper) that practically all of architectural history is composed by buildings in which these cases are present.

Sigfried Giedion agreed with this distinction, indicating two fundamental concepts of architectural space. The critic states that the first is linked with the power emanating from forms, their mutual relationships, interplay and influence. This aspect ties together the architectural works of the ancient Egyptians and Greeks. However, in the second century CE, a breakthrough took place in this form of understanding the world of architecture. It was emperor Hadrian who gave rise to this, by building a temple for every deity – the Pantheon. The Roman structure, covered with a concrete dome, denoted a complete change of the previous convention, resulting in the second concept of space. The rotunda was not treated as a visually expressive form – it was a shell enveloping an enormous cell open to the outside only through the oculus in the space’s vault, which appeared to reveal a new image of the human universe. Since that time, the idea of architectural space has been almost indistinguishable from the concept of the carved space of an interior<sup>42</sup>.

<sup>41</sup> S.E. Rasmussen, *Odczuwanie architektury*, Warszawa 1999, p. 48.

<sup>42</sup> S. Giedion, *Czas, przestrzeń, architektura*, Warszawa 1968, p. 23.

The concrete dome of the Pantheon suggested this sense of space to architects, one in which man and his “spatial entity” are at the centre of attention, while architecture determined a shape that is not directly tied to any form, but is intended to be an emanation of all that is universal, pure and abstract.

The idea of space as a “generator” of architectural form and the shift from the “negative” of the interior to the “positive” of the interior can be traced by going back to the nineteenth century, when it appeared in the most significant works of architectural theory and practice. It can be observed in the traditional Victorian English country house and later in the reformist ideas of August Pugin and John Ruskin, or in the conscious of the architecture that “shapes space”, as postulated by Gottfried Semper in his *Der Stil in den technischen und tektonischen Künsten oder Praktische Ästhetik* (1860), who interpreted the Roman vaulted ceiling as an expression of a new architectural concept.

History came full circle around 1913, when the concrete *Jahrhunderthalle*, designed by Max Berg, was built in Wrocław. It appeared that concrete once again provided the possibility for creating a world of art as a pure representation of a new quality of the human mind, expressed in an aesthetically purified and abstract form. In Ernest Niemczyk’s interpretation, Berg’s intent was to design “from the inside towards the outside”, and thus making Semper’s dream of a contemporary Pantheon from pure concrete a reality<sup>43</sup>. The originality of the building was also based on the principle of rejecting superfluous form in favour of a space outlined by a form and created by the logic of its material. The synthesis of space, function and material of Berg’s edifice provided the basis for the formulation of words understandable by all:

Architecture, as any discipline of art, is shaping a material following an idea and impression<sup>44</sup>.

The *Jahrhunderthalle* thus constitutes a pure form of ordered matter, but matter shaped in accordance with an exceptional manner of formation that is the thought of an artist. Since that moment, to create a work of architecture has meant to form matter so as to create a shape of an architect-artist’s idea, in which matter is neither an addition nor a component, but forms a whole together with the form. This indivisibility is the result of the pursuits between the manner of shaping a material and its potential. The result of these pursuits does not always align with the intent of the author, yet it is they who make the decision about the manner of forming and the material, choosing between links with tradition and a brutal departure from

<sup>43</sup> J. Ilkosz, *Hala Stulecia i Tereny Wystawowe we Wrocławiu – dzieło Maksy Berga*, Wrocław 2005, p. 10, [quoted from:] M. Berg, *Etwas vom Wesen der Architektur*, Breslau 1922, p. 17-25; orig. “Architektur ist wie jede Kunst Gestaltung des Stoffes nach Idee und Empfindung”.

<sup>44</sup> *Ibidem*, p. 13.

it. Such deliberations constitute the basis for acknowledging the value of architecture as a complete form.

**2.3. The structure of a work of concrete architecture. Monolithism.** The subject of the rules of proper construction has always appeared in the theory of architecture. Raimund Abraham reminds us that the essence of architecture is to understand how one stone has been laid on top of another<sup>45</sup>. For if architecture appears to be an attempt at organising space, then structure is an organisation of matter to ensure the stability of an object. Thus the importance of the employed construction material and the understanding of the methods of binding it – so as to extend its life. We agree with this, acknowledging that the structural language is linked with architecture to a greater extent than with other arts. The example of the logic featured in the construction of the triglyph, reflected in the column–architrave system, is an obvious characteristic that describes the principle of Classical architecture, but it also demonstrates the complexity of the technical aspect of architecture and provides one with an understanding of the limitations and stability of a given structural type. Thanks to this, architecture appears not only as an art of forms, but primarily an art of structural objects. Just as in music, where a single sound relocated to another line causes a change in the melody, the grout between stones or shuttering can define artistry, precision or their lack, either on the part of the designer or their work. This is why it is said that the structure of a work of architecture is a reflection of the times and of the structure of the human mind.

If, as per this line of reasoning, concrete was acknowledged as an innovative material, one that serves new construction processes, then it had not been new in the complete meaning of the word, being modern instead – through the essence of meanings that emerged towards the end of the nineteenth century. The space of contemporary architecture and its notion were discovered at the moment when the original structures of new buildings were erected. They were revealed to the world after experiments with and studies of concrete and steel – during the construction of bridges, towers and dams. As a consequence – starting from the “invention” of function for matter, through the “discovery” of its aesthetic potential, to the “pursuit” of harmony in compositional relations – the notion of structure (in the category of a material order) has become a necessary condition of the discovery of the space of architectural modernity.

In 1901, in the journal entitled “Le Beton Armée” edited by François Hennebique, Edouard Arnaud stated that reinforced concrete was more than a material, that it was

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<sup>45</sup> R. Abraham, *Counter-Thoughts*, [in:] „Ungebaut/Unbuilt” exhibition catalogue, Bozen–Innsbruck 1987.

a completely new building process, which allowed for the construction of all types of formulas and the solving of all construction problems devised by mankind<sup>46</sup>. Two years later, Hennebique's patent for reinforced concrete was immediately used by Auguste Perret in the design of a townhouse at Franklin Street in Paris (1903). For the first time in the twentieth century, a building with a structure cast on-site was demonstrated in its original, structural form, without an additional layer of ornament, decoration, a parapet or even plaster. The monolith of the skeletal structure used by Perret not only allowed for the residential interior to receive an innovative treatment, but was also lauded as a manifestation of the first ever attempt at aesthetising concrete. The spatial logic defined by the structure of the townhouse created a precedent to bestow new meanings and senses arising from reinforced concrete forms. The pioneers of contemporaneity expressed their desires in a similar tone. To Le Corbusier, the idea of a space designed to follow a three-dimensional grid (starting with the *Dom-ino* system), was meant to result in a shape of a free game of forms – a relationship between the purism of the elements of a structure and the space organised by principle of the five points of architecture. Erich Mendelsohn was no different in this “experimental” defining of matter and space, as to him the focus on the “physicality” of dynamic solids (collected in the significant work *Gedanken zur neuen Architektur*, 1914–1917) constituted an attempt at defining both the physical structure and the external form of architecture. Following scientific discoveries, Mendelsohn's ideas shifted towards translating the exploited, undefined matter as a synonym of “architectural energy”. According to the architect, buildings took space from matter, and matter – from the dynamic of space:

Since the recognition that the two conceptions hitherto kept separate by Science – Matter and Energy – are only different conditions of the same basic stuff [...] engineers have abandoned the theory of dead material, and given themselves to the dutiful service of Nature. [...] Men of our time, out of the excitement of their high-speed life, can only find compensation in relaxed horizontal forms<sup>47</sup>.

Mendelsohn's goal – expression – formulated a definition of an unbalanced, extrovert architectural space and the acknowledgement that a work of architecture should largely be composed of independent, horizontal elements with forms featuring the most radical visual energy of concrete and steel.

Along with the potential to use concrete in architecture, a dominant role started to be played by definitions that referred to the foundations of describing the structure

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<sup>46</sup> A. Forty, *Concrete and Culture: A Material History*, London 2012, p. 86.

<sup>47</sup> R. Banham, *Theory and Design in the First Machine Age*, New York 1970, p. 182.

of works of architecture. In France and in Germany, in a time when concrete had just arrived at the scene, the tectonic theory known as Structural Rationalism became the most dominant and convincing. To traditionalist architects it was thus essential to subject concrete to a Rationalist doctrine, by which architecture is an art undergoing constant structural development. Although it appeared that concrete should meet these conditions as well, it soon became obvious that these doubts soon sealed their fate. One of the axioms of Structural Rationalism were the “Gothic Revival” ideas of Eugène Viollet-le-Duc featured in *Dictionnaire raisonné de l'architecture française* (1854–1868). Their author claimed that every change in material must lead to a change in form<sup>48</sup>. He used the examples of the structures of medieval cathedrals to illustrate this. The second precept, that a material should not imitate the form of other materials, was concordant with the major arguments of nineteenth-century architecture – those of John Ruskin and Gottfried Semper, who saw the sense of aesthetic (ornamental) theories in architecture as a logic of the history of material use.

Semper believed that architecture is derived from objects of craftsmanship (along with its ornamental character, transformed into architectural ornament), with all of their potential to transform space, whose creation is linked with both essential and religious needs. This unity of architecture, craftsmanship and the representational arts was transformed by Semper into the concept of the combination of arts – similar to the notion of *Gesamtkunstwerk*. This perspective on architecture distinguished two aspects: the functional aspect – the link between form and construction technology, the material, and the symbolic aspect – drawing on sources, traditions, original forms<sup>49</sup>.

Although Semper’s ideas were widely discussed and utilised by German-speaking architects, all “Rational Structuralists” came to the conclusion that architecture should develop on the basis of studies referring to the past, in which the use of concrete had been discussed sparingly up to that time. Alois Riegl – a critic of Semper’s structural thesis – treated the “physicality” of architecture as an

<sup>48</sup> Fragments of *Słownik rozumowany w architekturze francuskiej od XI do XVI wieku*, [in:] *Teoretycy, artyści i krytycy o sztuce 1700–1870. Historia doktryn artystycznych*, part 2, Warszawa 1974, p. 472-478.

<sup>49</sup> In this treatment of architectural form, Gottfried Semper saw a creation of material factors, while seeing the development of architecture and craftsmanship itself as an answer to the needs, function and potential of the available material. In his work *Die vier Elemente der Baukunst, ein Beitrag zur vergleichenden Baukunde*, he defined his own genesis of architecture by giving it four constitutive elements: fire (the spiritual and symbolic element), the earthwork, the roof and the fence. On this basis, Semper saw the subsequent evolutions of tectonic forms in various technical and material solutions, *Teoretycy, artyści i krytycy o sztuce 1700–1870*, Historia Doktryn Artystycznych series, p. 2; G. Semper, *Cztery pierwiastki sztuki budowniczej*, Warszawa 1974, p. 489-498.

artistic value of minor rank, in contrast to the major values of form and expression<sup>50</sup>. He described all novelty in architecture as merely a “material” phenomenon. His supporter Adolf Loos (who showed little enthusiasm for the avant-garde), despite considering reinforced concrete to be the most proper material of contemporaneity, went so far as to state that every material must have its own language of forms<sup>51</sup> and that none of them can pretend to a form intended for a different material.

To an architect, all materials are of the same value, but they are not equally suitable to every of his goals. [...] although we cannot build a house out of carpets. Both the carpet on the floor and the tapisserie require a structural frame so that they can be held in their appropriate place. Devising this frame [...] is the architect’s task<sup>52</sup>.

A “new type of Gothic” or a “new type of Classicism” began, visible in the forms of Anatole de Baudot in the churches of Saint-Jean-de-Monmartre (1904), in the church of the Holy Spirit in Vienna by Josef Plečnik (1913), the Classical Revival Villa Schwob in Chaux-le-Fonds (1916) by Le Corbusier or in the edifices by Perret – the Champs Élysées Theatre in Paris (1914) and the church in Le Raincy (1923). All of these works, having communicated to designers and critics the constitutive potential of reinforced concrete, also exposed a certain contradiction in the pursuit of the ideal of a new architecture. They were a spirit of the past cloaked in a new material – a material that was technical, raw and without finish. And despite all of them providing proof of the liminal sense of defining an architecture whose reach was defined by engineering theory and practice in the case of the first, still-unclear attempts at utilising reinforced concrete, they established a new sense in the materiality of architecture.

Similarly, Mies van der Rohe’s idea of “structural logic” still remained unmarked by a specific construction material, as were the first systemic sketches of *Dom-ino* houses by Le Corbusier. Both concepts were merely a foundation for a formal action, a stone thrown into a pond, intended to disrupt structural peace and logic, “mobilise” space in a new perception of formal actions, whose “strength” lied in visual stimulus. And although the slowly discovered rule of the post and slab structure provided a certain freedom in shaping the space between the load-bearing layout and the partition walls, it merely defined a certain intent of a universal structural principle. Le Corbusier’s statement that building structures was the engineer’s task while the architect was to build emotions was

<sup>50</sup> The artistic will (*Kunstwölle*), introduced in the work *Stilfragen* (1893), is to Riegl an “awareness”, an expression, it is the goal of art, instead of Semper’s pursuit of beauty, [in:] K. Piwocki, *Alois Riegl – podstawowe elementy jego nauki o sztuce*, „Studia Estetyczne”, iss. 7, 1969, p. 261-273.

<sup>51</sup> A. Loos, *Ornament i zbrodnia. Eseje wybrane*, Tarnów–Warszawa 2013, p. 99.

<sup>52</sup> A. Sarnitz, *Adolf Loos 1870–1933. Architekt, krytyk, dandys*, Köln 2006, p. 16-17.

a direct reference to this type of concept. Both things should be in balance – a formal and cognitive equilibrium for creating an image pattern.

We are reminded of the difficulties with the clear qualification of the works of the new architecture by Rudolf Arnheim. In his deliberations on “why a building stands”, the critic finds the main essence of the transformation accompanying the start of the twentieth century and which defined a certain balance stemming from construction techniques that were different from those that had come before. In the twentieth century, introducing new building structures became the cause of “looking in” architectural interiors as if “anew” – this led to an uncertainty in reading their durability and stability as based on previous knowledge, convention or intuition. Arnheim reminds us that this visual resistance was caused by Le Corbusier’s early buildings – most of them referred to abandoned structural methods in their expression, looking like “large boxes on sticks”. However, according to the critic, when architects freed the structure from external walls, the style caught up with technology and “ceased to disturb the eyes”<sup>53</sup>.

The modernity and originality of the concrete structure was presented in various ways, yet it was its *m o n o l i t h i c* character that became its fundamental property. In the twentieth century, thanks to the universality and availability of concrete, architecture became an art that grew beyond the factor of economy – concrete was cheap and did not require highly-trained masons. In comparison to all previous methods of construction (in which the procedure was an assembly of parts), the production of concrete buildings was based on creating either the whole or its larger parts, in which there were no components. In monolithism treated in this manner – as a principle of building structures in a specific *u n i f o r m i t y* and *s t r u c t u r a l* and *m a t e r i a l* *c o h e s i o n* – the individual elements of the structural system defined by spaces became as important as the other spatial members. Contrary to steel structures, which act as a collection of parts, in a concrete monolith every component plays a different, structural goal of facilitating “local balance”, which is also a fragment of the set of forces calculated within a generally planned, continuous structure.

The principle of monolithism led to the conviction that this same material should be used in the same manner in every part of the building. It was assumed that monolithic reinforced concrete structures make sense only when all of the elements can be made out of concrete and when all other materials are rejected as incompatible to the cast, cohesive whole. Ultimately, this meant that the material was rationally used. Concerning precursors, this doctrine was a point of honour to every modern architect. Lech Niemojewski, a proponent of concrete in Polish Modernist architecture, confirmed this, highlighting the innovative sense

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<sup>53</sup> R. Arnheim, *Sztuka i percepcja wzrokowa*, Warszawa 1978, p. 38-39.

of the use of concrete set against old, stone-based architectural techniques. He wrote:

[...] Reinforced concrete introduces the principle of the *monolith*, based on a calculation that points to the most rational profiles and if we have ever searched for an analogy, then only nature can provide us with the most fitting examples. [...] Prior to the discovery of the mystery of combining cement with iron and an identical expansion coefficient for both of these materials, the architect took those materials that were on hand and forced them to do what nature had never intended them for. The history of architecture is replete with such misunderstandings<sup>54</sup>.

Monolithism, although it was becoming the most distinct structural property of concrete edifices, was not always identified as the quality of concrete to be linked with the avant-garde of Modernism – at least not with the versions of Modernity that demonstrated a link to dynamism and energy. For example – the *Goetheanum II* by Rudolf Steiner in Dornach was undoubtedly not a “Modern” monolith in any sense of the word to architects adopting a Functionalistic, Constructivistic or Futuristic outlook.

The monolithism of Louis Kahn’s architecture can be considered exceptional regardless of comparison. To him, it became primarily a means of expressing an “individual architectural method”. Kahn, who described this type of design as *carving in stone*<sup>55</sup>, revealed the essence of his work not only as expression through the ideas of the building, but also by its main conveyor – the construction material that presents the process of constructing it. To the designer, this process took on an overarching significance, one that brought order to all of the remaining principles. Kahn finds order between space and the technology of the concrete structure as an unbreakable connection and the rational creation of a rational beauty. To show the world how a building is made, what it is composed of, what it creates and how it “works” – that is a set harmony and an attempt at presenting the essence of architecture in the statement that *Order is*. The manner of the structuring of a monolithic space by logic and the manner of construction can be derived from the very beginning – from the drawing as a “cut-out” of the ideal relations between the whole and its parts. Kahn wrote:

[...] If we learned to draw how we build, bottom-up, holding our pencil to mark places of the successive phases of the casting of a structure, the ornament would grow out of a love for expressing the method<sup>56</sup>.

<sup>54</sup> L. Niemojewski, *Ósmy cud świata*, [in:] „Architektura i Budownictwo”, Warszawa 1932, p. 416 (highlights – M. Ch.).

<sup>55</sup> B. Leupen, C. Grafe, N. Köenig [et. al.], *Projektowanie architektury w ujęciu analitycznym*, Katowice 2012, p. 121.

<sup>56</sup> Ch. Jencks, *Ruch nowoczesny w architekturze*, Warszawa 1987, p. 256.

Since the times of Luis Kahn, concrete and its ability to instantly convert thought into form has brought architecture closer to the art of a free, yet ordered choice, in which the designer presents the essence of a building within it, in addition to that which is ideal in things. Similarly as in sculpture, monolithism created a pretext for the free use of a three-dimensional mode of thinking about structure, order and form, just as the impassable states of the monolithic capabilities of matter defined the borders of contemporary architectonics.

## II. The materialisation of the idea, from inventing to composing in concrete

### 1. Expressions of form and the evolutions of concrete matter

Nobody negates the fact of the scattering of form and content in architecture. However, those who claim that Modern architecture stands out through its lack of identity and its subsequent Postmodernist incarnations change as quickly as images in a kaleidoscope, are wrong. This state, described by observers as a “journey without a set goal”, is the confirmation of the moment in which architecture has become an aesthetically heterogeneous art, based on individual references. Imitating or using patterns remains cast out. It is also prohibited to repeat one’s own ideas.

The multitude and wealth of contemporary architecture requires us to repeat after Jorge Luis Borges (not without satisfaction) that although everyone sadly whispers that our century is incapable of formulating cohesive threads, then if it holds any degree of superiority over the past, it is in those threads that decide about the shape of the whole<sup>57</sup>. On the other hand, we should not forget that history and the describing of ideas framed as an aesthetic discipline is a pursuit with an uncertain terminology and no crisply defined borders, one which is more akin to a game of shaky manifestos, unstable works or disjointed subjects. This form of describing the world of ideas has as its goal the traversal of existing disciplines and their interpretation in light of the phenomenon of the times.

The history of the art of architecture is rich with the types of examples that demonstrate the remarkable ingenuity and innovation of designers. However, the vast majority of works of art (regardless of whether they demonstrate attempts at perfecting the “first object” or directly copying it) are repetitions. The sense of the architectural sequence is visible both in the “first work” – the one that performed the “invention”, as well as in the genuine intent of the proponents who imitate it. Among them there are those designers who “discover” additional or new qualities of the original; there are also “composers” who remodel the existing order – to them art is an expression of universal truths and permanent fictions through the ideation of matter and form.

Johann Joachim Winckelmann, a scholar studying the material cultures of the Classical period, defines every art that is dependent on drawings as having three

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<sup>57</sup> A. Bioy Casares, *Wynalazek Morela*, Kraków 1975, [in:] introduction by J.L. Borges, p. 3.

distinct stages: the first – which sets the beginning (the formation) and typically manifests as an effect of *necessity*; the second stage – which mandates a pursuit of *beauty* after having investigated matter (it is deliberated whether something has a pleasant appearance or has the appropriate proportions); in the final stage, art enters a phase of *excess* (when all of the components are assembled and planning shifts to attempts at decoration) – which is followed by its downfall<sup>58</sup>. Thus, in art, and in architecture as well, each category refers to a sequence over time. Innovation and originality – attributed to an idea’s youth, must precede a *maturity* of the synthesis of those who create it that progresses over time. This phase of the cycle manifests itself when the notion of the “new” and “unknown” transforms into an “original”, yet recognisable message in its model reference. The final period denotes a time of exhaustion and aesthetic weariness. The later aesthetic theories of philosopher Claude Adrien Helvétius (1715–1771), were similar to Winckelmann’s judgements. He distinguished, among others, “inventions” and “discoveries”; works whose results are accidental, and those which came about by the genius of their author. According to Helvétius, a “discovery” was a type of *combination*, a relationship between certain items or ideas that is observed anew:

[...] The quality of novelty and separateness in ideas is not enough to earn the name of genius; it is needed for these ideas to, while being new, be also either beautiful, universal or extraordinarily interesting. It is in this that a work of genius differs from an original work, which is characterised first and foremost by separateness<sup>59</sup>.

In the twentieth century, Georg Kubler supported and continued these concepts, framing art using the context of its *innovation*, *repetition* and *continued existence*. The critic introduced a distinction of works of art, distinguishing those which initiate a certain solution to a problem – naming their artistic expression as that of the *first objects*, and those that repeat them – called *replicas*<sup>60</sup>. Today, Umberto Eco references similar categories of inventions and repetitions, finding the significance of invention which forms a model work in distinguishing the aesthetic problem of “novelty” and “continuation”. Eco contrasts *Ratio facilis* – a creation governed by conventionalised rules, and which is the essence of aesthetic repetitions, with *Ratio difficilis* – a creation that alters the rules, establishing a new code. In the second case, the notion of *invention*

<sup>58</sup> J.J. Winckelmann, *Dzieje sztuki starożytnej*, Kraków 2012, p. 21.

<sup>59</sup> C.A. Helvétius, *Oeuvres*, vol. 2, Paris 1792, p. 199, [quoted from:] J. Białostocki, *Refleksje i syntezy ze świata sztuki*, Warszawa 1978, p. 265-266.

<sup>60</sup> G. Kubler, *Kształt czasu: uwagi o historii rzeczy*, Warszawa 1970.

gains a deciding significance – it becomes an institution of the newly created form and its significance<sup>61</sup>.

**1.1. The “inventors”, “explorers” and “composers” of concrete architecture<sup>62</sup>.**  
 In the twentieth century, human thought transcended the barrier behind which lied a space for a grand experiment associated with a new architectural matter – reinforced concrete. For the first time, concrete, whether raw or reinforced, became a basis for and the first reference to modernity. The manner and hierarchy of values in treating this matter have created the expressive quality of contemporary architecture.

As it turned out, the significance and essence of this “total” experiment were so essential to its contemporaries that there was almost no contest to the sense of the transformation in the human conscious that was taking place. Along with the construction of dams and viaducts, stadiums and airports, designers – fascinated with the products of civilisation and technology – proclaimed: today, with reinforced concrete, everything is possible! Those who invented the material also produced tools from it and learned how to use them. The *i n v e n t o r s* of concrete architecture proclaimed that art requires the artist to imagine and produce objects – architecture, in its machinist, techno-monolithic expression became a “technical mass” in the hands of architects and engineers, ready to be plied by the power of a calculated concept, yet without determining its intended aesthetic. These beginnings were accompanied by an evident austerity of forms and material, so distinct or every “first object”. Forms of architecture became a prototype for the subsequent rationalisation of the problem – the process of rejecting redundant elements to create a structurally pure aesthetic of intent and functionalism. From that moment on, the criterion of “novelty” became the basis for defining the significance of a work.

These expressive attitudes were accompanied by discrepancies associated with the full and radical use of concrete and steel. Some designers (following Le Corbusier and Walter Gropius) followed the path of the increasing rationalisation of the architectural idea, while others (similarly to Erich Mendelsohn, Oscar Niemeyer and Rudolf Steiner) were overcome by the desire to discover the wealth of the world of metaphors and semantics hidden in social metaphysics; others still (following Auguste Perret) persisted in uncertainty in the shadow of Modernism, aesthetising old forms in a new costume. All designers, in pursuit of the autonomy

<sup>61</sup> U. Eco, *A Theory of Semiotics*, Bloomington 1976, p. 183-184.

<sup>62</sup> The subject of this subsection is an attempt at interpreting the thought of Professor Dariusz Kozłowski, which he formulated during a discussion at the chair of Housing Architecture of the CUT FoA in 2004. The professor divided designers into “inventors” and “composers”, which at the time appeared to be an appropriate distinction of the world of architecture into functionalistic and postfunctionalistic styles.

of architecture, made attempts at defining the specificity of their own formal, visual and material language. Oftentimes, the old language of forms and content remained in use, but was replaced by a new, modified one within the old syntax<sup>63</sup>. Architecture started to be understandable by adapting the capabilities of concrete – a medium whose expressiveness was achieved thanks to its reinterpretation and perfection. The innovators of this architecture – its *e x p l o r e r s* – by gathering new terms and meanings, create a world of architecture recorded using a language and syntax that are compatible with its predecessors, but modified by their own style. And because “to discover” means “to find”, entangled in the play between art’s present and past, they explore and penetrate essences that are not only physical, but also those outside of reality. Alibis for this conduct are provided by crossing the threshold of reality in search of architectural pretexts, urban motivations and appearances of the continued existence of ideas, in addition to finding formulas for transmuting matter into an attractive shape of architecture<sup>64</sup>. The form in this transmutation is merely the result of the belief in the absolute dominance of art, along with its function of the superiority of fiction over the materiality of a work. *C o m p o s e r s* are those artists who find the primacy of shape over the sense of discovering the capabilities of matter and the uncompromised purity of form over the utility of the material to take precedence. In this shape, concrete provided a useful tool for extracting a form with the characteristics of formal perfection. Once again, in the tangles of the history of art, matter has become that, which, can, but does not have to, be differentiated. The aesthetic awareness of the “composers” of concrete architecture has become enhanced thanks to the conviction as to the continued existence of the ideation of forms and the durability of concrete, yet without entering the hard, impenetrable matter.

## 2. The objectivity of architecture. The matter of “inventions”

The heroic period in architecture was not supported solely by great ideas resulting from the legibility of principles, logic and function. The sense of interpreting new types of matter started to be discovered by designers associated with Expressionism,

<sup>63</sup> G. Deleuze, *Różnica i powtórzenie*, Warszawa 1997, p. 266. To Gilles Deleuze, each of these rich “varieties” enters into mutual relationships with the remaining elements and defines this process as a “fluid synthesis” that takes place in time and space. According to Deleuze, all of Modernist art was based on this specific game, which is based on choosing the right matter.

<sup>64</sup> The paradoxical alignment of aesthetic goals, contrary to what might be otherwise imagined, situates “explorers” closer to “composers” than “inventors”. Here we should distinguish the metaphor in the use of the term “inventor” and “explorer”. An “inventor” is a creator of new things that have not been previously encountered in art, science, nature, etc. An “explorer” is someone who finds an “existing” thing that has been “hidden” or “forgotten” before others can.

Purism, Neoplasticism or Constructivism. Each of these styles re-evaluated the matter of the architectural material and created a new language of it. Against this background, the conclusion to the first period of Modernism would be a message concerning the form of technical and material rationalism, which is a consequence of the use of the logic of materials.

The notion of the *exhaustion* of forms and architectural styles is another important element in describing the world of the start of the twentieth century. In every historical period, formal invention becomes a reflection – regardless of whether it is an actual or metaphorical one – of a yearning for change after a period of an aesthetic weariness with the classic<sup>65</sup>. Ernst Gombrich describes this situation with greater consideration, describing this period of rejection as a “logic of situation”, based on a pursuit of new aesthetic experiences<sup>66</sup>. Radicalism and the period in which the rejection of the old order took place brought about, as it appeared, a certain dependence on aesthetic experiment. In other words, the capacity to absorb new knowledge was closely linked to the state of the art at a given moment.

Aesthetic “inventions” are singular events, a part of “transitory periods” between the past and the future, delimiting the border between technologies, techniques and materials. Georg Kubler presented the matter of expanding human awareness and perception during all periods of cultural and stylistic change as follows: “Inventions are caught in this shadow between the present and the future, where one can only hardly see the dim shapes of possible events”<sup>67</sup>. The “invention” is not an unambiguous aesthetic act, but rather a “technical cause” that sets formal consequences in art. In architecture, it is a fact denoting a breakthrough in thought, it begins the process of granting permanence to architectural meanings. The “invention” communicates a certain rational or emotional state “from before architecture”, strongly tied with technical forms, yet without representative aspirations. The appearance of such an intent typically denotes a return to classical references, which allow the formulation of a hypothetical semantic form in the invented original structure. Contemporary theories likewise point to the sense of a similar understanding of architecture, in which every structuralist breakthrough is in part a continuation and a differentiation of a certain model (a pattern) or its copy,

<sup>65</sup> The notion of aesthetic weariness was introduced by Adolf Göller in his work *Ermüdung*, [from:] G. Kubler, *Kształt czasu...*, *op. cit.*, p. 125. Adolf Göller describes time and weariness as the moment when all models are recognisable enough and remembered to an extent that does not bring joy to the recipient.

<sup>66</sup> E. Gombrich summarises the problem of stylistic transformation by stating that, “as we must abandon the pursuit of laws of history that could explain every change in style, we do have the right to closely observe the sequences and episodes that we might be able to explain through the logic of situation”, [in:] *Pisma o sztuce i kulturze*, Kraków 2011, p. 287.

<sup>67</sup> G. Kubler, *Kształt czasu...*, *op. cit.*, p. 102.

but it is primarily a new event – which is a beginning, and therefore a new model as well. Architecture using concrete followed this stylistic pattern, yet the sense of repeating past forms had in it this new element of “otherness”, which allowed its later unconstrained differentiation between the pattern and the produced “model”.

### **2.1. The truth of matter and the logic of a concrete form. The *Dom-ino* system.**

In 1901, the obviousness of the times of the coming Modernism was summarised by Frank Lloyd Wright, who stated that the engines of locomotives, warships and steamers were taking the place previously occupied by art and that scientists and inventors had replaced Shakespeare or Dante<sup>68</sup>.

According to the “inventors”, the notion of *ideation* in architecture was equated with the notion of technical perfection and functionality – by rejecting the term of formal perfection, they reserved it, in accordance with the vision of a rational world, only for manifestations of various academic and technical disciplines. One of the fundamental ideas of Modernism envisioned that all products of mass manufacturing are identical, and the rejection of the “aura” of crafts was meant to give some measure of solace: the mysterious shine of the work of a machine and the illusion of perfection. The “inventors” assumed that along with new art, there came an end to understanding old artists and their works, and the experiment, as a tool, became a path to the goal which was to be the shape resulting from technical economy. Since that time, the work of architecture – the “invention” – was to improve living, working and recreational conditions. The building was to be primarily the product of the work of the intellect and “technical imagination”, and the only reason for formal solutions were to be non-aesthetic, practical considerations, which were to become the perfect object as a result of deduction. Umberto Eco wrote about this, discovering the primary essence of the values of Modernism:

The modern criterion for recognizing the artistic value was *novelty*, high information. The pleasurable repetition of an already known pattern was considered, by modern theories of art, typical of Crafts not of Art and of industry<sup>69</sup>.

To contemporary architects, the moment of the rejection of ornament – as redundant in architecture – has also become a point of reference. Adolf Loos’ postulate to abandon decorating buildings was not merely an idea to show the genuineness and logic of architectural form. The rejection of ornament as a subjective decoration became a moment when the architect took a stand on the side

<sup>68</sup> D. Sudjic, *Język rzeczy*, Kraków 2013, p. 219.

<sup>69</sup> U. Eco, *Innovation & Repetition: between modern & postmodern aesthetics*, [in:] Daedalus, vol. 114, no. 4, pp. 161-184.

of the objective spirit and of giving architecture an ethical message. Loos' moral reflection was aligned with the view postulating a separation from the genius of individualism and finding the common sources of contemporaneity – in the ideas of purity and reconciliation.

In the search of objective principles of architecture, the main assumption adopted during the period of the revolution of concrete and steel was the conviction that the innovative power to create art is based on the guidelines of technology and industry. The reference to construction materials lied in its synthetic antinaturalism, as there was an awareness that Modern architecture can look as that depicted by Tony Garnier and Antonio Sant'Elia in the imaginary *Cité Industrielle* and *Città Nuova*. The power of these images surely encouraged one to incorporate concrete into the coming modernity and provided a justification to the claims that reinforced concrete is a revolutionary material. The contemporary man as an entity drawing from the artificiality of a “new matter” and the “new spirit” created from it, in opposition to the ancients – who looked towards nature – became an element and a creator of a new, mechanical world.

Arguments identical to the spirit of the Modernism of the time also appeared in the circles of the Werkbund, as authored by Hermann Muthesius and Ernst Osthaus, who took Loos' words further and then turned them into a fundamental question about modern art and architecture. The spirit of the “ethicality” of architecture, of “order” or the “objective spirit” – a notion that was explored by Hegel during his time – also became a source of a turn in thinking about communal needs and an order shaped in a new, objective and universal matter of creating in concrete<sup>70</sup>.

C.É. Jeanneret, to whom the thought of the Werkbund: “engineering defines lyricism” provided theoretical drive<sup>71</sup>, had similar thoughts about the relationship between form and engineering. During the early years of Le Corbusier's career, this had a fundamental significance in the relationship between the nascent new form and the concrete building material, between engineering thought and the pure manifestation of geometric art, based on a rational approach to the discipline and a familiarity with the material. Other French members of the avant-garde agreed with him, including painter Amédée Ozenfant, who wrote about notions of *l o g i c*, *e c o n o m i c s* and *p u r p o s e f u l n e s s* in the visual arts and architecture. To Purists – Ozenfant and Jeanneret – the relationship between ideas and the new matter

<sup>70</sup> The arguments of Loos and the Werkbund are similar to the call of eighteenth-century architecture theorists: abbot Mark-Antoine Laugier (1713–1769) and Carl Lodoli (1690–1761). Both postulated the desire to reach the primordial principles of architecture and called for purposefulness in the use of a given matter for specific formations. F. Algarotti, *Saggio sopra l'Architettura*, 1756, [in:] *Teoretycy, artyści i krytycy o sztuce 1700–1870*, Warszawa 1974, p. 136.

<sup>71</sup> Le Corbusier, *Précisions sur un état présent de l'architecture*, Paris–Chartres 1960, p. 46.

resulted in a clear dependence between the natural character of physical objects and the purity of created things. To both – just as the form of use of a machine – this same integral aesthetic organization was to be contained in a work of architectural art, one that was possible to construct after bringing order to all visual problems so as to ensure its fullest and most intense reaction. This was the reason why a new “syntax” of means of visual expression and impact had to develop. Because of this, Purist composition constituted an integral visual whole, in which one could find the sense of the “spatial game of solids”, tied into a single, harmonious whole.

Familiarity with the material comes only after an appropriately long period of its use. One example of difficult changes can be the fact that when people started to use stone, they mimicked timber forms. John Faber, Oscar Faber’s grandson, whose work *Reinforced Concrete Simply Explained* was a novelty in 1922, claims that at the time concrete was “shrouded in mystery”, that there was no helpful and available literature on its subject. Others also believed that the architectural use of concrete was still in the experimental stage. The time to familiarise oneself with the matter of reinforced concrete was not long – only 27 years had passed between the invention of the reinforced planter by Monnier (1867) to the construction of the first church Saint-Jean de Montmartre by Anatol de Baudot. At the start of the twentieth century, concrete was already a widely used material. It became the basis for architecture, and its true ennoblement came in the works of Auguste Perret: the house at Franklin Street from 1903, the garage at Ponthieu Street (1905) or, ultimately, in the Notre-Dame church in Le Raincy in 1923.

The words of Ludwig Mies van der Rohe appear symptomatic of the time, as in 1923 he wrote about concrete that, as a construction material, it was poorly known and required exceptional carefulness and planning precision prior to every application:

[...] there have been repeated attempts to introduce ferro-concrete as a building material for apartment building construction. Mostly, however, ineptly. The advantages of the material have not been exploited, nor its disadvantages avoided. One believes one has acknowledged the material sufficiently if one rounds off the corners of the house and of the individual rooms. The round corners are totally irrelevant for concrete and not even all that easy to execute. It will not do to translate a brick house into ferro-concrete. I see the main advantage of ferro-concrete in the possibility of considerable savings in material... the disadvantage of ferro-concrete, as I see it, lies in low insulating properties and its poor sound absorption<sup>72</sup>.

Contrary to what Rohe claimed, it turned out that modern architecture became a field of the ultimate “conquering” of concrete, giving architectural legitimacy

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<sup>72</sup> C. Croft, *Concrete Architecture*, London 2004, p. 17.

to all uses (e.g. in housing construction). The qualities of concrete were in line with the social and egalitarian zeitgeist of rational design that was favourable to consumers. This ideology had to be expressed through the purity and neutrality of the mass-produced material, which created a very specific image of being adaptable to anything. Walter Benjamin defined the essence of this new correlation of repetitive form and matter as a matrix that shaped our attitude towards art anew<sup>73</sup>. The material “awakening” had to result in the formulation of new definitions of architecture – and the redefinition of its borders or the paradoxical statement of there being none. The successful art of convincing provided proof in the image of the Modernist style, which was meant to become, both literally and figuratively, a style “without borders”. Artists, proclaiming the totality of the new art, entered the space of universal forms and meanings.

Since the beginning, the “forging” of forms in concrete was accompanied by defining terms and categories. The very process of formulating terms, from the language layer to formal events, has for the first time become an artificial language, detached not only from form and content, but also from the previous syntax. The substance of the language of architecture, apart from function and form, was the matter of concrete, steel and glass, which formed the basis for a new system of terms – codifications that participated in creating a new language of architecture. One example of this situation is the work of Le Corbusier, with his linguistic inventiveness, who had to name all of a design’s constituent elements prior to drawing them. The architect invented several hundred words – architectural elements, from which *Modulor*, *brise-soleil*, *pilotis*, *ondulatoire*, *machine à habiter*, *Cité Radieuse* denoted a change in the manner of thinking of the architectural elite for decades to come.

Among the words and writings of intent of the great designer, particularly noteworthy is the concept of the *Dom-ino*<sup>74</sup> system from 1915, which was presented with a sketch of a certain structural system (ill. II.1). The simple drawing (three planes connected by six columns, the entirety linked by a stairwell), deemed as the source for the later five points of contemporary architecture, illustrates the possibilities offered by the use of reinforced concrete in a post and slab system. The drawing was also a foreshadowing of the rejection of the term “stylish”,

<sup>73</sup> W. Benjamin, *Dzieło sztuki w epoce możliwości jego technicznej reprodukcji*, [in:] „Estetyka i film”, Warszawa 1972, p. 171.

<sup>74</sup> The *Dom-ino* system was Charles-Édouard Jeanneret’s idea for cheap, concrete buildings for areas damaged during the First World War; see: Le Corbusier’s letters to the Swiss concrete engineer Max Du Bois (between December 1914 to December 1915); see also: *Lettre à Du Bois* Fondation FLC El. 19.(110) – FLC El. 19.(237). The first publication of the *Dom-ino* system took place on the pages of “Vers une Architecture” in 19123; also see p. 13.

and the lack of visible external walls was to fully demonstrate the essence of creating architecture within an abstract space – devoid of the weight and mass of matter. Le Corbusier wrote about this type of objective expression referring to it as a “naked fact”, becoming the basis for filling in with a new spirit of contemporaneity:

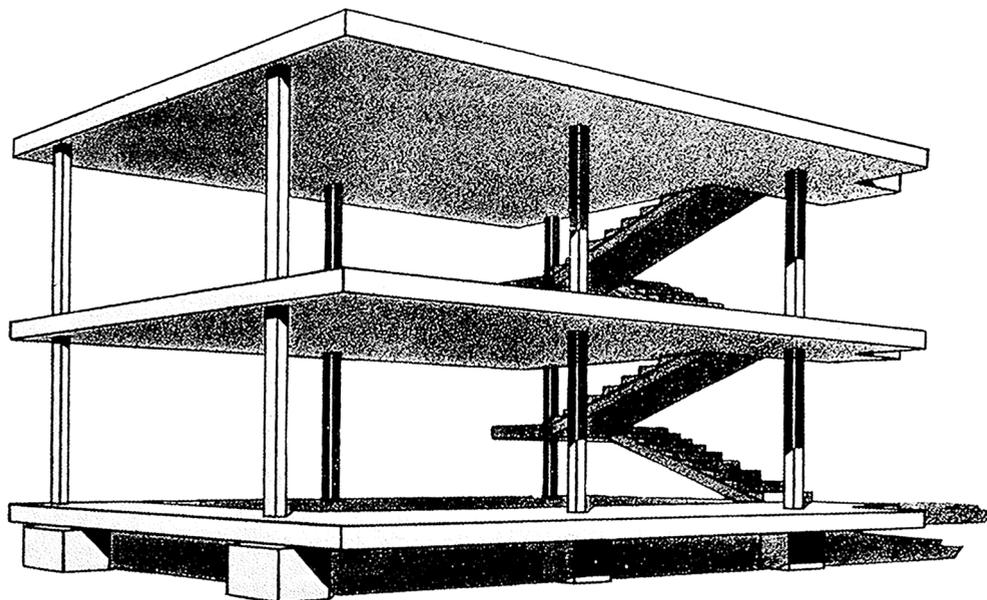
Architectural abstract has this about it which is magnificently peculiar to itself, that while it is rooted in hard fact it spiritualizes it, because the naked fact is nothing more than the materialization of a possible idea. The naked fact is a medium for ideas only by reason of the “order” that is applied to it. The emotions that architecture arouses spring from physical conditions which are inevitable, irrefutable and to-day forgotten<sup>75</sup>.

The transparent glass curtain was intended to replace the impenetrability of previous partitions, and the skeleton of its monolithic structure forever rejected the solid stone walls of the facade. In the case of *Dom-ino*, reinforced concrete columns, decks and stairwells do not form an aesthetic – instead, they speak of the purity and morality practiced by Charles-Édouard Jeanneret and of the objectivity that was freeing architecture from deceit and falsehood, opening our eyes to a new spirit in architecture. The first houses in Pessac (1926) were built in this spirit, as was a series of houses in the Monol and Citrohen system. The model housing complexes became the most consistent examples of freeing architecture from its semantic burden in its visible mass.

The persistence of the myth of the *Dom-ino* system and the assessment of its significance to contemporary architecture cannot obscure from us a certain difficulty in classifying it per the definition of concrete architecture. It appears that *Dom-ino* is more of a definition of intent than an architecture – a formless “means to an end”, often questioned because of its unoriginal, concrete translocation of steel column-based structures. Peter Eisenman is consistent in pointing out the essence of the system, describing its historical properties: “planeness”, in contrast to the previous “wellness” of architecture, its dimensionality and flexibility. *Dom-ino* also signalled a certain divisibility and the possibility of flexible anchors. In this sense, it is a sign of a system which refers to the most original foundations of architecture, borne of pure geometry, set apart by their utilitarian potential and content. It fulfilled its role of a reflection of a self-referring image of contemporaneity and has remained a state of mind of the designers of the coming Modernism<sup>76</sup>. Apart from confirming its significance as a spatial model and the essence of the concept of an “open space”, architects also saw a technological cohesion in the new scheme. This cheap

<sup>75</sup> Le Corbusier, *Towards a new Architecture*, transl. by F. Etchells, New York 1986, p. 26.

<sup>76</sup> P. Eisenman, *Aspects of Modernism: Maison Dom-ino and the Self-Referential Signe*, [in:] „Oppositions Reader”, New York 1998, p. 197.



III. II.1. The *Dom-ino* system, Le Corbusier, 1915

skeleton system, which paved the way for composing new architectural space, was a pre-metaphor of the machine for living in, which in would go on to define a broad spectrum for architectural styles and the ideational foundation for mass-produced houses the future.

**2.2. Prototypes from concrete.** Engineering thought undoubtedly played the role of a model in the pursuit of new aesthetic boundaries. The aesthetic, which emerged as a product of industry, inspired much applause and rapidly gained acceptance, while structural engineers became – on par with architects – those who achieved the status of leaders of contemporaneity through their knowledge. The goals and means of this “new imagination”, although outlined by the technical revolution, were commented on by Le Corbusier:

The Engineer’s Aesthetic, and Architecture, are two things that march together and follow one from the other: the one being now at its full height, the other in an unhappy state of retrogression. The Engineer, inspired by the law of Economy and governed by mathematical calculation, puts us in accord with universal law. He achieves harmony<sup>77</sup>.

When Max Berg, along with the structural engineer Günther Trauer, completed the construction of the *Jahrhunderthalle* in Wrocław in 1913, it immediately became a first-rate technological, monolithic structure, manifesting the desire to continue the meanings of monumental architectures by using a new tool – the economy of form. The synthesis of space, function and material that was incorporated into this work provided the basis for discovering a new essence of this architecture.

Berg’s building is a technical, undecorated, “open” structure, demonstrating the monumental significance of exposed reinforced concrete. The austere interior, devoid of ornamentation, is the result of thinking only about the pure, 95-metre structure, which was quite a challenge (at the time) for other record-breaking halls – in Leipzig and in Frankfurt am Main. The novelty of Berg’s structure was not solely based on overcoming the technical difficulties of constructing its reinforced concrete dome. The architect’s approach to the entire building was revolutionary as well – Berg focussed on the functional requirements and shaping the interior in harmony with the structural system, which gave the whole its form. Jerzy Ilkosz underscores the essence of the building by finding the dualism of the external, Wilhelminian formality and the internal positivism and rationality of the technical structure, filled with light<sup>78</sup>.

<sup>77</sup> Le Corbusier, *Towards a new Architecture*, transl. by F. Etchells, New York 1986, p. 1.

<sup>78</sup> J. Ilkosz, *Hala Stulecia...*, *op. cit.*, p. 17; see also: p. 31.

The *Jahrhunderthalle* building also holds significance for a different reason – it marks a transition from a world of individualism into a world of universalism. It appears that by referencing the dome of the Pantheon, it is a closing accent of the concept of the old world of architecture, yet in a proposal that combines abstract forms with engineering achievement in its dome, it transformed the world of engineering into a world of dynamism – into a space of expression, the overarching idea of the entirety of twentieth-century architecture. This is what Nikolaus Pevsner wrote about Max Berg’s work:

Max Berg in his *Jahrhunderthalle* at Breslau in 1910–1912 did with reinforced concrete what Behrens had done with steel framing. He created a noble monumentality without concealing the boldness of his structure. [...] Moreover, the supports have an elegance of span and curvature heralding the achievements of Pier Luigi Nervi after the Second World War<sup>79</sup>.

Among concrete prototypes of contemporaneity there are also the parabolic dirigible hangars in Orly, designed in 1916 (built in 1923) by the engineer Eugène Freyssinet using innovative pre-stressed reinforced concrete technology. The size of the buildings was impressive and could house the massing of a Gothic cathedral: with a span of 91 metres, a height of 60 metres and a length of 175 metres. The roof of the hangars was not a monolithic shell, instead being a thin covering, which achieved necessary rigidity through reinforced concrete ribbing placed perpendicularly to its lengthwise axis. Freyssinet was the first not to use concrete according to centuries-old standards, instead using those of its properties thanks to which he could make it exceptionally “light”, constituting a cost-effective “cloak” covering the field of tension of the architectural skeleton. The invention of pre-stressed concrete, which was used in Orly, contrary to the *Jahrhunderthalle*, resulted in an unprecedented effect of the effortless enclosing of an architectural space.

The hangars foreshadowed a new era in defining the logic of architecture, although Freyssinet himself always highlighted that the buildings he erected in Orly had no intended artistic value, their form being merely a result of utilitarian structural goals. The aesthetic of the structures was therefore a product of the proper reading of knowledge about a specific technical problem. Freyssinet provided an example of this in the forms that are associated with the curve that expresses a pure algebraic formula, which, in its clarity of communication and scale of space, gave observers a sense of harmony through the conviction and purposefulness of the selected solution.

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<sup>79</sup> N. Pevsner, *Pioneers of modern design: from William Morris to Walter Gropius*, Harmondsworth 1978, p. 206.

The Swiss structural engineer Robert Maillart began his pioneering career during the same period. A student of Hennebique, he believed that abandoning the beam system and adopting the concrete slab would create a universal load-bearing system for use in ceiling decks, roofs, bridges and other engineering structures. In the Tavanasa Bridge on the Rhine (1905; span length of 51 m) or the more photogenic Salginatobel Bridge (1930; span length of 92 m), he utilised a system featuring a curved slab, unprecedented in reinforced concrete structures, which, along with the horizontal deck of the carriageways and a series of vertical planes ensuring rigidity, constituted a wholly finished structure (ill. II.2). The elimination of all non-functional components of the bridge and making the dimensions of its elements smaller, reflecting the bridge's structural principle and economy, undermined nearly all previous projects and set a new course for architects and engineers. Sigfried Giedion wrote that, in the hands of Robert Maillart, reinforced concrete had lost its rigidity, becoming an almost organic skeleton, which pulsates with life in each of its fragments<sup>80</sup>. The rhythm of arched surfaces, the shape of concrete coffers produced a never-before-seen dynamism of form and visual expression, driving the work to a structural extreme, beyond which there was nothing but imitation. To Giedion, bridges demonstrated pure, non-arbitrarily imposed beauty. In the Tavanasa and Salginatobel bridges concrete expressed the structural characteristics of artificial materials for the first time, especially because it is properly understood as a three-dimensional and monolithic material. The power of formal logic and the simplicity of the structures designed by both Maillart and Freyssinet caused concrete engineering art to become standardised and ennobling in the eyes of both designers and the audience.

The years that followed confirmed the validity of the attitude among the proponents of the argument that structure is the starting point for architecture. In the 1950s and 60s, Italy saw the construction of the structures of the "building engineer" Pier Luigi Nervi, which demonstrated the continued existence of a synthesis of aesthetics and experimental technology. In this design, also called "engineering art" or "engineering aesthetics", in which Nervi was the most often imitated and praised for (Jerzy Hryniewiecki called him a "virtuoso and poet of reinforced concrete"<sup>81</sup>), many sought to find characteristics of formal exceptionality. Christian Norberg-Schulz went so far as to proclaim the Italian's works as an illustration of Mies van der Rohe's words: Wherever technology reaches its real fulfilment, it transcends into architecture<sup>82</sup>. Although Nervi clearly avoided formations defining formal extravagance, the architecture of his works entailed the solving of the functional

<sup>80</sup> S. Giedion, *Czas...*, *op. cit.*, p. 571.

<sup>81</sup> A. Kotula, P. Krakowski, *Architektura współczesna. Zarys rozwoju*, Kraków 1967, p. 146.

<sup>82</sup> C. Norberg-Schulz, *Znaczenie w architekturze Zachodu*, Warszawa 1999, p. 211.



III. II.2. Salginatobel Bridge, Robert Maillart, Grisons, Switzerland, 1929–1930

problem in a manner that showed an unprecedented level of the human mind's structural acrobatics.

The structural sense of Pier Luigi Nervi's buildings is responsible for an entire world of architectural meanings, based on a pursuit of the continuity of human experiences and experiments<sup>83</sup> – both technical and universal ones, based on the ageless pursuit of the largest and most economically feasible coverings, as well as those which referenced individual impression – to the process of devising appropriate means for their corresponding actual and structuring, non-fictional goals<sup>84</sup>. When faced with the choice between order and composition, Nervi chose structures that were “high-performance products” – an organism defined by a single principle and a single material criterion – a formal pattern drawing from the evolution of the geometrisation of nature's shapes. His columns, beams and cantilevers became visual elements, whose section-derived shapes transform depending on the current statics. Each of Nervi's structures is a build-up of its own “strength” – one that is a result of the pure intention to create an architectural nature based on cause and effect. In Nervi's article *L'architettura verso forme e caratteri immutabili? (Is Architecture Moving Towards Unchanging Forms?)* (1965) he provided a clear affirmation of this, although it did depend on the will of the designer to understand the laws of nature and their interpretation: “to follow them was the only method of using their majestic eternity”<sup>85</sup>. After Nervi's inventions there was a period of freeform and curvilinear aesthetic, in which structure demonstrated the organic laws of nature. The space of forms determined by the traditional layout of reinforced concrete columns and beams was replaced by pre-stressed concrete and mesh concrete (in structural prefabrication) used in shell roofs, and the world beheld the original forms of Felix Candela, Eduardo Torroja or Oscar Niemeyer.

To each of the outstanding figures of Functionalism, this work constituted a point of reference in the pursuit of an original and universal concrete form. Tavanasa Bridge (1905) by Robert Maillart, which continues to be a model for many engineers who design concrete bridges, and Palazzetto dello Sport (1960) by Pier Luigi Nervi, released space from the confines of straight-lined abstracts

<sup>83</sup> M. Major, *Pier Luigi Nervi*, Berlin 1970, p. 13.

<sup>84</sup> The words of Lech Niemojewski explain the phenomenon of engineering aesthetics. In 1932 the architect wrote: “In the occupation of the engineer, which might appear as so dry and strict, there are known moments when calculating the strength of a structure must take on an actual shape. It is then that the number <n> of the square centimetres of a cross-section is converted into a rectangle, a triangle, a circle or an altogether different geometric figure. Sometimes, it is happenstance, but more often will or whim, but sometimes, it is enthusiasm. And then, the engineer, unaware of what he is doing, becomes an artist”. [in:] L. Niemojewski, *Ósmy cud...*, *op. cit.*, p. 413.

<sup>85</sup> P.L. Nervi, *Is Architecture Moving Towards Unchanging Forms?*, „Structure and Science”, New York 1965, p. 101, [quoted from:] C. Jencks, *Ruch nowoczesny w architekturze*, Warszawa 1987, p. 86. Ill. II.3. Bauhaus school, Walter Gropius, Dessau, 1926, p. 56.

with their right-angle form constraints. To Le Corbusier, the principle of *Dom-ino* transformed into the five points of new architecture and found full integration with housing construction – in the Villa Savoye in Poissy or his model housing units in Weissenhof, near Stuttgart.

In 1926, the innovative power of the post-and-slab system was revealed by the buildings of the Bauhaus school in Dessau, designed by Walter Gropius. Reinforced concrete, although hidden beneath the largest transparent curtain wall to be found in Europe at the time, along with glass, played an equally important role in presenting a space that would meet the conditions of the contemporary vision of the notion of the *Gesamtkunstwerk* – a total work of art, a structure in which there is no dividing line between the structural and the decorative arts. The factory-school in Dessau is not only a model of an educational building, but also a formal transfer of the function of rational thinking about a prototypical manner of education. Gropius' trade school allowed students to first master matter in order to later recreate new things in a better, useful shape while rejecting its previously fixed formal basis. Bauhaus furniture was thus a collection of “prototypes” of all manners of furnishings: stools and chairs – were devices to sit on – lamps were illuminating devices, while cutlery – a set of instruments for eating. In this context, the school buildings in Dessau (ill. II.3), similarly to Gropius' Fagus shoemaking utensils factory in Alfeld (1911), combined the essence of design, training, manufacturing and construction. The radically rationalist concrete, structurally combined with glass, constituted a sort of a skeleton ready to take on any technical solution resulting from standardisation and typification – ranging from school rooms to workshop spaces.

In 1933, the great edifices of “Concrete Functionalism” were joined by the sanatorium building in Paimio, designed by Alvar Aalto. To Juhani Pallasmaa, the building, along with its simple and exceptionally clear structure, became a true testament of modernity, which, after years of functionalist attempts and efforts, produced “an atmosphere full of promise”. The Paimio Sanatorium, described as the most mature work of pre-war Modernist public architecture, was intended to convince its audience through the idea contained in its concrete massing – a radiant belief in a humane future and the success of the societal mission of architecture<sup>86</sup>. Along with the buildings of Alvar Aalto, Le Corbusier and Walter Gropius, the perfection of Functionalist architecture found its place in the machine for living in, working and recreation – in things still marked by the Promethean dream about giving mankind happiness by giving architecture the characteristics of a Functionalist utopia – a unity of ethics and aesthetics, a harmony of the spirit of “objective” architecture.

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<sup>86</sup> J. Pallasmaa, *Eyes of the Skin: Architecture and the Senses*, London 2005, p. 52.



III. II.3. Bauhaus, Walter Gropius, Dessau, 1926

### 3. Innovation. The formativeness of matter

The proposals derived from the idea of progress and novelty, based on an appropriate understanding of the potential of the human mind, defined the formula of the first half of the twentieth century. Thanks to scientific and technical inventions, architecture led to a largely undefined perfection, still formulated in the categories of utopia and contesting architectural solutions. Events of an aesthetic nature travelled along the same path – the notion of art as a constantly renewable value would be proven once again. It turned out that the true art of the modern world is not limited to engineering with its inexhaustible ingeniousness, but the very same art with its infinite formal energy. Functional transformations in material structure itself were insufficient to create a continuity of meanings – technical progress did not assume a memory of past times. As time went on, after a period of experimentation, designers appeared to direct ideas towards an established order – unquestionable, universal values.

**3.1. Discovery of form – transformation of matter.** It became evident that architects had managed to adopt the techniques and technologies of raw and reinforced concrete enough to achieve new aesthetic goals – which are today acknowledged as the beginning of another tradition. Designers crossed the barrier of the “resistance of matter” and reinforced concrete gained the status of a material that can transform the initial negation of old tradition into a matter of the innovation of the latest tradition. The technical problem of the construction material was interpreted as the “nature of designing in concrete” and adapted to a work as its artistic matter. Furthermore, the fact that the architect could become inspired by the aesthetic potential of a material – its formativeness – became an essence of contemporary architecture’s innovation and improvisation<sup>87</sup>. It can be said that reinforced concrete became the matter that verified the potential of the limitless imagination of designers – it appeared natural to separate the function of matter as the primary goal of its implementation by structural engineers from the form arising from this matter – which forms the foundation and objective of artistic endeavour. The initial references made by architecture to the intellectual understanding of form, after more than a decade, had remained merely indirect, creating a general, already explored notion of the use of concrete. There came the realisation that architecture cannot be solely derived from the quality of the physical object of architecture and its function, but must reach for something beyond it, something that will satisfy

<sup>87</sup> I use the term “formativeness” which has its semantic source in the capacity for being shaped in a specific material and which is a distant synonym of the word “creativity”; [def.] *formative* – a process or capacity that is associated with the act of the formation of something, using a material; see also: L. Pareyson, *Estetyka. Teoria formatywności*, Kraków 2009.

the need for an aesthetic absolute. Architecture had to become free of the necessity of its technical and mechanical goals that were hidden in utility. In this sense, concrete “innovations” were the acceptance and adoption of a model and its assimilation, reinvention and interpretation.

“Architectural objects” understood as such, being categories of the discovery of an original’s potential (the idea, the form and their material), become its innovation and interpretation – rarely a copy. Among objects and matter “to be discovered anew”, there emerged works which became the essence of the extension and enhancement of the language defined by the ongoing “compositional” spatio-structural pattern. All innovative and post-innovative categories are perspectives that confirm the desire to enhance the “model” and accumulate all manners of experiences associated with it, in which the constantly appearing new points of view do not contradict each other, but are objects of the same aesthetic and historical reality.

Architecture’s “explorers” became convinced that art can be primarily defined as the expression of the artist’s will. The freedom for expressing form and architectural communication became equal to freedom in construing the hierarchy of importance of the individual notions of architectural space. Even more – the notion of the designer-genius had to be realised in opposition to any and all constraints, assuming a principle of absolute freedom in relation to ethics and aesthetics. Formal “astonishment” thus became the goal of the architect, the sculptor, the painter and the poet, followed by all other artists. Peter Collins wrote about the effect of surprise in contemporary architecture, seeking the cause of the extant aesthetic situation in the direct transfer of ideas from abstract painting and sculpture to architectural design drafting<sup>88</sup>. Architecture, like a sculpture, autonomously “stepped into space”, it ceased to remain a part of it, which further intensified treating works of architecture as forms that are separate and isolated from context.

This exceptional impact of the new art came as no surprise to Ernst Gombrich. The matter of the originality of twentieth-century art is seen by him as a constituent cognitive process, thanks to which we never cease to be amazed and to learn<sup>89</sup>. A work of architecture is always an object with a function of surprising the viewer, but it also possesses cognitive distinctions, which are enhanced through symbolism as time goes by. The art of architecture, in the critic’s opinion, along with the entire process of renewal and originality, has nothing in common with whim and the arbitrary imposition of peculiar solutions. On the contrary, it is a most serious matter: the “invention” or “discovery” of a form bears all of the characteristics of the mythical “drawing from the source”. This situation corresponds to the words

<sup>88</sup> P. Collins, *Changing Ideals in Modern Architecture*, Montreal 2004, p. 271-284.

<sup>89</sup> E. H. Gombrich, *Sztuka i złudzenie*, Warszawa 1981, p. 19.

of André Malraux, who explicitly idealises the aesthetic of Modernism as the absolutisation of form, turning formal originality and creative expression into the foundation of the transformation of artistic awareness. Malraux wrote that when one thinks in forms, a specific artistic idea lies behind them, arguing that originality is a manifestation of genius which grants the world a new sense<sup>90</sup>.

Władysław Tatarkiewicz provides an additional trail for this perception of contemporary architecture. The philosopher argues that the breakthrough that happened in contemporary aesthetics – a shift from the classical notion of perfection to the release of creative expression, is an ageless departure from a “finite” beauty created with an awareness of constraint and realising that an “infinitely” beautiful object, in its limitless expression, can similarly extol its creator. Tatarkiewicz clearly distinguishes these two modes of thinking:

Individual masters, schools and epochs all differ in this respect. While some pursue perfection, other have different goals. What do these others want? They want many things: grandeur, novelty, powerful experiences, a faithfulness to truth, an expression of oneself and of the world, they want creation and original ideas. If one tries to frame all of this using a single phrase, the best one would be: expression. It was expression, not perfection, that art often pursued. Entire epochs differ in this respect: there have been periods of perfection and periods of expression<sup>91</sup>.

In this rule of art, as laid out by the theorist, the material participates as an integral element of the work, in which an original style is always the expression of a certain content for matter. However, when defining the relationship between these elements of the work, one could, for the first time, risk making the statement that, in the twentieth century, form and content, which appeared to co-participate and mutually complement each other over the past centuries, began to compete with each other. The manifestoes of Formalism, stimulated by ideas in radical form (Suprematism, Futurism, Neoplasticism), were confronted with moderate stances. In architecture, similarly to other arts, it was assumed that the perfection of an edifice is rooted in aesthetics – an awareness of the existence and use of a form in such a way so that the complete shape can pursue perfection in its content. Although we know and accept the duality of forms – those, which correspond to some specific content and those that do not, then we accept and choose from them at will. We acknowledge this peculiar dualism of thinking in the dialectics of *t r a d i t i o n* and *i n n o v a t i o n*, distinguishing two types of originality, subjected to both

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<sup>90</sup> S. Morawski, *Absolut i forma. Studium o egzystencjalistycznej estetyce André Malraux*, Kraków 1966, p. 99-100.

<sup>91</sup> W. Tatarkiewicz, *O doskonałości*, Lublin 1991, p. 63.

categories: one is realised as an interpretation and extension of tradition, while the other manifests itself by severing ties with tradition.

Once again, architecture revealed itself to be a discipline based on the sub-conscious memory of the previous, an interpreted repetition. This allowed the architect to create “anew”, but on the basis of a certain subconscious identity of past things. Gilles Deleuze argues that what links, differentiates and allows one to creatively repeat within this differentiation, is an imaginary “n a k e d matter”<sup>92</sup>, which is used symbolically, as a metaphor or analogy.

**3.2. Le Raincy – an attempt at aesthetising concrete.** The Notre-Dame-de-la-Consolation church built in Le Raincy by Auguste Perret in 1923 (ill. II.4) is an example of the evolution that took place in the layer of concrete’s transformation within the traditional structure of a religious building at the start of the twentieth century. In 1948, Swiss architect Ferdinand Pfammatter, in his important work *Betonkirchen*, defined this church as groundbreaking and impactful for the architecture of the early twentieth century. Others believed that it played the same role for the religious style of the pre-war years as the church of Saint-Denis<sup>93</sup> had played for the Middle Ages, and which upon construction was immediately proclaimed as “a reinforced-concrete Saint-Chapelle”. For the first time, a transparent, reinforced concrete framing system known from warehouses and manufacturing halls presented itself as a scene for the interplay between the sacred and the profane, allowing the architect to open the space of the temple in a manner that was different from previous experiences.

Perret’s work presents its structural, traditional pedigree, penetrated by the intent of a determined, monolithic aesthetic, supported by a desire to purge the massing of plaster, colour, classical orders and traditional detail, as well as tearing away the weight off the walls and granting the interior a spatial freedom.

These measures not merely a form of demonstrating the economics of a structure derived from a practice of industrial architecture. They were acknowledged as the first attempt at aesthetising the idea of religious architecture in its most basic archetypal meaning – of a model form – of a structuring of the shape-idea with content-matter. The church was therefore his “adaptation” and “d i s c o v e r y” of reinforced concrete so as to communicate traditional, symbolic intentions.

The church, topped with a fifty-metre tall bell tower, is a hall building, whose interior shape is defined between a traditional grid of columns and external, non-load-bearing reinforced concrete walls filled with a prefabricated curtain of stained-glass windows. The orders of the columns turned into supports, each eleven metres

<sup>92</sup> G. Deleuze, *Różnica...*, *op. cit.*, p. 372.

<sup>93</sup> F. Pfammatter, *Betonkirchen*, Zurich 1948, p. 37-38.



III. II.4. The Notre-Dame du Raincy church, August and Gustave Perret, 1922–1923

tall, modest in expression and with an unprecedented slimness and minimal cross-section. The vault of the main nave, just as the barrel vaults of the aisles, were set as exposed, reinforced concrete surfaces, closely resembling the aesthetic utilised by the architect in his numerous industrial projects. A similar impression is created by other elements, which supplement the church's space: the skylights above the baptistery and the votive chapel or the raw cement floor with expansion joints. The ever-present aesthetic of the untreated monolith, supported by prefabricated modularity, although it had been present in religious buildings since their beginnings, here it received an overarching role and significance.

Although the temple's main characteristic is the idea that defines the dominance of the edifice's expressive structure, there is no doubt as to deciphering the architect's motivation – Notre-Dame in Le Raincy is a work, whose forms and the shape of its space are continuation of the Classical Revival style. The building, referencing the aesthetic of Gothic Revival and Art Nouveau, also reveals the author's fascination with the great works of the Middle Ages and Viollet-le-Duc's theory of beauty. When matter is concerned, reinforced concrete replaced brick and stone, along with all of their symbolic references, creating a continuity of "visible" theology presented in the traditional structure of the Christian temple as *corpus mysticus*. The use of a monolithic material was also the first step towards creating the foundations for the religious architecture of the second half of the twentieth century, marked by a unity of ideas, form and matter – a period when geometric abstraction replaced Christian cosmology. The actual significance of this church is described by Cezary Waś, who writes that its importance lies in that "it is innovative in many aspects (which was readily admitted) while also preserving the tradition of a church building (which was admitted much less readily)"<sup>94</sup>. This is why today it should be acknowledged that this temple was not an attempt at copying an old form, but rather the effect of striving to rationalise it and adapt to existing, contemporary means of construction. All of Perret's works appear to be more of an image of a function "pursuing" a new form, while the architect himself is considered to be the one to have discovered new means of architectural expression in the undiscovered potential of reinforced concrete. Perret's reinforced concrete building became a model for designers for the next thirty years, up until Le Corbusier's Notre-Dame du Haut in Ronchamp (1955).

**3.4. The Raumplan and Plan libre – "generators" of form.** When making an argument as to the invaluable significance of concrete to the emergence of Modernism, one should consider the one that states that it was the architects and not the properties of the material, who decided about the relevant structural changes. In 1930, two

<sup>94</sup> C. Waś, *Antynomie współczesnej architektury sakralnej*, Wrocław 2008, p. 159.

houses were built: the Müller Villa in Prague, designed by Adolf Loos, and Villa Savoye in Poissy, near Paris, designed by Le Corbusier. Both houses manifest the understanding of the term “Modernist space” and both are orthogonal, white and are milestones in understanding and using concrete.

Adolf Loos’s Raumplan theory (Loos himself was an heir of the Classical experience), first implemented in the design of the house in Prague, is believed to be the “first defining” of Modernist space, in which concrete became the construction material forcing a new mode of thinking about the shape and tectonics of the building. According to the architect’s views, the *Müller Villa* presents an explicit approach to architecture – “the building should be mute on the outside and only reveal its richness on the inside”<sup>95</sup>. Indeed, that which provides it the proper representation is the spatial identity revealed in the building’s interior. The house presents to the world a reformulated concept of architectural space: a freeform game of the solids of a house planned as a usable space accessible from several levels. Abandoning a rigid link with the storeys of a building composed of various spatial elements was intended to constitute the entirety of the structure as creating an “economic” space<sup>96</sup>. In 1930, Adolf Loos similarly explained the construction of the *Tzara House* in Paris and that of the *Möller House* in Vienna:

[...] I do not design plans, facades or cross-sections. I design space. In essence, in my designs there are no ground floors, no first floors and no cellars. There are integrated rooms, vestibules and terraces. Every room must have a specific height. The height of the dining room should differ from the height of the pantry, therefore the ceilings are suspended at different levels. Thus, there arises the need to integrate these rooms so that passing through them can be not only undetectable, but also natural and functional<sup>97</sup>.

Loos’s new idea introduced us to a world of architecture created from a solid enclosed space – a barrier of walls impenetrable to the eyes. The telling essence of Loos’ words about designing space is deeper – it reveals to us the truth that directs architectural art towards the essence of space as defined by delineation using a pre-selected matter. The architect selects an interior of a pure volume, demonstrating the functional and autonomous quality of every room: the form, proportions and ending of every space is designed so as to convey a particular state of emotion along the path laid out by the designer. Structural reinforced concrete, although invisible (hidden beneath plaster, stone and wall textiles) is an element that defines the final shape of space.

<sup>95</sup> A. Sarnitz, *Adolf Loos...*, *op. cit.*, p. 15.

<sup>96</sup> L. van Duizer, K. Kleinman, *Villa Müller. A Work of Adolf Loos*, New York 1994.

<sup>97</sup> B. van Berkel, C. Bos, *Niepoprawni wizjonerzy*, Warszawa 2000, p. 71.

The wealth of the interiors of Loos's houses forms a tangled composition akin to a labyrinth, in which there is no place for the free reception of space. Everything is subjected to directions, axes and a mixed game of enclosed volumes. Johan van de Beek allows us to find the unwritten principles of the *Raumplan* in this explicit aesthetic:

- 1) the content of the plan – a space created from a single volume,
- 2) the vertical gradation of space – a principle derived from the functional layout of the building: the ground floor is a technical section, the first floor is the day section while subsequent floors comprise the night section,
- 3) highlighting the entrance and garden facades as the consequence of planning the directions inside the building,
- 4) asymmetry in the external structure,
- 5) a wall-based building layout, with minimal window surfaces<sup>98</sup>.

Loos's adherence to vertical, historical articulation and the abandonment of larger insolation surfaces (which caused conflict with the proponents of the Bauhaus school for years), the vertical window layout and the use and obscuring of reinforced concrete in a traditional structure – all of this combines with the view that architecture is also a space produced through a “plan” in a cross-sectional outline, thanks to which the form can be an “envelope” for diversity and the structure of the reinforced concrete “void” is as important as the structure of a massing designed by principle of shifting space towards a direction dictated by function. Along with Loos's manifesto about the *mute* exterior and the *rich* interior, architecture took a step into the great world of imagination and meanings defined by the sense of “constraints”. It corresponds to the formula that demonstrates the principle of externality and the interior of Adolf Loos's architecture from 1910, which states that there are two things that belong to architecture: the monument and the tomb. The rest, according to Loos, should be thrown out of the world of art<sup>99</sup>.

The characteristic of Loos's architecture necessitates comparison with one of the five points of the architecture of Le Corbusier – the free plan (*Plan libre*). Through the spatially different villa in Poissy, Le Corbusier argued that the reinforced concrete skeleton can be used to design while striving for similarly optimal possibilities of shaping the modern house. However, it appears that the *Raumplan* and the *Plan libre*, when contrasted with each other, are like a positive and a negative. When confronted with the natural and historical principles of Loos, Le Corbusier's free plan, in its innovative spatial layout, is somewhat antagonistic

<sup>98</sup> J. van de Beek, *Adolf Loos. Modeles de Villas*, [in:] M. Risselada, *Raumplan versus Plan libre*, Milano 1988, p. 28.

<sup>99</sup> A. Loos, *Architektura*, [in:] *Ornament i zbrodnia. Eseje wybrane*, Tarnów–Warszawa 2013, p. 153.

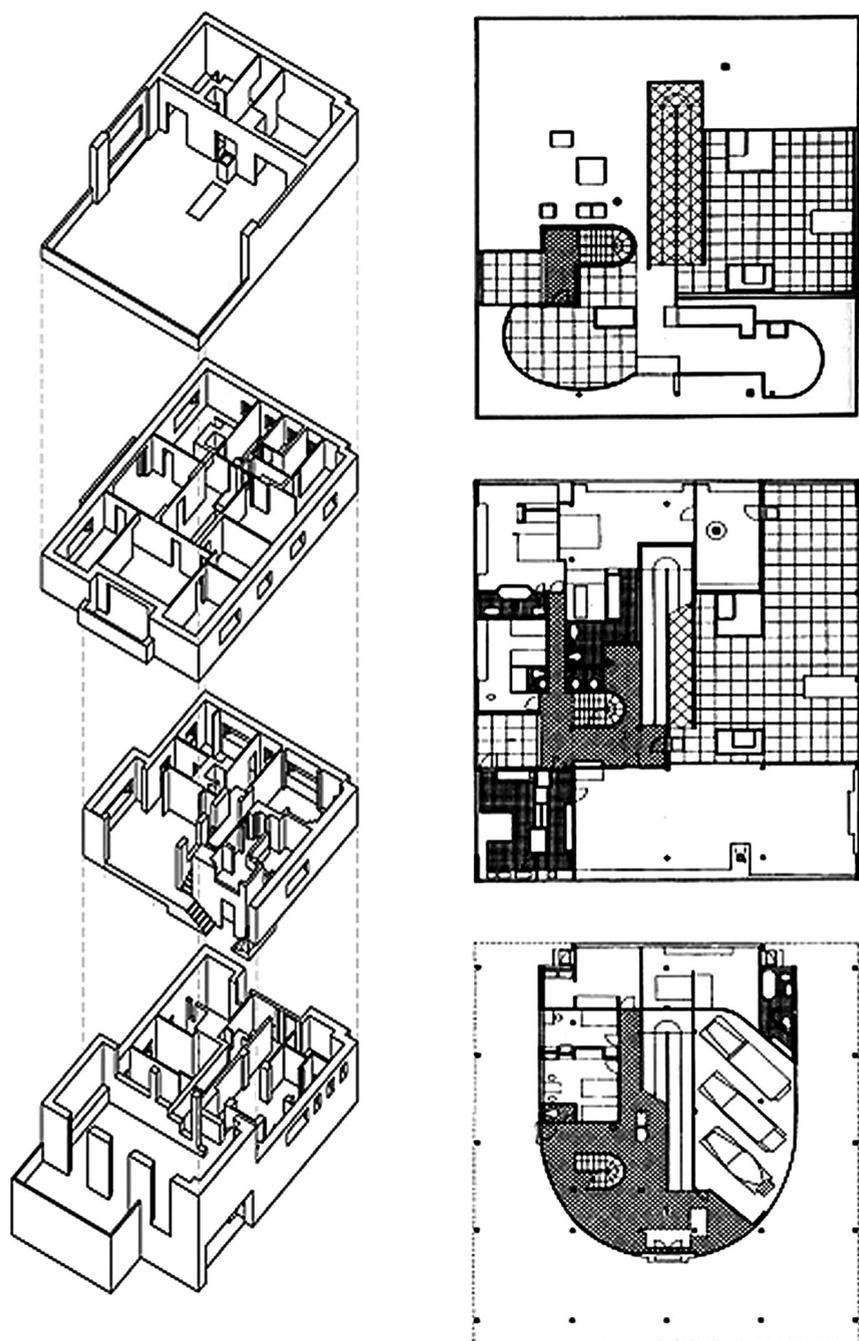
in its detachment from presenting reality. To Le Corbusier, the plan is the foundation of formal intent and the functional need, expressed in the expression: the plan is the generator. According to him, the plan had to be given a specific graphical form.

Both houses are made from reinforced concrete and draw on the rationalised foundations of understanding architecture. The geometry and elementariness of the forms used here direct both buildings to a single, common source, which defines the characteristics of ideal architecture. Both structural patterns are appropriately tectonic and atectonic, starting from the complete dependence on the external walls to enclosing the function within a single solid. In terms of tectonics and atectonics, Loos's principles form a space based on the conventional structure of the building. The *Plan libre* also defines the incontestable function of the drawn record, its idea is closer to the atectonic nature of composition and its open imaging is directed outwards, in contrast to the labyrinthine layouts of Loos's houses. Highlighting the mass and weight of the external and internal walls of the *Müller Villa* stands in opposition to the free composition of the partitions in the *Villa Savoye* (ill. II.5; ill. II.6). The facades of Loos's buildings are not functional and, contrary to Le Corbusier's villa, do not reflect the internal plan – they are composed of “emptiness and mass”, things defined by the architect solely through an initial “spatial diagram”.

The *Plan libre* highlights the potential offered by the structural layout with load-bearing columns (*pilotis*) to the shaping of the architecture of the building's interior<sup>100</sup>. Simultaneously, the principle demonstrates freedom in the external design of the building. The openness of form is an implementation of the rule of enabling the blending of these two spaces and provides the ability to freely shape the walls – apart from the explicitly simple partitions, we see a play of elementary solids, a game between the line and the surface.

The round columns placed on a modular grid are to Le Corbusier as significant an element of this game as the cylinder of the stairwell, the curved partition wall or the band of railing on the ramp leading to the roof – the terrace. This syntax of the same elements is always visible in the building's individual plans, in which the column system allows for a formal independence of the space of the ground floor from that

<sup>100</sup> The five points of modern architecture were first documented by Le Corbusier in the buildings of the Weissenhof housing complex in Stuttgart in 1927. His text was published in the form of *Fünf Punkte einer neuen Architektur*, [in:] Alfred Roth, *Zwei Wohnhäuser von Le Corbusier und Pierre Jeanneret*, Stuttgart 1927, [from:] J.L. Cohen, *Liquide Stone: New Architecture in Concrete*, New York 2006, p. 33. In that same year, in the “L'Architecture Vivante” periodical, Le Corbusier described six elements (!), also called a “new code for architecture”. Among the known five points, Le Corbusier mentions another, which demands the abandonment of the cornice (*suppression de la corniche*). Soon after, the architect would change the name of the rule to the five points of architecture, see: Le Corbusier, P. Jeanneret, “L'Architecture Vivante”, publié J. Badovici, iss. 17, Paris 1927.



III. II.5. *Müller Villa*, Adolf Loos, Prague, floor plan axonometric projection, 1928–1930

III. II.6. *Villa Savoye*, Le Corbusier, Poissy, floor plan, 1928–1930

of the other storeys. In Poissy, the traditional centrality and centripetal character of the plan disintegrate, as if the structural nodes of the building were deliberately neutralised and scattered by the architect. The visual principle of the *Plan libre* is not merely an afterimage of the *Dom-ino* scheme, but a rule borrowed from purist painting—to present the entirety of the game of solids and objects on one, purist and neutral frame of the painting. The frame of this painting and the background of the composition are white, just as the “silence” of the still unnamed matter of concrete, hidden beneath plaster, is white. The invisible material denotes a starting point, a basis which the other elements refer to. In the villa, reinforced concrete is a pure substrate for the idea, and therefore the foundation of all things and of ethical and aesthetic phenomena: a substance created as a result of an emotional reaction, from which a functional product – architecture – is born.

Establishing the relationship between space and matter resulted in the problem of relationships between the external and the internal to gain an unprecedented significance during the period in which contemporary architecture was developing. In truth, one should state that the engagement of designers in crossing the threshold of the visible exterior to a clearly internal plan became the basis for the most radical manifestation of freedom and all that can be labelled as defining a new architecture. But most of all, it became a work that demonstrated the essence of limiting form in the sense of giving value to the internal structure. The imbalance and activity of form in the reinforced concrete of the houses of Loos and Le Corbusier are also the starting points for a new mode of thinking about building materials. In the “spatial plan” and in the “free plan”, reinforced concrete is not only a tool of open and enclosed spaces, but appears, above all else, to be a component of the notion of *materia secundaria* (distinguished from *materia prima*), defined not by “capability”, but by the actual meaning of the architectural forms in Poissy and Prague. Both buildings, though different in how reinforced concrete is used in them, are a system of references in the method of creating an identifiable relationship between the material and the physical, utilitarian structure. However, that which defines structure is not merely the structural system or a principle for the facade, but a rule that appears to be operating on the material capabilities featured in a building’s tectonics or atectonics<sup>101</sup>.

<sup>101</sup> Kenneth Frampton reminds us that Gottfried Semper likewise divided forms in accordance to the approach to the material: the tectonics of the frame, which surrounds a given space, as elements of varying length are combined, and the stereotomy of solid, identical elements. The most appropriate matter for the frame is timber, followed by steel; brick or stone was typically used for the second category – today, it is reinforced concrete. The ontological sense of this distinction creates an appropriate metaphor: Frampton argues that the frame strives for lightness and dematerialisation of mass, directing itself towards the sky, while stereotomy is responsible for the focus and monolithicity of the form. The first reference points us to the symbolism of the primitive hut, (later a palace, cathedral, tower and post and slab structure), which reveals before the viewer a logic of matter and the shape of the building created from it. The second presents an archetype of the cave

**3.4. Structural dominance. Brutalism and New Brutalism.** Since the time of the construction of the church in Le Raincy, concrete has become a form of architectural content, and architecture – as an idea of transforming space – has changed into its structure. The style of the raw concrete form started to be responsible for the undertone and the essence of the significance of monolithism – a structural principle wherein the idea is created in a uniform, visible material. In this manner, designers started to obtain an effect of a certain aesthetic and a formal, structural and material dominance, an essence of architecture based on the form “outgrowing” its internal organisation. This material “superiority” includes a method of defining architecture as an integral spatial object, in which the articulation of the structural principle means a will to continue architecture as an art rooted in its structural and constructed nature. The programme of arriving at the foundations of architectural art defined in this manner was initiated by Le Corbusier in the discovery of the significance of *béton brut* and defining concrete as the indivisible and irreplaceable essence of architecture. The category of *béton brut* was created not as an innovation in thinking about form, but as a transformation of semantics. It became an idealised “discovery” of the qualities of structure and the natural texture of concrete that had been hidden for decades.

The gigantic building of the Marseilles Unité d’Habitation, erected in 1952, was the first example in which contemporaries acknowledged the characteristics of a new, mature style – Brutalism. The character of the use of concrete matter was significant and formal enough, that the building’s contemporaries accepted the expression of the concrete material used in the Housing Unit as a formal pattern and the ideational antithesis of Functionalist architecture. The material impression made by the Marseilles Housing Unit on its viewers is attested in the words of Charles Jencks, who stated that the purely physical presence of this ship-like monolith was overbearing. Its immensity was perceived as crushing and the sculptural expression and aggressive outline were seen to be so strong that although it later became smaller than the blocks that surround it, it continued to leave its mark on the entire landscape. He saw its impact strength comparable to that of the Acropolis, which he deemed to be intended by Le Corbusier<sup>102</sup>.

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(also of the grave, shelter, bunker, bastion and a wall-based structure) which first provides shelter and safety – a space carved in matter, associated with the earth or rock. The archetype of the cave creates a world of mass, darkness, emptiness and mystery, a fencing off from the external world, it is stability and a connection with a base. The cave/grotto is an archetype of an enclosed space, a shelter associated with the home, a temple. The shelter is a reference to the postulates of abbot Marc-Antoine Laugier, who encouraged architectural forms to be purposeful and pure.

<sup>102</sup> Ch. Jencks, *Le Corbusier – tragizm współczesnej architektury*, Warszawa 1982, p. 151.

The consequence of building the *Cité Radieuse* was the transformation that took place in the 1950s and 60s – the “transparent” space of Bauhausian Modernism gave way to the “raw” space aesthetic of Late Modernism. The linking of this aesthetic with the sphere of social needs was foreshadowed by the manifesto by José Luis Sert, Fernand Lèger and Sigfried Giedion, entitled *Nine Points of Monumentality*, which defined the need to build monuments concordant with the humanist identity of democratic societies during the post-war period. In the sense of transforming architectural styles, it was also anticipated in the idea of the work as a complete whole – ranging from its parts creating an architectural cohesion to the visible structure of functional elements. The style of *béton brut* displayed the “complete truth” about the architecture of a building – the transparency of its structure and its resultant legible physical and functional build, allowing one to read the logical content of architecture. The spontaneousness and randomness of Brutalist styles were, in a sense, a return to the naturalism of architecture, as they manifested the inborn traits of creating structures without references to an abstract undefined by matter.

Le Corbusier’s other works from the period: the monastery of Sainte-Marie de la Tourette (1957–1960) in Evieux and the Notre-Dame du Haut chapel in Ronchamp (1950–1955), in a way repeat the use of the construction material to realise a spatial and functional programme. although both structures are linked by the same building material – concrete – they differ in terms of its use. In the monastery, the ever-present, untreated concrete surfaces were intended to become a crystallisation of his acclaimed poetics, the ageless harmony of “forms assembled in the light”, the use of simplicity and genuineness as tools for building a poetic architectural reaction. The austerity of the materials is a natural decoration – not merely a conveyor of aesthetic values, but moral ones as well, enhancing the sense of the religious form along with its hidden symbolism. The naturalism of the monastery in the treatment of concrete space and the use of a universal and archetypical language is contrasted with the chapel in Ronchamp. This “architectural sculpture” revealed to Modernism the ultimate passing of geometric abstraction and the coming of a period of expression – the “visible” metaphor in architecture.

The transformation that took place along with the construction of Le Corbusier’s great projects and concerning the change in thinking about form, structure and function, led to the start of thinking on the same material as the essence of the architectural aesthetic. Architects schooled in the views of the great Frenchman and the Bauhaus started to point their attention at matters of morality and ethics, referenced by Giedion at the start of the Modernist revolution. Giedion argued that contemporary architecture had its origins in moral problems, that it arose from a field of narrow specialisation to become immersed in the reality of everyday life and that

it was this that caused us to expect it to produce surroundings that would express the life of our times<sup>103</sup>.

Le Corbusier's post-war rhetoric was also a reaction to conformism and the detachment of Modernist architecture from its initial theories and manifestoes. The latest idea – that of New Brutalism – proclaimed in Great Britain by British architects Alison and Peter Smithson, along with the arguments of Rayner Banham – was treated as a continuation of a form of thinking about the building that could explicitly express all elements without hiding their purpose and from what they are made of. Using the idea of structural dominance, the ideologues of New Brutalism preached that the use of concrete in architecture should be rethought so as to give an expression to its pure materiality only, in which all context and metaphor were to be rejected. Observers highlighted the Smithsons' efforts to highlight individualism in the postulate concerning the use of construction materials "as they are" – by a call to expose structure in architectural form and in the imperative of its genuineness and explicitness. Natural and authentic solutions were dictated by the idea of architecture as a reflection of lifestyle. The building was to no longer pretend that the masses of reinforced concrete were something more than construction material. Brutalist buildings are thus bereft of any finishes – the only thing reflected in their walls is the basic technological process. Revealing the layout of the interior and its circulation paths and installations was used to provide a socio-aesthetic validation of the significance of this architecture.

When one defines the characteristics of Brutalist architecture, it is essential to highlight the overarching relationships between structure and its significance, which becomes the significance of *decorum* for which architects try out various forms while always searching for a visual expression in physical structure. In the Marseilles Housing Unit, where the primary starting point was to define the main essence of the building: its structure and form, the layout of apartments was secondary – to be subjected to a clear structure defined in an appropriate form. Therefore, the assessment of Brutalism and New Brutalism solely from the perspective of material and the visual qualities of construction materials, without finishing one's search for the definition of each element within such a structure, is erroneous.

The school in Hunstanton, Great Britain, built in 1949 by Alison and Peter Smithson, marked a groundbreaking moment for New Brutalism. Its exposed structure and untreated brick walls, bare beams and visible installations, similarly to the house in Watford from 1953, constituted a model for understanding the essence of the later style of *arte povera*. Both examples (although not built using concrete), would be supplemented by the "pure" style of concrete Brutalism in the form of the *Robin Hood Garden* (1960) housing complex in London and the building

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<sup>103</sup> S. Giedion, *Czas...*, *op. cit.*, p. 664.

of “The Economist” (1962). The surprising acceptance of the Smithsons’ idea led to the construction of further monumental works of architecture that would prove significant to the landscape of European cities. These include: the ninety-metres-tall *Trellick Tower* (1972) by Ernő Goldfinger and the Royal National Theatre (1963) by sir Denis Lasdun in London, the Technology Centre in Chichester (1967) by Ahrends, Burton and Koralek and the buildings of the Halen housing complex (1961) in Bern by the Swiss studio Atelier 5<sup>104</sup>.

Another model of the use of raw concrete was the *Torre Velasca* skyscraper by Ernesto Rogers in Milan (1954) or the London Bank building in Buenos Aires (1959) by Clorindo Testa. In both cases, the structural material of the buildings is responsible for exposing architectural metaphor – untreated concrete became a tool reinforcing the reception of an architectural theme and gives the buildings an aesthetic dimension by creating formal comparisons and analogies.

This is the spirit in which the evolution that took place in the formations of Japanese architecture had manifested itself in. In post-war Japan, architects – students of Le Corbusier: Kunio Maekawa, Junzo Sakakura and Kenzō Tange, tried to convince everyone that apart from function, the structure of houses and cities should also be designed anew. They argued that architecture should express social order and as such should be dynamically interpreted in its rejection of imitations and conventions. Tange believed that universalism extracted from contemporary materials – reinforced concrete and steel – also provided a basis for creating an individual language of societal architecture. In this perspective, tradition and modernity should blend into one, common techno-societal idea of Metabolism. Metabolism, contrary to the “finished” structures of the Smithsons, is an “open” spatial system and bears a clear mark of thinking in images and symbols in the perception of the world.

The building of the Yamanashi Press Centre erected in 1967 in Kofu and designed by Kenzō Tange (ill. II.7), confirms the pattern for this type of postulates concerning the transformation of urban space. The building has the traits of an idea of an “open” developing structure and a multi-purpose “mutable” form in its uniform architectural structure. Sixteen reinforced concrete columns, marked as a permanent service space, featuring lifts, stairs and soil stacks, support the volumes of the individual levels which form a sort of disposition system, which can be flexibly extended in the future. The formal expressiveness of Tange’s building is appropriate for the asymmetric and anti-aesthetic idea of the visual circulation system, but also constitutes an attempt at translating symbolic aspects within Japanese architecture. The vertical city, created from concrete beams, cantilevers and columns, is a reminiscence of the traditional configuration of the Japanese home but, most importantly, an “unfinished” space,

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<sup>104</sup> Rationalist Brutalism was represented in Poland by the Katowice train station (1966; demolished in 2010) by Waclaw Klyszeowski, Jerzy Mokrzyński and Eugeniusz Wierzbicki.



III. II.7. Yamanashi Press Centre, Kenzō Tange, Kofu, 1964–1967

divided into “voids” and “spatial cells” – a rescaled metaphor of an industrial-era Japanese city. In the case of the Yamanashi Centre, the Metabolist idea remained in a non-defined phase – the utopian idea was consumed and transformed into the related poetic of New Brutalism – to ultimately become a metaphor of a “fortress” tower above the city.

On the North American continent, references to Brutalist aesthetics can be seen in the architecture that defines the direction and objective of societal efforts. This is how we can identify enthusiasts of concrete aesthetics who co-formed the “Paulists” group – among them being Alfons Reidy with his Museum of Modern Art in Rio de Janeiro (1953) or Lina Bo Bardi with the São Paulo Museum of Art (1958).

Paulo Mendes da Rocha still remains one of the adherents to the manifesto of Brazilian architecture that combines “science, engineering and societal poetics” – terms seen as corresponding to simplicity in architectural messages. Brutalism, understood as a reaction to the excessively hermetic (Western European) notion of formal abstraction, is to Rocha the perfect opportunity to discover the synthesis of poetic, societal and structural ideas associated with concrete technology. In his constructionist approach to the building, Mendes da Rocha displays a similarity to another great “explorer” – Oscar Niemeyer, although the difference between them is the one that naturally splits the world of architecture into “rational” and “emotional” formal threads. Contrary to Niemeyer’s metaphoric inspirations, the integrality of structures designed by Mendes da Rocha is a combination of the sensitivity of engineering aesthetics with a purely symbolic approach to the presented matter. For instance, in the Brazilian Museum of Sculpture in São Paulo (1988–1995), of particular note is the concrete sixty-metre portico-span suspended above entrance zone, to which the architect assigned the role of the overarching element of the entire layout (ill. II.8). Created as a keystone for a museum space hidden beneath ground level, it became – through its uncompromising expression and context – the “visible” idea of the building. This type of gateway, which is a sculptural continuation of the museum’s functional programme, also sets up an important place, providing visitors with shade and a place to rest. The museum is a prototype of the architect’s personal ideation – all of its buildings are discoveries of shape through the hidden qualities of engineering systems. Inside the building one can feel the particular intent of its massing’s formation – one can see that first there was the form, then the formation of the matter of concrete so that the physical shape would be identical to the original idea. This is why it does not appear essential as to how long, thick or tall the caisson beams of the entrance portico are; neither can one see the economy of shape arising from calculating the static strength thresholds. The viewer looks at a pattern of a symbolic “purposefulness” of form as a natural, technical causality – the overarching aesthetic of the building. As in all works



III. II.8. Brazilian Museum of Sculpture, Paolo Mendes da Rocha, São Paulo, 1988–1995

by Mendes da Rocha, untreated, rational concrete symbolises a combination of knowledge and emotion – two things that build the quality of urban space. Concrete gives buildings power by the consistent cohesion of the material’s presentation, which can simultaneously distinguish a place of community from a place of isolation within the same layout.

**3.5. “Unrestrained” monoliths. Oscar Niemeyer’s metaphors.** The dynamic transformation of concrete forms which took place at the end of the 1950s and the start of the 60s was, in essence, not merely a reflection of understanding technical conditions that had made it possible, but a deeper reflection associated with a redefinition of architecture’s stereotypes. Successive models and patterns believed to be a rational interpretation of architecture entrenched everyone’s belief in the possibility of a constant pursuit of expressive form. Le Corbusier’s call of “finally, an end to Vignola!” was something more than a whim – it became significant to enhancing another material potency of concrete, whether reinforced or not. René Huyghe, who observed these transformations, stated that an abandonment of Euclidean forms and of the right angle was often linked with “an enthusiasm for irregularity, for a pure, concrete matter, with an enthusiasm escaping the rigors of all notional forms that have characterised the most recent pursuit in the field of abstraction”<sup>105</sup>. Piotr Krakowski likewise states that the sense of the post-war revolution in architecture was largely rooted in the concept of a new integration of the arts, in which the leading role was to be taken on by sculpturally shaped architecture – constituting a new whole, stable and cohesive.

Training architectural form in reinforced concrete had its continuation in the form of monolithic sculptural architecture. The retreat from the technicism of the 1920s and 30s resulted in concrete opening a new chapter to those who had felt weary of the poetics of Rationalism in the following years. Architects “discovered” additional potential featured in concrete – they came to understand the sense of using monolithic concrete cast *in-situ*. The monolith of the building once again revealed a world of expression to the viewer – a world of original forms, whose uniform structure was created from a singular matter. For the second time in the twentieth century, architects decided that, thanks to reinforced concrete, their conceptual work gained the power to be directly translated into architectural objects of unprecedented emotion. Charles Jencks described these extravagant forms as the literal and figurative use of hyperbole—a rhetorical and stylistic figure that was intended to impress through its wonderful, overbearing grandeur<sup>106</sup>. Apart from hyperbole, structural paraboloids, saddle roofs, thin spatial shells, hanging roofs, geodesic

<sup>105</sup> R. Huyghe, *Ewolucja systemu form*, [in:] *Antologia współczesnej...*, op. cit., p. 327-340.

<sup>106</sup> Ch. Jencks, *Architektura późnego modernizmu i inne eseje*, Warszawa 1989, p. 74.

domes, pneumatic and shell structures defined with a reinforced concrete shape by premonition – a formula of the artist-engineer’s operation that was sanctioned at the time – became the portents of a new age.

The construction of the Trans World Airlines Flight Center at New York City’s John. F. Kennedy International Airport (1957–1962) by Eero Saarinen and the Sydney Opera (1957–1973) by Jørn Utzon, which revealed the visual expression of spatial illustration created from reinforced concrete shells, came as a great surprise that was discussed at length by Rationalists. Both projects, labelled the world’s most important buildings – admired as much as they were criticised – defined the significance of the first icons of architecture to be discussed by all for many years.

At the same time, the focus shifted to achievements not from the distant, but the most recent past, where, apart from Expressionist architecture, one distinguished those that achieved the status of patterns of residential sculptures – the concrete secession of the *Las Pedreras* (“quarries”) by Antonio Gaudí in Barcelona, or the *Goetheanum II* (1928) by Rudolf Steiner, which had been a hallmark of early Modernism. The unique cohesion of the *Goetheanum*, which extracted a metaphor of the spiritual reincarnation of the residents of the “temple” in Dornach from voids and masses, became an example that validated the significance of purely intuitive gestures in creating natural images of architecture. Intuition controlled by the mind became the basis for defining the works of Robert Maillart and Eduardo Torroja first, and soon afterwards defined the organic style of Félix Candela, Enrico Castiglioni or the engineering and poetic structures of Oscar Niemeyer.

In France, André Bloc from the *Éspace* group, with his proposal of the crystal as an “inhabited sculpture” (*Sculpture habitacle nr 2*, 1964; *La Tour*, Meudon 1966), played an important role in this trend. Cement and brick forms (*follies*) were meant to become a space that organically creates the full merit of the humanism of architecture in proximity to the original meaning of “residing” in architecture. The period of Bloc’s formal pursuits also highlights the moment of the discovery of the visual power of the architecture of the Atlantic Wall’s bunkers and their message and continued existence within the post-war landscape.

In André Bloc’s work, similarly to that of a sculptor, one can see a much more subtle principle, that is indeed essential to perfecting an architectural-sculptural work: when the shape is transposed in one material, this shape should be repeated from inside towards the outside. To Bloc, the form is a sort of a premonition of the space that a sculpture produces when imagining they are inside the stone block standing in front of them<sup>107</sup>.

<sup>107</sup> The continuation of this creation is the *La Trufa house* by Studio Ensemble, built in Laxe, Spain, in 2010. The amorphous structure by Antón García-Abril, undefined in form, has been placed

In *Begrish Hall* (1964), as well as in the project of the Whitney Museum of American Art building from two years before, Marcel Breuer reached for freeform formal tools – structural “instability”. From the irregular shape of a trapeze set on two short supports, the architect created a cantilevered figure, which provokes one to reflect on the building’s structure (ill. II.9). The shape of the building, along with the perceivable attention given to the layout of shuttering and the divisions on its concrete facades, made the lecture hall a hallmark of the local college – it also foreshadowed Breuer’s departure from the International Style and his giving architecture expression through communicating “apparent motion” in architecture, as if caused by the action of an “unseen” force.

Close to this structural boldness are the buildings of Ieoh Ming Pei, an architect who found the essence of form in understanding the dynamic statics of reinforced concrete due to a desire to produce the impression of formal “effort”. In the Everson Museum of Art (1968) in Syracuse, Pei’s orthogonal layout is composed of a composition of the repetition of four cantilevered forms, which together produce a search for balance in the observable “imbalance” of the overhanging elements. The windowless, cuboid shapes of the gallery have been placed so as to, consistently and regularly, form a space for exhibiting sculptures around a courtyard. The massiveness and supremacy of the construction material and the highlighting of the aspects of the freedom of composition were a precedent in reading form for function. The museum in Syracuse appears to be a precursor of this type of thinking, which today forms a type of sculpture for exhibiting sculptures in the forms of Frank Gehry and Zaha Hadid; a work of art for other works of art<sup>108</sup>.

The latest works of Brutalism – the church of the Holy Cross in Chur by Walter M. Förderer (1966–1969) and the church of the Holy Trinity in Vienna (1974–1976) by sculptor Fritz Wotruba are likewise concrete “sculptures”. Both present a manner of the use of concrete as an aesthetic objective, which highlights the sense of the original tectonics, as both are an attempt at formulating an answer to the postulates of pursuing religious space – “enclosed” and “carved” in the case of the monolithic church in Chur and “open” and “dismantled” from prefabs in the Vienna building.

Placed atop St. George’s Hill in Vienna, Fritz Wotruba’s ecstatic building appears to lead the manner of imaging of the ending period of Neo-expressionism to the extreme. By returning to the sources of Cubism (the form displays influences of

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on a forested beach and expresses the idea of pursuing an integration of architecture (a hole in the ground?) with nature by an organic, undefined image of the matter of concrete and the surrounding soil.

<sup>108</sup> M. Pabich, *Budynek muzealny – najcenniejszy eksponat?*, „Muzealnictwo”, vol. 45, Warszawa 2004, p. 145-153, [from:] M. Lehmbruck, *Musée et architecture*, „Museum” 1974, Vol. 26, iss. 3/4, p. 263.



III. II.9. *Begrish Hall*, Marcel Breuer, New York, 1961



III. II.10. Holy Trinity church, Fritz Wotruba, Vienna, 1974–1976

the Dutch sculptor and Neoplasticist Georges Vantongerloo), the artist defined the precedent of a direct translation of the form of a sculptural concept to an architectural massing. The atypical shape of the *Wotrubakirche* is thus a consistent concrete reflection of an object that was previously a model made using clay and bronze. The building of the chapel was designed as a figure composed of 152 independent concrete blocks, where each is a formal tool that defines a deliberate shapelessness of the outline and an intentional decomposition – a fictitious “instability” and randomness of reception (ill. II.10).

Thanks to Le Corbusier, Oscar Niemeyer learned that architecture is created out of all manners of innovation-invention (*de l'innovation-l'invention*), and found the essence of pursuing perfection between the idea of architecture and the reinforced concrete structure thanks to creative intuition. Niemeyer's forms in concrete became a pretext for formulating an original syntax – a language of forms that depicts the principle that architecture, in its purified form, can become a poetic, and the freedom of structure can transform scientific knowledge into a metaphor. Niemeyer, although close in his forms to Le Corbusier's ideas, placed a greater emphasis on their novelty and separateness rather than their functionality. The Brazilian architect declared that the search for a *d i f f e r e n t* form was the idea that directed his work<sup>109</sup>. He also recommended avoidance of Classical forms in architecture and advised a pursuit of flexibility (*flexibilité*) and variety; the designer demanded a poetic derived from dreams of poetic forms.

The architect presented his bold reinforced concrete forms with an arched geometry for the first time in the design of the church of St. Francis of Assisi in Pampulha (1943), which was commented on enthusiastically as fully embodying the revolutionary and new manner of the use of concrete in religious buildings<sup>110</sup>. It was the “first work”, in which Niemeyer displayed the entire spectrum of a new sensitivity, which departed from the idea of orthogonal structure in favour of a freeform enveloping of a reinforced concrete space. Throughout the following years, the architect tried to give his architecture an appearance in which curves develop following an organic freedom, where concrete, perfect in its visuality, provides an opportunity for realising postulates concerning the poetics of architecture. The architect reminded us of this in 1988:

First were the thick stone walls, the arches, then the domes and vaults – of the architect, searching out for wider spaces. Now it is concrete-reinforced that gives our imagination flight with its soaring spans and uncommon cantilevers. Concrete, to which architecture is integrated, through which it is

<sup>109</sup> W. Tatarkiewicz, *Dzieje sześciu pojęć*, Warszawa 1988, p. 190.

<sup>110</sup> R. Spade, O. Niemeyer, *Introduction and Notes Discussion*, New York 1972, p. 126.

able to discard the foregone conclusions of rationalism, with its monotony and repetitious solutions<sup>111</sup>.

The French Communist Party building built at Colonel Fabien Square in Paris (1972) (il. II.11) is the essence of Niemeyer's thinking. The main massing displays a metaphor: the bent form is a reminiscence of a "revolutionary standard" – an object that is understandable and adequate for a communist party building. The glazed, six-storey office massing supported by five reinforced concrete pylons is confronted with the white, likewise reinforced concrete dome covering the Hall of Assembly and indoor exhibition spaces. This play of solids establishes a certain dualism of thinking – a separation of the "bright" office space from the "dark" zone, hidden beneath the deck of the concrete esplanade. Other double games of architectural matter – of glass and concrete, of white and grey, of light and darkness – accompany the comparison of these two modes of thinking about space. At Colonel Fabien Square, Niemeyer clearly and logically realised the shape of a public space whose spatial framework is defined primarily by the matter of the monolith – from the surface of the square to the main entrance to the underground hall – the Working Class Foyer – to the culmination of the esplanade through the dome of the Hall of Assembly.

The underground level, similarly to the entire structure, is consistently devoid of right-angle aesthetics and – additionally – the undulating surface of the floor and the ceiling produces the impression that the surrounding space waves slightly. Leaving the space in full and partial shadow causes the light that penetrates the few openings and recesses to strengthen the impression of a monolithic "shelter" and "bunker". In his Paris project, we can find the language of Niemeyer's works that embodies the principles of the free plan and finds the essence of the closed space, hidden in the deep shadow of untreated concrete. Technical and functional elements have no impact on emotion in this work – it is affected solely by a ceaseless visuality, full of charm and poetic fantasy, as Niemeyer described the goals of his architecture.

According to the Brazilian, architecture is the establishment of a certain type of tension between elements, which brings them closer to the world of architecture concordant with Heraclitus' message – that harmony depends on tension ("the opposition of forces") between elements<sup>112</sup>. As examples, the architect listed the shape of the lute and the bow as instruments bestowed with the mythical attribute of beauty – of the male and female body. Thanks to this, we now know that the

<sup>111</sup> Oscar Niemeyer's Pritzker Prize acceptance speech given at the Hyatt Foundation in 1988; [http://www.pritzkerprize.com/1988-niemeyer/ceremony\\_speech1](http://www.pritzkerprize.com/1988-niemeyer/ceremony_speech1); accessed: 22.05.2014.

<sup>112</sup> W. Tatarkiewicz, *Historia estetyki*, vol. 1, *Estetyka starożytna*, Warszawa 1985, p. 95.



III. II.11. French Communist Party Building, Oscar Niemeyer, Paris, 1965–1971

curved line, the bent surface and the arched vault are the natural shapes of concrete architecture and the aesthetic properties of buildings can be expressed solely by independent structural elements.

To Niemeyer the architect, concrete in the headquarters of the French communists became an “expressive” material thanks to visuality, which discovers the freedom to shape an emotional space, which is also a tool of the ideation of “the truth hidden in the raw construction material”. To Niemeyer the engineer, the pursuit of beauty and fantasy was a constant function of surprising and testifying that the architecture of today is no mere ordinary craft with narrowly defined borders, but an art that utilises technology – one that is light, creative and unconstrained.

#### **4. Fictions, avant-gardes and the “dissolution” of matter**

Aaron Betsky reminds us of the three periods of Modernism and its subsequent transformations in the relations between the idea and matter of architecture. The first, associated with faith in modern structures, found the essence of architecture as the “first object”, but designers – through technological entanglement – were not able to use the discovered notional resources to create the grandest or most formal work. The associated heroic reality appears to be a flawless dream, a doctrine that reduces forms to their most expressive minimum.

The second period was associated with the assumption that Modernist designers started to look at the extant image of architecture in a new way – this world was ready, but was identified to a degree allowed only by how well we shaped our perception. Only by transforming the perception of patterns and thanks to their entrenchment and presentation in a new form could a new world be built and inhabited. However, Modern architecture, rooted in the clear functional link to the exposed structure and untreated materials, was bound solely with the actual and factual dimension.

The third period was a time of architects who established a fictitious and perfect world of architecture. They neither invented nor discovered new structures or construction technologies. They presented to us a world from an individual perspective – sometimes in a mannerist manner and sometimes through a radicalism of forms and thoughts<sup>113</sup>. They found sources of architecture not only in Modernist contemporaneity, but also in references to shapes from the past. Inside this new world there was a different reality – one individual and poetic, and often metaphorical. And although it appeared that architects were still inspired by science and engineering, the main focus of designers was the question about the border of human perception that established the rank of architecture. For if one could ideally recreate the functionalism of life, then should architecture not once again reflect

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<sup>113</sup> Zaha Hadid. *Complete Buildings and Projects*, essay by A. Betsky, London 1998, p. 6-8.

the concept of a return to old ideas and forms, displaying the stimulating, changing interpretations of symbolic meanings?

Without diving too deeply into the mysteries of the Museum of Imagination<sup>114</sup> – a labyrinth of historical references, let us just say that the concept of the “rotary”, returning and absolute form of architecture functions not only as an intellectual game, but also when we discover in it essences that refer to our world through other realities and the ever-topical problems of searching for the sources of architecture within a particular age. All forms, stripped of their doctrine, appear as equally important and valid thanks to the conviction that they can be continued in one’s own, individually understood manner. Thus, both new and old forms appear, or their metaphors. Forms both forgotten and rejected by Modernist dogma, just as those initially rejected by Post-functionalists, based on figurative imaging, took on the meaning of validity. Arata Isozaki supports this approach in his metaphoric manifesto, stating that everyone can proclaim any major theme of their own<sup>115</sup> – thus, as if anew, every formal experiment becomes a challenge both to the architect and the viewer. Dariusz Kozłowski, similarly consistent in his thinking about architecture, defines the objectives and motivations of the contemporary designer as follows:

[...] Architecture, perhaps more so than other arts, requires a certain motivation: a pretext, a justification, a theory, an idea or ideology that validates the designer’s conduct in their own eyes and in the eyes of the audience. If this is a dominant idea, broadly understood and accepted, then moving within its confines largely frees one from the responsibility for their artistic endeavours. When supplemented with a certain stock of fixed aesthetic forms, it allows the architect, or any other artist, to move within this world calmly, if not freely<sup>116</sup>.

**4.1. The fiction of the shape of architecture.** In architecture, the image of reality has always appeared to be insufficient. Contrary to appearances, concrete is an example of the type of matter in which technological innovation is much less significant than the very fact of its use. The history of reinforced concrete, as written on the basis of technical inventions, is short and what matters is not “where” and “when” these inventions came to be, but “how” – their implementation, goal, idea

<sup>114</sup> In 1952, André Malraux formulated the term “Museum of Imagination” (*le Musée Imaginaire*), which is an essence of the attitude of contemporary art to artistic legacy. Malraux clearly expressed his thought that each century filters the legacy of the past and chooses that which it needs to justify its own creations. Thus, old ideas/values are restored to new forms. The critic states that the artistic adventure is a random selection and the filtering of the assets of past arts to create a new, original style; [in:] S. Morawski, *Absolut i forma, op. cit.*, p. 57. The critic cited the ideas of Malraux’s Museum as „[...] an expression of human adventure, an immense array of discovered forms”.

<sup>115</sup> A. Bączyński, *Semiologia architektury – Arata Isozaki*, „Architektura”, iss. 1, 1981.

<sup>116</sup> „Pretekst”, *Zeszyty KAM*, iss. 1, p. 4, Kraków 2004.

and the pretext for which they were invented. Thus, there emerges the conviction that the artistic work is not merely a form that refers to the moment of its creation, but also has an independent, broader context.

The fact of taking up the subject of the pursuit of ideality as a certain metaphorical idea – an element that expresses unity with a period – has, apart from the functional side, another, discursive one. Jan Białostocki writes about this, highlighting that many aspects of art can be understood much better by framing them more as a crystallisation of desires than as an image of reality. The critic wrote that art has always featured a certain element of “evening out” certain deficiencies within reality, as otherwise it would not have been needed – it has preserved its compensative functions even today:

[...] Art has very often been not the reflection or expression of life, but compensation, giving form to that which life lacked, supplementing existence with those elements that man needed, constituting an instinctive or intended cultural thermostat<sup>117</sup>.

The critic’s thought confirms that art understood in this manner (as a dream of perfection, improving reality) is not a reflection, but a comparison of the imaginary world with the real one. It creates myths and substitutes rather than images of what is. It is the compensatory functions of art that sometimes lead to the sensation of an aesthetic experience and the creation of foundations for metaphorisation and symbolisation. These are also the roots of the popular belief that one of the main tasks of art is to create artificial, imaginary worlds, in which the creative imagination is to create alternative, also often opposing, “ideal” foundations for understanding the essence of an aesthetic and its reception. In this case, the metaphor, as a tool of poetic detachment from the realism of temporality, becomes the basic function for creating an idealised fiction.

Mieczysław Porębski writes of the metaphorical world of architecture as of a poetic of language that has been established to mark an opposition to reality. Architecture, poetically understood in this manner, is a whole that opposes the rest of the world, a metaphorical image – it mimics or stands out relative to analogous wholes, gaining among them its own, individual weight and an appropriate semantic status. Heinrich Klotz seems to share this view, believing that the determinant of architecture is discussing the matter of the content and significance of architectural forms. And although, as he claims, architecture has never been a pure art, and fiction is one of its aspects, then the creation of the poetic sphere of fiction is the fundamental path to freeing itself from abstraction and pure functionalism or technology. Fiction (here subject to a pluralism of meaning, the author’s style and

<sup>117</sup> J. Białostocki, *Refleksje i syntezy...*, *op. cit.*, p. 204.

metaphors) is intended to replace the single-value autonomy of geometry and its derivative metaphor as a symbol of progress<sup>118</sup>. By exposing the artificiality of this language of architecture, Dariusz Kozłowski states that “[...] architecture is building fictitious things, so that they will look like genuine ones”<sup>119</sup>.

**4.2. The abstractions and geometries of architecture. “Neutral” and “ideal” concrete.** In architecture, one cannot make something from nothing. In the twentieth century, following the abstraction of the Black Square painting by Kazimir Malevich, architects started to look for a new way to record architecture – a universal formula, which could incorporate the diversity of new architectural functions and meanings and the formal systems resulting from them. The greatest “inventor” of concrete forms – Le Corbusier – proclaimed that the new language, names, metaphors and the new emotions that had arose from them at the time, should be directly derived from changes in engineering. This is how one should understand the *Dom-ino* system that was created in those years and which was one of the first tools to generate a new architectural shape. In 1927, this post-and-slab system took on the shape of a universal architectural space – under the formula of the “five points of architecture” that Le Corbusier had defined. For the first time, each of the five points indicated a need for a compositional solution which, in detachment from a structural or technological system, would be concordant with the spirit of the principle of spatial relationships. The material of this architecture was to be devoid of any stylistic manner, and reinforced concrete, hidden underneath the white surface of wall plasters applied to walls and ceilings, became the structural unity that did not show preference to any structural or functional layout. There is no demonstration of the nature of concrete textures known from the later period, as the “perfect house” deliberately demonstrates the freedom to shape a “modern” interior. The “invisibility” of concrete is also a foreshadowing of the notion of stylishness, and its consequence being the discovery of elementary composition based on the “learned game, correct and magnificent, of forms assembled in the light”. The house in Poissy or the house in Weissenhof, express attachment to Claude-Nicolas Boulée’s theory of beauty as a system of relations that was different to contemporary theories and confirmed that the mutual placement of masses relative to each other, along with light and shadow, as in nature, conveys the impression associated with the character of a structure<sup>120</sup>. The “light” of this model of architecture is an indicator of the ideal of abstraction – a metaphor of a “bright and clear” space of architecture freed from walls.

<sup>118</sup> K. Wilkoszewska, *Wariacje na postmodernizm*, Kraków 1997, p. 166.

<sup>119</sup> „Pretekst”, *Zeszyty KAM*, iss. 1, p. 4.

<sup>120</sup> A. Monestiroli, *Tryglif...*, *op. cit.*, p. 24.

The “white-and-gray” houses of Peter Eisenman are a continuation and exposure of this abstract meaning of invisible and neutral concrete. *House III* (1970) and *House IV* (1975) are a reflection of the idea of reducing the thickness of the monolith of all partitions-surfaces and rejecting its visual significance. Their concrete walls, painted in white and gray, are an emanation of Le Corbusier’s “game”, and can also be used to decipher the monochromatic plays in the compositions of Piet Mondrian and Theo van Doesburg. Without mass and weight, Eisenman’s structures are a three-dimensional form made of concrete, presenting – without delving into the “core of the matter” – an energy of architecture’s structuralism without revealing its natural “face”. Concrete, deliberately covered, is meant to be entirely insignificant, to be a “cardboard” matter, whose use cannot undermine the character of our perception of reality. To Eisenman, the heir to Le Corbusier’s ideas, simulating thin partitions is an attempt at eliciting a specific reaction to a pure abstraction, in which reinforced concrete is a construction material that is colourless, recessive and unsubstantial. The material, according to Eisenman, was to merely be neutral in relation to the most significant, societal meanings<sup>121</sup>. This conceptualisation of form appears to be surprisingly similar to the sphere of the meanings of Tadao Andō’s minimalist concrete, to whom the transformation of the real world into forms understandable to the mind – into a pure geometric abstraction – is the sense of architectural design. This entails the organising of reality in accordance with a subjective point of view, in a direction opposite to that of Eisenman’s; by structuring matter’s rawness and natural character through a drawing, the architect converts it into an object that is submissive to pure form.

Rationalists of architecture – Luigi Snozzi and Livio Vacchini – highlight the role of history in structuring architecture, arguing that it is the *p a s t* that is the impulse to create the shape of a structure. Snozzi has claimed that new architecture is no longer necessary and that it simply must be found anew<sup>122</sup>, assuming that creating contemporaneity implies the deliberate use of the legacy of our predecessors. To both designers, “to discover” means to find anew, to structure anew, ultimately denoting abstraction towards pure geometry which is always rich with references. This compositional rigour is treated as a sign of reducing form to its essence (general form) or as creating an ideal. To the Rationalist, this need to create is also a need for form, but one dominated by balance. The ideation of form in concrete is a search for many possible figures of this body, which would “reveal the soul” of the meticulous material creation. Snozzi’s buildings – *Casa Guidotti* in Monte Carasso (1984) or Vacchini’s own house in Costa Tenero (1991–1992) – present

<sup>121</sup> Five Architects: *Eisenman, Graves, Gwathmey, Hejduk, Meier*, New York 1975, p. 15.

<sup>122</sup> <http://archizoom.epfl.ch/files/content/sites/archizoom/files/shared/Snozzi/DossierPresseSnozzi.pdf>; accessed:12.12.2012.

the faultless elegance of the Modernist style in its concrete Minimalist version. In another house, called *Casa Bernasconi* in Carona (1988–1989), the ever-present reduction of smooth cuboid elements appears dogmatic and truly essential, in light of the cameral scale of the house. In most of Snozzi's lapidary houses, power over the external space is taken by surfaces of untreated, flawless, concrete walls with outlines of shuttering, while inside, the white plasters and grey travertine stone confirm the author's unflinching attachment to this specific abstract idea.

Livio Vacchini's own house in Costa Tenero is not only an appropriate example of presenting the principles of "pure" architecture, but also an image of the suitability of the structural intent that brings the viewer closer to understanding rationalist intentions. The small, cuboid, 8,47 m × 17,74 m concrete structure defines a new version of the free plan on a reinforced concrete frame structure. The house's design is based on the use of a system of three pre-stressed beams, supported by external pillars that highlight the idea of spatial uniformity. The single-storey massing, freed from a wall-based structure, enables not only the free arrangement of the interior, but also meets a primary assumption – of a panoramic opening towards the valley and the surrounding mountain landscape. Hidden on an Alpine slope, the house is the embodiment of a dream of architecture in which the residential structure is an ennoblement of engineering (nothing more than is necessary<sup>123</sup>) – a self-describing pattern of thinking about architecture.

The architecture of Wiel Arets exists in a comparable context of "transparent aesthetics". In each of his buildings, the Dutch architect illustrates ideas of extreme "transparency" and "exposure" of forms – according to an idea derived from Bauhaus. Structurally logical and rational, tectonically elongated and orthogonal, the concrete and glass buildings by Arets fill the urban space with a rational grid of reinforced concrete columns and modular structures, proclaiming the continued existence of forms unmarred by expression. In the *Maastricht Academy of Fine Arts and Architecture* (1989–1993), grey and passionless spaces tell a story of an "insignificant" and semi-transparent idea of the flow of light and the film-like perception of architecture (all conceptual drawings by Arets have this quality). The intentional visibility of each interior, despite the existence of a physical partition, is a commentary on the manner of creating space using "sequences", in which concrete and glass are pure matter that builds the significance of a neutral and universal space, ready to be filled with teaching and science.

To some designers, the most sophisticated idea for originality is discovering the laws of geometry, pursuing proportions and the harmony within them. The works of Tadao Andō set an example to his contemporaries, as to him the fiction of architecture

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<sup>123</sup> R. Masiero, *Livio Vacchini. Works and Project*, Milano 1999, p. 36.

constitutes the most important factor in enhancing precise and perfect thinking about Plato's world of pure solids. The architecture of the Japanese designer is a realisation of this ideal by impressing a speculative idea of geometry into concrete and setting the relationships between its physicality and symbolism. To understand the principles of his architecture is to go beyond the rules of physical construction and to enter a world of fictitious space. To Andō, fiction means "inventing perfection", i.e. the quality of the spatial experience in a layout of material architectural elements, brought together so as to pursue natural perfection.

Mario Botta's architectural geometries, treated as a material foundation for symbolism expressing perfection and universality, are identical to Andō's experiences. It appears that in his theory, Botta finds particular satisfaction in the use of round forms, seeing them as especially vulnerable and requiring special treatment. The cylindrical shapes with infinite symmetry and a Platonic reference to the idea of beauty are an unquestioned example of peace and harmony – a sort of a method used to discover beauty within a geometric problem<sup>124</sup>. In this, Charles Jencks identified a similarity to Botta's teachers, stating that Kahn, Le Corbusier, and Modernists such as Mies van der Rohe treated industrial materials similarly and admired the primitive Romanesque Style, wherein structure became a transcendental art. He argued that Botta differed from his predecessors through the clear mannerism of its "return", as where Modernists had covered their Classicism with a technological imperative, Botta allowed it to freely develop into a primal symbolism<sup>125</sup>.

To Botta, the significance of enclosing architectural space arises from references to durable and "perfect" values rooted in the historical past of architecture and construction, and building them using archetypical meanings. Botta's single-family buildings, the one in Viganello (1980–1981) or the one in Morbio Superiore (1982–1984), are treated by the designer as shelters, artificial caves and are likewise a pursuit of the relationships between the earth and the sky<sup>126</sup>. Botta's primal symbolism not only manifests itself in an enthusiasm for the Romanesque, but also by focusing on the material that builds its walls, ceilings, columns and facades. The concrete, brick or stone monumentality of these solutions can inspire emotions, yet Botta's consistent belief that the idea featured in a structure can resist cultural

<sup>124</sup> Władysław Tatarkiewicz reminds us of the assumptions that form the "perfection" of European architecture with roots in the Renaissance: "[...] The classical concept of the Renaissance required a regular and closed form. [...] The plan of a structure was perfectly regular and closed, when it was central, it had the shape of a square, octagon or Greek cross. It was dictated by religious (which stated that the most perfect shape only befits a house of God), metaphorical (corresponding to the structure of the universe), but most importantly, aesthetic considerations (as it is the most perfect shape). Filarete produced central designs, and such were also drawn by Leonardo", [in:] W. Tatarkiewicz, *Historia estetyki*, vol. 3, *Estetyka nowożytna*, Warszawa 1991, p. 118.

<sup>125</sup> Ch. Jencks, *Architektura postmodernistyczna*, Warszawa 1987, p. 151.

<sup>126</sup> P. Jodidio, *Mario Botta*, Köln 2003, p. 9.

and civilisational changes appears to be the essence of pursuing modern meanings. Conservatism referring to timeless values of architecture as a part of accepted material semantics and a mannerist geometric simplicity of form can become a means for seeking timelessness<sup>127</sup>.

To Dariusz and Tomasz Kozłowski, the house in Lublin – *Casa Olajossy ossia Villa in fortezza* (1998–1999) (ill. II.12) – is a pursuit of contrast defined between the idea (“the intellectual layer”) and form (“built by physicality”) of composition. Both instances of matter: the “hard”, concrete one, and the “soft” one – a personal theory – realise the primary goal – bringing about the perfect form. Dariusz Kozłowski writes about the genesis of the design:

[...] In the beginning there was – a Cylinder. Then, a Cube, so that a game of perfect forms embodied in the sphere of elementary solids, conjoined in a relation of syzygy, could emerge. The game of these two shapes takes on a significance: they reluctantly remain indifferent to each other. Thus there is the Cylinder, a geometric object, perfect not through the mystique of its proportions, the number of its walls or vertices, but solely by the simplicity of its existence derived from perfection – the circle. The perfection of the proportions of the solid remains intentional. There is also the Cube, a perfect shape, with a multi-axial perfection suspended within absolute space, where the role of the six surfaces is equal<sup>128</sup>.

The physicality of the shape of the *Villa in fortezza* is built by untreated concrete, confronted with a plastered masonry wall, wherein each of these materials directs the viewers’ attention to a “game of independent, separate solids”. The *villa* – the

<sup>127</sup> In Botta’s most important reference we discover the significance of this ideation of Louis Kahn’s architecture, which was a combination and integration of an “expressive” formula and formal perfection, pursuing the definition of a monument. The perfection of the formal system, according to Kahn, should feature harmony, a sense of order and that which characterises the existence of one relationship to the other – that of the whole to its parts. This formal and geometric perfection has neither shape nor size – it has the simplest pattern, but one that is also the most “capacious” in its spectrum of elementary meanings, metaphors and symbols. The formal perfection of Kahn is the question about “what” a given figure should mean. The sketch, the notation of an idea and the design of an idea are the answer to the question “how”. The design belongs to the designer. It is a circumstantial work, independent of the wealth of the client or the scope of their knowledge and its formal perfection has nothing in common with the circumstances of the creation of the work. The form can – through the proper use of materials – become a formula, a canon, it can suddenly come to a stop and become a model, but most importantly, it can be a permanent, continued meaning that is full of motion within a mutable world. – R. McCarter, *Louis Kahn and Nature of Concrete*, „Concrete International” (32) 12, Farmington Hills, 2009, p. 26-33.

<sup>128</sup> D. Kozłowski, *Dom – próba opisu, albo „miękkie” i „twarde” tworzywo architektoniczne Villi in fortezza*, [in:] Materiały Międzynarodowej Konferencji Naukowej IPA WA PK, Definiowanie przestrzeni architektonicznej, *Architektoniczne tworzywo 2006*, „Czasopismo Techniczne”, b. 9-A/2006, R. 103, p. 54-58.

internal cube – is dark grey and has smooth walls. The *fortress* is the external reinforced concrete cylinder, which reveals its mass and the nature of the material: the austere quality of concrete shuttering without hiding its technological origin. Both structures also build individual games: “open–closed”, “tectonic–atectonic”, “hidden–revealed”, “internal–external”. The rejection of the Functionalist “tyranny of truth” in the *Olajossy villa* means a pursuit of matter for architecture amidst magical, unreal worlds, and although they may be decomposed, they are still perfect. The viewer’s intuition suggests that taking on this mask in the villa’s architecture is a step towards granting significance to form and its matter, which appears to be an escape from Loos’s principle of the “mute façade”. The “hard” matter of this architecture – concrete, brick, glass – reflects the sense of obscuring the function with a permanent stage of unused meanings of architecture, defined as the superior building material of the four-storey house. This is concordant with the belief that there is no truth in architecture, that ultimately, truth is an illusion, a metaphor which has expired and lost its sensual force of expression. The art of architecture “is a lie, which allows us to come closer to the truth – the truth that we can recognise, at least”<sup>129</sup>.

The experiments of Raimund Abraham, who treats architecture as a collision between the components of the material purity of architecture, are present in the thoughts presented above. The designer typically wrote about the relationship between the idea and matter as a collision of “heaven and earth”, “the vertical and the horizontal”, “technology and memory” as the primary factors that constitute architecture. This confrontationally understood ideation of form and content is also a reinterpretation of the archetype of architecture’s elementariness. In the *Musician’s House* (2012) (ill. II.13) the architect realised the concept of depicting strictly geometric principles of architecture. The play of the circular massing and the triangular void led to the choice of but one matter – reinforced concrete – a construction material that is perfect in its uniformity and clarity, and the most durable in conveying all sense. The perfection of shape, according to the designer, can always be questioned because of the character of the material, and every material has its limits, its own potential, its own emotional power<sup>130</sup>. The pattern created on paper must have its precise counterpart in the edifice, its tectonics and its “collision” between the perfection of form and the perfection of matter – so as to understand (or come to remember) why “one stone is laid upon the other” and how balance in the intensity of formal elements has been achieved. Utility in the *Musician’s House* extends beyond the field of the architect’s thoughts

<sup>129</sup> D. Kozłowski, *7 przypadków...*, *op. cit.*, p. 18.

<sup>130</sup> R. Abraham, *Counter-Thoughts*, [in:] *Ungebaut/Unbuilt*, Innsbruck 1987, p. 16-18.



III. II.12. *House in Lublin – Casa Olajossy ossia Villa in fortezza*, Dariusz and Tomasz Kozłowski, 1998–1999

III. II.13. *Musician's House*, Raimund Abraham, Insel Hombroich, 2010–2012

on the perfect space of architecture. The geometry of the building in Hombroich likewise remains undisturbed, for it is, in the architect's opinion, the language of purity and ideal.

**4.3. Metaphors of ideality. Concrete monuments.** Architectural theories clearly define the sources of the relationship between the fundamental significance of architectural form and the stylistic fact of a work of architecture. These deliberations suggest that architecture has, most probably, always operated using means rooted in some fundamental and model image, and thus drawing on established patterns is not merely a superficial return to the "history of forms", but rather an extension of the sphere of references and their reuse. Similarly as in painting, the works of architecture are defined by established tools of traditional semantics, with the only new element being stylistic content and the metaphoric or metonymic level of expression subjected to style. This appears close to the historical definition of the problem by Étienne Louis Boullée, Friedrich Schelling and Mies van der Rohe, to whom architecture as an expression is a metaphor of its own structure, fulfilling the objective that is its representation<sup>131</sup>. The structure is understood as any remote meaning conveyed in a physical structure through established forms, essential both in its whole and in its parts. Schelling and other contemporaries showed the way that the majority of Modern designers of architecture had followed in the belief in architecture's prerogative – the presentation and extraction of its constituent elements. This position is aligned with the one expressed by Mieczysław Porębski in *Ikonosfera*, in the chapter referring to the foundations of architectural imaging. Some specific "first", "literal" image will always be the material of architecture, connoted by language or presented directly using visual means. For what does architecture, which (as a poetic image) cannot be built out of nothing, depict? The critic answered:

[...] The answer will be simpler than many would expect. The work of architecture is always an image of a different work, constituting its actual or imaginary prototype. Each edifice is more or less a veritable repetition of another edifice, every transition or distinction repeats the pattern of existing transitions and distinctions, which are the product of either technology or nature. [...] The extraordinary appears only at the moment when this ordinary structure starts to mean something more, when the practical solution becomes a poetic one – a metonymy or a metaphor<sup>132</sup>.

In Porębski's iconological method, the matter is not merely about the description of the "genetics" of architecture – it is more of an attempt at identifying rules that

<sup>131</sup> A. Monestirolì, *Tryglif...*, *op. cit.*, p. 26-28.

<sup>132</sup> M. Porębski, *Ikonosfera*, Warszawa 1971, p. 164.

initiate dialogue. This reinterpretation, which Michel Foucault calls archaeological analysis, refers to searching for that which, starting in the imagination, will give rise to systems and works<sup>133</sup>. Measures taken in the category of queries in the “archives” of forms and meanings are the subject of *a priori* historical articulation – as a rule that initiates the discourse about metaphor.

Surely, the quality of prefabricated concrete elements and the classical language of architecture are currently associated with the greatest designer of architecture based on a metaphor of Baroque and Classicist works – Ricardo Bofill. In Marne-la-Vallée (1978–1982) near Paris, the architect created his own version of *Nouvelle Ville* in concrete, using the shapes of Ideal Cities designed by architects two centuries prior as a basis. The atlas of details of column orders of French Baroque and Enlightenment architects: Jules-Hardouin Mansart, Claude-Nicolas Ledoux or Étienne-Louis Boullée, became the property of a contemporary architect – a designer who wanted to open the doors to a world rejected by Modernism and Functionalism. Bofill’s intention was never to copy forms from the past, but to transpose elements of architecture so as to incorporate it into the public space of the city using the available technology and materials. Concrete used in the *Abraxas* complex is a metaphoric matter with the ability to resemble anything that is associated with the period of Classicist buildings. In this world of architecture, in which concrete replaces stone, it turned out that the designer decided to transform the construction material – porticos, columns and architraves are not designed as monolithic, but in block panels – repetitive, mass-stained prefabricated elements. Dariusz Kozłowski commented on Bofill’s intentions:

[...] The basis for this remarkable architecture was the idea of mass-produced ornament [...] Bofill demonstrated that the aesthetic of industrially produced architecture does not have to be subjected to production technology, but quite the contrary—block panel technology is not inherently economically opposed to the individualisation of structural elements. Here, the role of the architect is based on filling in the details of an idea<sup>134</sup>.

Ricardo Bofill’s architecture produces the impression that the author wanted to establish a reversed order of thinking about his architecture – that he wanted to start with the detail and finish with the whole of the design. His housing complex, marked with a discourse on the shape of a multi-family residential building, stands on its own through an unprecedentedly (even among eighteenth-century Classicism) extreme approach to the matter of blending architecture with ornament. The external

<sup>133</sup> M. Foucault, *Archeologia wiedzy*, Warszawa 1977, p. 170.

<sup>134</sup> D. Kozłowski, *O naturze betonu – czyli idee, metafory i abstrakcje*, [in:] *Architektura betonowa 2001*, Kraków 2001, p. 8.

facade of the Theatre of the *Abraxas* complex is composed of dual Tuscan columns, placed along three levels encompassing nine residential storeys. The rhythm of the colonnades is supplemented by grand orders the height of the entire building, which hide lifts in their carved semicolumns. From the side of the courtyard, the facade is formed by nine-storey glazed semicolumns, topped with heavy Doric order capitals that do not support anything, while above them is the building's final storey, decorated with appropriate prefabricated ornaments – cornices and pilasters. Shaping the massing by principle of the semantics of the language of historical architecture: base–trunk–head, implements the fantasy about an architectural space based on a Postmodern game of primary meanings, appropriate to mass housing. Bofill himself points to the formal pretexts of his designs:

[...] To me, the return to archetypes is a return to superior values: the pleasure of being in the space of the city; The arch, which is a city gate and which highlights perspective and opening, while simultaneously presenting the Theatre as a game of two spaces: a convex space on the outside, and inside an enclosed one, homely and familiar. [...] The arch, the Portico can change scale, their geometry can be treated in an unparalleled manner, and although they can be built from various contemporary materials, ranging from stone and glass to concrete and steel, all of them remain recognisable as archetypes<sup>135</sup>.

It appears that in terms of scale, material mass and poetics, the idea of the *Abraxas* complex brings us closer to the category of Baroque “ambiguity”. Bofill’s “Baroque” is a notion taken from the idea of the accumulation of the wealth of forms, concrete motives and structures, with the constant discovery of successive spatial concepts in each formal sequence that defines its vitality. It appears that the designer’s creed refers to the idea of the building’s architectural life, which plays out between a substance that has been forgotten – the significance of architectural orders – and the rediscovered content of metaphor which presents its contemporary image in prefabricated elements (ill. II.14).

The confidence with which Adolf Loos talked about “barbaric splendor” a century ago betrayed a deeply entrenched belief that modern architects also have different standards of perfection. In the history of Western art there is a different aesthetic ideal – of rational restraint, which is similarly supported by metaphorical rhetoric, yet is inseparably linked with Classical tradition. Ernst Gombrich wrote

<sup>135</sup> R. Bofill, J.L. André, *Espace d'une vie*, Paris 1989, p. 162. It should be noted that Bofill’s notion of standardising Classical elements materialised in the form of an original atlas of details; see: R. Bofill, *Taller de Arquitectura, Proyectos franceses 1978/81. La Cité: Histoire et Technologie*, Paris 1981.



III. II.14. *Espace d'Abraxas*, Ricardo Bofill, Marne-la-Vallée, 1978–1982

that the deliberate rejection of excessive ornamentation has always been a sign of Classical influences. In places where this is a source of pride, as in the period of Italian Renaissance and eighteenth-century Classical Revival, focusing attention more on form than on decoration appears to be a sign of self-aware artistic virtue<sup>136</sup>.

This understanding of Rationalism also provides a clear answer to the question concerning the participation and sense of architectural detail in forming the semantics of the architectural monument. By this principle, architecture should be self-describing and introvert, therefore the language used by the building's author should be a rigorous medium extracted from logic, simplicity, geometry and numbers – simply engineering. Rational architecture without detail distinguishable from its structure is to point to the distinction between that which is “deeper” and that which is “outside”. Architecture “outside of style” – this is the main formal function of architects following the banner of the pursuit of the perfection of objective beauty in an art that declares the pursuit of monumental space. To architects such as Livio Vacchini or Alvaro Siza (who repeats that architects never invent anything, they transform reality<sup>137</sup>) the concrete form is given additional meaning. The architect, as the master of “complex simplicity”, builds the notion of the monumental building through the category of a structure that does not distract with detail, which brings the idea of monumentalism closer to the mute space associated with architectural reduction.

The multi-purpose gymnastic hall in Losona called *La Palestra* (1990–1997), in its radical interpretation, was devised by Livio Vacchini in the belief in the perfection of decorative concrete. With its rhythmic articulation, the building convinces us to try and verify what the notion of the contemporary monument is.

In Vacchini's building, the main role is given to a layout of rectangular reinforced concrete pilasters (ill. II.15), which support the pre-stressed concrete coffered ceiling along its perimeter. The pilasters do not have capitals, nor a distinct tympanum. The decoration was replaced with the detail of the visible technical joints between three essential elements of the structure: the pilasters – “columns”, a massive (56,07 m × 31,21 m), 140 cm-thick coffered ceiling (the architrave) and the monolith of the building's slab on grade (the stylobate). This logic of thinking has also created an opportunity to present an original version of the *enthasis* – the plot of the forces of vertical elements calculated by the structural engineer gave the supports rational shapes – all of the pilasters becoming narrower towards the top. The architect wanted to achieve a “reinterpretation” of these structures, which directly indicated a unity between the detail and the entire structure. In this description of the edifice one can find a reminder of Herbert Read's statement, that art invents nothing, providing

<sup>136</sup> E.H. Gombrich, *Zmysł porządku. O psychologii sztuki dekoracyjnej*, Kraków 2009, p. 18.

<sup>137</sup> <http://alvarosizavieira.com/siza-gallery/1998-portugal-pavilion>, accessed: 03.06.2013.



III. II.15. *La Palestra*, gymnastics hall, Livio Vacchini, Losone, 1990–1997

the example of the Greek temple, in which nothing new had been invented, as the Greeks merely developed that which they had received<sup>138</sup>.

Vacchini himself defines the sense of this type of thinking, by stating that everything can be found/reinvented (*réinventer*)<sup>139</sup>.

In Vacchini's case, building has a ritual subtext, whose logic is rooted in every element being intended to bring a different one to life – through the repetition and in-depth understanding and transformation of principles from the past. This situation can be treated as giving form its “formal” character. It is also the beginning of renaming engineering to architecture, something that has been written about by another expert on rationalist monumental edifices, Antonio Monestiroli:

[...] One cannot reduce the simple forms of some works of contemporary architecture directly to technical forms; that which distinguishes them is a result of the fact of them being formal. [...] In order for these elements – the column, the door, the window – to become recognisable, it is necessary to translate technical forms into architectural forms. This translation is the principle of decoration, understood as the search for appropriate forms<sup>140</sup>.

In *La Palestra*, precision of thinking and execution characterises the control over the manner of the presentation of the massing and void of the building; its structure and matter. The “precision” of the form is visible enough that we follow a certain pre-devised thesis of investigating the form and its wholly dedicated material. The logic of structure is formed by the fact of the employment of elements with extreme dimensions – pre-stressed concrete beams with the greatest possible span and panes of window-glass of maximum height. The entirety, by principle of the open and unconstrained plan, produces the impression of a space that is only demarcated by rows of vertical, monolithic elements, separated by narrow panes of glass. Although the structure of the building has an explicit expression, it hides within it another message: an idea known from Mies van der Rohe's buildings – the design of its corners and window frames. Steel in *La Palestra* has been replaced with concrete, while the formal effect was dependent on the starting point – the pursuit of rhythm, texture, mass, the play of light, the unification of surfaces with various orientations. Vacchini's concrete corners do not have such an elaborate, ornamental character as the ones in Mies's works, but they reflect the expressive essence of the entire design – the symmetry of the radial layout of the pilasters. Vacchini's process of thinking is described by an expert on his work, Roberto

<sup>138</sup> H. Read, *O pochodzeniu...*, *op. cit.*, p. 99.

<sup>139</sup> N. Régnier, *Livio Vacchini “compositeur” d'architecture*, [in:] „Construction Moderne”, iss. 110, 2002, p. 34.

<sup>140</sup> A. Monestiroli, *Kwestie metody*, [in:] „Pretekst”, *Zeszyty KAM*, iss. 2, Kraków 2006, p. 74.

Masiero, who stated that theory gained an advantage in designing the building and thus the practical result had a sense in reference to objective principles, resulting in a more universal interest in the work. He described the building as having nothing in common with nostalgia or sentiment and as not being a part of the rhetoric of styles, as here style was reduced to a true minimum, which likewise was not an expression of any type of communication, as it was simply a system of construction<sup>141</sup>.

Vacchini's work reminds us that the yearning for *ideality* allows architects to turn towards ideas linked with the tradition of formations considered to be a canon of beauty and harmony. *La Palestra* also presents the matter of carrying over old meanings to contemporaneity – their update is broader in that it applies to the entire sphere of understanding that which a work of architecture represents, or, more precisely, its sphere of traditional meanings. The oft-encountered difficulty in telling apart what belongs to the sphere of abstraction or figurativeness could bring us closer to the statement that architects have always tried to realise forms based on the traditional meanings of forms or their respective metaphors, as reminded to us by designers who draw from the past.

A similar analytical approach to the manner of building contemporary monuments can be seen in Alberto Campo Baeza's projects. Here the path to the goal is the principle of exchangeability and differentiation of architecture's definitions in reference to tecto–stereotomic deliberations. We can see examples of this in those buildings in which a significant portion of architecture is composed of ideas concerning the celebration of mass (*gravidad*) and void (*vacío*), a bright and a dark structure. As Baeza argues, it is mass and void that give space the power to exist, as creating dialogue in an architectural context appears to be creating a metaphorical connection of matter-content with form – the “content with the vessel”. Baeza's stereotomic method, in its pursuit of the essence of spatial linkages, is a return to Adolf Loos's idea of Modernism – it places a unique significance on the cross-section drawing, which represents the third dimension, in opposition to the floor plan as a two-dimensional confirmation of the correctness of functional solutions. To the Spanish architect, the architectural idea, which must generate form, means creating a composition, a layout of forms, followed by solids with a physical substance and in their appropriate structure. *Casa de Blas* (2000) near Madrid or the *Olnick Spanu House* in Garrison (2008) are an expression of the ideational essence of the Spaniard's work, which is based on minimising the causes and effects of the creation of architecture – expressive actions and the consequences of these decisions. In both buildings one can see a continuity of meanings and shapes, which have their beginning in the prototype of the horizontal model of Modernist architecture, but

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<sup>141</sup> R. Masiero, *Livio Vacchini. Works and Project*, Milano 1999, p. 10.



III. II.16. Caja Granada Savings Bank, Alberto Campo Baeza, 1999–2001

which are also a reference to the sources of monumental architectures from distant times. Both houses are a formally silenced space, composed of two antinomic figures of composition – the belvedere set in its steel structure and the monolithic, cement base, which highlights the sense of the link with the surrounding terrain through its mass.

In both fragments of the building we can see that the legacy of the twentieth century – the principle of *less is more* – is translated by Alberto Campo Baeza into one of inversion: *more with less*. When analysing the elements and their structural membership, the architect divides both parts of the building into those created by measure, order and light (the top) and those by physicality, rawness and darkness (the bottom). All of these categories are meant to create a world composed of the archetype of the *cave* and the *shelter* – objects that had been transformed into monumental forms in the past. Baeza, aware of Louis Kahn’s words, assumes that monumentality cannot be designed solely by intent – monumentality is a *physical trait* of architecture in a partially and wholly adopted expressive form, matter and logical scale<sup>142</sup>. Such architecture – like the Caja Granada Savings Bank (1999–2001) – must depict mass as the source of the idea, in which the use of light (*luz*) is the quintessence from among the substances that define the clear organisation of the monolithic construction material and the definition of the symbolic “centre” – an image of architecture according to Baeza:

[...] When discussing the physicality of architecture, I like to distinguish two of its basic elements: weight and light. I work with materials that are heavy and weight creates space. We must dominate space, we must create a skeleton, a structure, on which the heaviness can rest. This is the centre of architecture. Its second element is light. Light is like air, which goes through a musical instrument. The instrument plays only when air goes through. As weight creates space, light creates time<sup>143</sup>.

In Baeza’s thinking, design by subtraction is nothing but a reflection on the order of the architectural matter – primarily in the aspect of composition, which refers to forms created through the choice of the discipline of constraint. Campo Baeza’s buildings are also examples of control over their employed construction materials – concrete, light and the monumental scale of architecture (ill. II.16).

**4.4. Deformations and decompositions. The “complexity” of matter.** To the contemporary architect, the reason to design is not merely the effectiveness of function, but the concept supported by expression, whose goal is to find the most

<sup>142</sup> L. Kahn, *Monumentality*, [in:] *Louis Kahn. Essential Texts* (ed. R. Twombly), New York 2003, s. 22.

<sup>143</sup> Interview with Alberto Camp Baeza in the “Architektura-Murator” monthly, iss. 10/2008.

original shape of a building in the selected material. Expressionism, Deconstructivism, Neo-expressionism – today it appears that contemporary trends can be considered to correspond to another formal evolution of architecture, in which the intellectual deformation of space is a continuation of dreams referring to tectonic styles featured in the past. In contemporaneity, successive buildings demonstrating a dynamic and radically decomposed architecture testify that the world of these most independent styles cannot exist without the use of concrete, as even the most extreme independence of form always assumes a certain appropriate matter for its creation, and in which this form can manifest itself. If there had been no matter in a case of total creative independence, the form would have become nothingness – this argument by Benedetto Croce<sup>144</sup> is confirmed by contemporary observers of trends that deform architectural reality. To these designers, the complexity of architecture is another structural link based on the characteristics of materials (and not just their technical capabilities).

The “old” and “new” Expressionist architecture, treated as an effect of the exhaustion of the paradigm of Modernist space (form follows function, purity of form, truth of the material), is perceived as a model that cannot be measured, one that tears down the functional pattern, leaving it to the “confidence” and “stability” of forms. One can even argue that the property of the current architecture is its own invalidation of materiality, blurring the lines of material existence – a certain dematerialisation. This is probably the source of the strong belief among designers in the transformation of architecture by its dynamic deformation, which expresses the laws of physics in a shape that represents the rejection of “stability”, objective composition, balance or contemporary propriety – the Modernist and Postmodernist mindset.

It is intellectual Poststructuralism that is responsible for this, a trend in which the appearance of meanings is constituted by opposition to the old – objective and rational – Structuralism. That which distinguishes Expressionism, Neo-expressionism and Deconstructivism from the remaining styles is that they always express something instead of depicting something. An Expressionist design refers to defined societal or political values, or to spiritual nature without becoming entangled in judgements of symbolic types. This occurred at the moment in which the abstractionism of Expressionist architecture was accepted as a reality and Expressionists created a paradigm of separation from the real world – a phenomenon that focused on the sensation of a pure aesthetic awareness.

Contemporary architecture has become a sculpture that one can enter or even live in. Although from a tectonic point of view, the eruption of Expressionist ideas

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<sup>144</sup> B. Croce, *Zarys estetyki*, Kraków 1962, p. 80.

was unique and aesthetically significant at the start of the twentieth century, the formal ideas that were crystallising in the imaginations of designers were not realised in many buildings. Unclear ideas of Gropius' "temples of the future", uniting architecture, sculpture and painting, or Hermann Finsterlin's sketches of biogenetic structures were seen to flaunt social symbolism rather than a possibility of realisation. The dynamism of form, their instability, did express the restlessness of the times, but today are more of a contribution to the aesthetic of the utopia of early Modernism, which lacked the support of a physical construction material.

Erich Mendelsohn's sketches are a certain allegory of the transformation of the mind of contemporary architectural expression that did not address the needs of reality, but tried to solve the problem of the coming times. The contradiction-riddled interpretation of designs resulting from both intuition and uncertain calculation allows one to consider that on the one hand, Mendelsohn tried to adhere to his initial concepts, while on the other he acknowledged the significance of the laws of statics, which all material structures must abide by. The graphical works of the architect assumed, to a progressively increasing degree, the use of reinforced concrete, steel and glass, but it was the use of reinforced concrete (with its potential for adding rigidity to dynamic parts of buildings) that was the deciding factor in the original structural layouts. Thanks to reinforced concrete, Mendelsohn's drawn ideas were freed from the dominance of the visual arts, releasing artistic expression from the chaos of figures and enabled the definition of expressionism as an actual creative act, which defines the moment when the form first takes shape. The concentration of these moments is often associated with the birth of matter that validates thinking about something that had previously been thought impossible to realise or existed only in the subconscious.

One example that can be used to illustrate this is one of the few built projects from this period – the Einstein Tower in Potsdam (1921). Mendelsohn's building is not as much a crowning achievement of his Expressionist period as it had been intended as a monument, a public illustration of the revolutionary theories of the well-known physicist from the start. The architect described his building as both a sculpture and architecture, whose "elastic dynamism" was dictated not as much by function or structure, but the need for notional and visual associations: Einstein – *ein Stein* (stone). The monolith of the tower's form is nevertheless unnatural – it could be built only because of the use of a special type of structure, which was clad in concrete and a layer of plastered brick, which resulted in the visual effect now known to all. Robert Harrison wrote about the difficulties in understanding and implementing the new matter, stating that it was a homage to the instability of matter and its transferability to energy, affirming the significance of the history of structures above their physical density. He argued that the most important experience of erecting the Einstein tower was refreshing, as the base and top were built from concrete, as suggested by their

forms. However, there was the large main body of the tower, built out of brick and clumsily mimicking the intended, windswept form, which had then been covered with a complicated plaster so as to be given its final spontaneity<sup>145</sup>.

Showing stylistic trends in the art of sculpture could provide a suitable reference for the description of the state of Expressionist architecture that “experimented within new types of matter”. Towards the end of the nineteenth century, architecture was similar to the ages-old tradition of Hellenic sculpture – based on a style of carving and “taking away” in order to produce a shape out of matter. Any instability of form had to be invisible, so as to achieve a result of explicit stability. This blurred the role of instability as a source of aesthetic power. For centuries, architecture served more to enclose within its interior and to dampen that which was unknown. The experiment of Expressionism and Decomposition became similar to the manifestoes of sculptors from the start of the twentieth century. When Alberto Boccioni wrote about the dynamics of the futurist shape, “the mutual intersection of planes” or the “architectural character of sculpture”, about its properties in composing sculptural surroundings, he already knew that it was intended to reject material unity (previously used marble and bronze) in favour of highlighting – thanks to its separateness – the different qualities, weights and receptive potential of new materials<sup>146</sup>. Along with the creation of Alexander Archipenko, Jascques Lipschitz or Henry Moore, there appeared a style of “convexity”, one that formally enriched a work and identified space with the structure of the work. Sculpture had crossed its material boundaries, and the surrounding space transformed from an inert element into an active structural factor.

#### **4.5. Deconstruction of language. Assembling and disassembling matter.**

In 1988, an exhibition of a new style of architecture – Deconstructivism – forced the redefinition of the architectural canons established by modernists. The exhibition at the Museum of Modern Art by Philip Johnson and Mark Wigley, simply named Deconstructivist Architecture, was co-created by those designers who, in their designs, had rejected the clear and transparent Postmodernist order – the Coop Himmelb(l)au group, Peter Eisenman, Frank O. Gehry, Daniel Libeskind, Bernard Tschumi and Rem Koolhaas from the Amsterdam-based OMA. All of them presented a style based on a model of abstract thinking, supported by an intuitive aesthetic conviction that “broken” space can become another principle for creating the image of the contemporary world – among them was Zaha Hadid from the London Architectural Association – presenting a painted world of architectural intentions awaiting confirmation in construction practice. Citing the opinion of the

<sup>145</sup> R. Harbison, *Zbudowane, niezbudowane i nie do zbudowania*, Warszawa 1999, p. 180.

<sup>146</sup> A. Kotula, P. Krakowski, *Rzeźba współczesna*, Warszawa 1985, p. 157.

exhibition's curator, Mark Wigley, let us remember that the architecture of these bold designs revealed dilemmas that had been ignored, forgotten or rejected in Modernist tradition along with its material limitations<sup>147</sup>. Deconstruction, as an unstable state of a structure, started to turn into an aesthetic state, in which only its visual manifestations – Deconstructivism – were typically repeated. When we investigate and study the new style, we come across the fact that the language of Deconstruction's architecture is in a state of "collapse", a "decomposition" devoid of a synthesis of meanings and symbols. Architecture became an image in a kaleidoscope – a game of randomness, asymmetry, invention and limitless expression. Modelled after the incoherence of the contemporary world, the image of this type of architecture is an image-fiction composed of a contrast of matter and shapes and their extreme juxtapositions. The manner of "composing" is likewise different – based on a "contamination" (as Bernard Tschumi called it) of its elements. Therefore, Deconstruction is not a creative method, nor is it a type of interpretation, instead being more of a state of structure that features a fictitious instability of forms and matter. The transformation of this multi-element matter through supplementation and superimposition of new meanings upon it became a hyperbole, a reinforcement of its message and a definition of the vital qualities of material – concrete, steel and glass. In this manner, expression tries to pass through the veil of matter to give it a supramaterial manner<sup>148</sup>.

It appears that the attempt to bring order to an apparent disorder in such a way that an object with an unprecedented aesthetic dynamic transform into thinking about form along with the inseparable thinking about its construction material is an essential aspect of interpreting Deconstructivist works. "Frozen movement" has, since the times of Erich Mendelsohn's Einstein Tower, been given new, concrete patterns, laying bare the truth of the exceptional potential of concrete in contemporary architecture.

The Vitra fire department building (1990–1993) in Weil am Rhein by Zaha Hadid stands out among other pavilions with its absolute consistency of its decomposition.

<sup>147</sup> C. Wąs, *Od perwersji do dekonstrukcji. Architektura Bernarda Tschumiego*, p. 2, "Quart", iss. 3(29), 2013, p. 92.

<sup>148</sup> Knowledge of the formal pursuits of the deconstructivists is also a reminder of the sense in Heinrich Wölfflin's distinction of the qualities of matter in tectonic and atectonic forms. The visual "correctness" of the tectonic form was replaced with its atectonic "randomness". This is associated with the transformation of a fixed form into a fluid one. The critic described it as follows: "Such deviations are almost always unthinkable without altering the frame of matter. It is as thus the material became softer everywhere. It became [...] more graphic, as there are also various formal inclinations inside it. [...] The borders between the proper elements of the form and that which is the material have been blurred" – H. Wölfflin, *Podstawowe pojęcia historii sztuki*, Gdańsk 2006, p. 129.

It is composed solely of tilted walls, columns, stairs, windows or rooms with atypical rhomboid cross-sections, as if the outline of the fire station appeared to express a desire to give shape to the motion and dynamism of architecture. The stability of Constructivist patterns has been so deformed, twisted and elongated, so as to be able to frame it anew in the form of an object enclosed into an original unity of expression. The complicated form, cast from monolithic concrete using special formwork, is concise in terms of the amount and obviousness of the construction material. Reinforced concrete, which dominates in the surfaces, supported by characteristic “dancing” steel supports, creates an unsettling quality of space built from uniform solids and surfaces subjected to the rule of growing out of the floor, without the support of a traditional base or plinth. Even the shadow of the building appears to complement the logic of the odd static scheme of this architecture. It also does not have traditionally understood facades, which inclines one to think about the spatial function of each element separately. All of the vertical and horizontal surfaces and deep beams of the buildings are of course designed in reinforced concrete, yet it is not merely the material of the individual partitions – reinforced concrete matter has created a uniform whole. The observer, acknowledging that reinforced concrete is set as the “natural” material of this expressive work, does not delve deeper into the sense, logic and economy of the shape. The matter of Zaha Hadid’s concrete architecture is thus as if invisible, exposing the unobviousness and sensuality of space in a version of the purest expression. The eccentricity of the building-sculpture arises from, among other things, the author’s uncompromising approach to form – its functional value appears secondary. Similarly as in her other completed works – the Phaeno Science Centre in Wolfsburg (2000–2005) or the MAXXI Museum (1998–2009) in Rome – consistently building in concrete is a means for presenting multifaceted, “unbalanced” space, which leads to a loss of the reading of its multithreaded shape in favour of a single, overarching spatial logic: the optical “record of energy lines” of the architect.

Another established reference to this type of lack of connection between the elements of the structure are Frédéric Borel’s Parisian townhouses. Since the middle of the 1990s, the architect has been erecting appropriately disjointed structures following the style of Decomposition. In the scattered form of an urban corner at the intersection of Pelleport and des Pavillons streets (1999) we can find a familiar expression cast in reinforced concrete – the one featured in Mendelsohn’s post-war sketches, where intriguing and colourful forms of walls, supports, solids and overhangs create structures that give architecture the significance of a lyrical object and spatial poetics<sup>149</sup>. Borel’s fragmented corner has no conventional facade, as it

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<sup>149</sup> E. Węclawowicz-Gyurkovich, *Architektura najnowsza w historycznym środowisku miast europejskich*, Kraków 2013, p. 207.

is meant to realise an idea based on structural “delamination”, which results in the architect’s favourite effect of “instability”.

Günther Domenig’s *Steinhaus* (Steindorf, 1982–2008; ill. II.17), located in the mountains of Carinthia, is one of Deconstructivism’s prototypical structures. The house, established through deliberate breakage, appears to reveal the triple value of representation – it is a manifesto of the intent to create an image of departure from repressive thinking about architecture created using the right angle; it is a metaphorical image of the organic spirit in discovering the archetype of a metaphor of the alpine landscape; it also has another, hidden asset: it is an experimental strategy of deforming the symbolism of housing.

This formalised decomposition of the meaning of the form of the house started to take on physical form over a period of 22 years, discovering the sense of solids cast in concrete. The entirety forms a sort of a “rockslide”, a “concrete serac”, in which the process of the accumulation of the successive phases of the building’s construction reflects the progressive aging of matter and its slow decay relative to the previous stages of construction. To the architect, the house became a “labyrinth”, a “fortress”, a “cave”, in which the artist formed “niches”, “oriels”, “drawbridges”, “footbridges” and “gateways”, thus establishing a full coherence between the exterior and interior of expressive thinking<sup>150</sup>.

The Dada *Merzbau* “action” – an assemblage by Kurt Schwitters, was another significant Expressionist work that references this type of performance. A sculptural object, created as the systematic remodelling of space (from the cellars to the attic of the family house), was treated as a work created by the principle of presenting “constant incompleteness”, arising as the changing image of successive construction stages. Using the installation “overgrowing” the interior of his family house, Schwitters (in the years 1923–1936) performed a constant transformation of residential spaces through the accumulation of gypsum, paper, timber and steel sculptures. Similarly, Domenig frames the *Steinhaus* as the work of a lifetime and the materialisation of the thought about the fictitious needs of the users of architecture erected using materials considered perfect for this project – monolithic concrete, stainless steel and glass. The *Steinhaus* joins the list of buildings that, by highlighting a decomposed metaphor, became the main essence of the architect’s ideational postulates – the degree of the architecture’s autonomy is dependent on how much it borrows from other fields and how recognisable it is in each element as a certain spatial (structural) model, which is responsible for understanding the successive embodiments and formal repetitions.

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<sup>150</sup> The sense of G. Domenig’s work was revealed to the world years later, when the cracked “rock slabs” and “crystals” were interpreted as decomposition and the *Steinhaus* was proclaimed an example of Deconstructivism.



III. II.17. *Steinhaus*, Günther Domenig, Ossiachersee/Steindorf, 1982–2008



III. II.18. *Hemeroscopium House*, Ensemble Studio, Madrid, 2005

Amidst the “broken” (or perhaps “dismantled”) space of concrete architecture is the *Hemeroscopium House* (ill. II.18), designed by Antón García-Abril and built in Madrid in 2005. The object, imagined and built in the form of seven massive, mutually superimposed prefabricated deep beams (the largest has a length of 20 m and a height of 3 m), thanks to the logic of statics and the work of the structural engineer, defines the sense of a space that is alike a Constructivist manifesto – of a game with gravity.

What is the most surprising inside the building is the “stability of instability” within the open and seemingly incomplete reinforced concrete structure. In this volume-less form, Abril reveals the compositional principle – that of laying out the elements following *a helix*, with a keystone at its “G-spot” – a fifteen-ton granite weight – a precisely calculated place of the entire building’s balance. Its concrete consoles also hide in them an allusion to the mythical place where the sun sets – the *hemeroscopium*; a place that exists in reality, but whose instability, mutability and unreachability can only be understood solely by defining an individual centre of the universe. Expressed in concrete, glass, steel and the cult of the sun, the “incompleteness” of the house appears to be treated as a pure construct of an idea, materialised using available means of expression – industrial shapes.

In its expressive, structural logic, *Hemeroscopium House* appears to be similar to the works of Soviet Constructivism, with the coherent and still-inspiring language of architectural avant-garde. Following the visuality of Vladimir Tatlin, Yakov Chernikhov or Nikolai Ladovsky, the Spanish architect’s idea expresses a desire to pursue an abstract quality, the absolutisation of space, modelling the “dematerialized” forms of objects, understood as a composition of lines, surfaces, solids and colours. Constructivism constituted the basis for the loosening and dismantling of the traditional form of contemporary architecture’s image. It was a prototype of an “escape of meanings” of architecture, both in the category of composition, but also that of motivation and function.

The “disassembly of meanings” of the architecture of the UFA Cinema Centre (1993–1998) in Dresden, by Coop Himmelb(l)au (ill. II.19) reveals the unique sense of combining concrete with other building materials in order to realise a “complex” space. The part cast in industrial shuttering, which houses cinema halls and circulation-installation cores, is confronted with the glass of the curtain walls and the surface of smooth external finishes. The combination of the raw texture of concrete, the glimmering glass walls and shining titanium sheets reflects the value of this expression, which arises from the belief that deconstruction can be built using fragments, layers, combinations, alterations and transformations<sup>151</sup>. Concrete

<sup>151</sup> V.M. Lampugnani argued that Coop Himmelb(l)au’s architecture should be fiery, smooth, hard, with sharp corners, that it must be brutal, rounded, calm, colourful, obscene, enticing, dreaming, wet, dry,



III. II.19. UFA Center, Coop Himmel(b)lau, Dresden, 1993–1998

(most often untreated) invariably plays the role of “supporting” matter in this game, one that binds the entire diversity of shapes and incoherence of spatial organisation.

The aesthetic of Coop Himmelb(l)au’s buildings is an attempt at defining architectural decomposition through categories of combination and contact. Articulating such a structure is the reason behind the form’s existence without the ability to connect it with other figures. The essence of the Deconstructivism of the Austrian architects is not the presentation of a building’s decomposition, but to highlight its essential nodes, underscore the ageless tensions and contrasts between the independence of an “unstable” form and the need for its physical continued existence in a synthetic, accumulated space.

The disintegration of such a form into fragments is at the heart of this fusion, which shines through the whole, for the whole (as Adorno argues) – the more it approves from the detail, the more it becomes detail, a moment in itself<sup>152</sup>.

The idea of *UFA Centre’s* architecture – building from fragments of matter – is the intent to create using the *bricolage* method, which is based on using means and materials “on hand”, which can be accessed immediately, “from all of the material that is”. It gives architecture those qualities which are derived from the qualities and manner of producing the construction material and is suitable to realising the half-poetic, half-technical essence of deconstruction. The figure-metaphors of the engineer and the bricoleur created by Jacques Derrida are fitting examples of this relationship. To Deconstructivists, the answer is always the same: it is the bricoleur-“composer” who created and continues to create the inventor-engineer, and not the other way around<sup>153</sup>. The pattern of form that is first broken and then assembled together is not set in stone and is not defined by anyone – designers and artists use different languages and although the common characteristic of this rhetoric is the decomposition of architecture’s meanings, denoting an uncertainty of individual creation, then the “composer” is the person that determines the logic and system of its transformation.

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with a beating heart – V.M. Lampugnani, *Architecture of The 20th Century in Drawings. Utopia and Reality*, New York 1982, p. 116.

<sup>152</sup> T. Adorno, *Teoria estetyczna*, Warszawa 1994, p. 551.

<sup>153</sup> J. Derrida, *Struktura, znak i gra w dyskursie nauk humanistycznych*, [in:] „Pamiętnik Literacki”, No. 77, z. 2, 1986, p. 258.



### III. Idealisation of matter, or the impressions of concrete

#### 1. Apologies of concrete

It can be said the concrete and its forms are the reason for all kinds of impressions that stimulate extreme emotions and aesthetic reactions. The category of emotion thus defines the difference between the *i d e a* and the *i m p r e s s i o n*<sup>154</sup> – between the intent and the reception of a work of art. In essence, concrete has become co-responsible for the inevitable fate of twentieth-century architecture – and not just the one “invented” by Le Corbusier and his co-believers. Just as the entire body of contemporary architecture, it has been given the same metaphoric two-faced image. The first side is responsible for the pursuit of beauty and perfection, while the second, not without imperfections, is the manifestation of expression.

At the start of the twentieth century, concrete was merely “sludge” – “mud” poured over a sophisticated structure of rebar. Cyrille Simonnet described this lack of interest in concrete as “a deficiency in its iconicity”<sup>155</sup>. Concrete appeared to be an artificial substance, without properties that could form everything and fit anything – it appeared that concrete’s main property would be the pursuit of its own identity. For instance, Adolf Loos thought it unthinkable to use concrete for formations that were reserved for other materials – which was concordant with his argument concerning the rejection of falsities in the form and content of architecture. Similarly, Frank Lloyd Wright, in 1928, in his essay entitled *The Meaning of Materials – Concrete*, wrote that in aesthetic terms, concrete is neither *m e l o d y* nor *p l o t*, its form being solely the result of its casting process, without the ability to reveal its own nature<sup>156</sup>. Wright believed that concrete has no character of its own, being a “mongrel” in shaping meanings as a medium, impervious to understanding primarily as a result of

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<sup>154</sup> D. Hume, *Enquiry Concerning Human Understanding*, online: <https://www.earlymoderntexts.com/>, p. 8. The author wrote: So we can divide the mind’s perceptions into two classes, on the basis of their different degrees of force and liveliness. The less forcible and lively are commonly called ‘thoughts’ The others have no name in our language or in most others, presumably because we don’t need a general label for them except when we are doing philosophy. Let us, then, take the liberty of calling them ‘impressions’, using that word in a slightly unusual sense. By the term ‘impression’, then, I mean all our more lively perceptions when we hear or see or feel or love or hate or desire or will. These are to be distinguished from ideas, which are the fainter perceptions of which we are conscious when we reflect on our impressions.

<sup>155</sup> C. Simonnet, *Le béton, histoire d’un matériau*, Paris 2005, p. 94.

<sup>156</sup> R. McCarter, *Louis Kahn and Nature...*, *op. cit.*, p. 26-33.

its specificity of taking on the identity of other materials. What, then, is the aesthetic of concrete? – he asked:

[...] Is it Stone? Yes and No. Is it Plaster? Yes and No. Is it Brick or Tile? Yes and No. Is it Cast Iron? yes and No. Poor Concrete! Still looking for its own at the hands of Man<sup>157</sup>.

However, years later, that which had been the weakness of concrete, turned out to be its creative power. Concrete gained its material identity in imitating something that it is not, and it is because of this that it took part in something that designers acknowledge to be the domain of all form – finding aesthetic meaning.

**1.1. Idealisation and ideation of concrete.** Concrete resists explicit messages – its iconography acts by the power of paradoxes and contradictions. It appears that, in architecture, the use of concrete, reinforced or not, in an aesthetic and technical dimension, receives a new expression through the appropriate sense of its use. Treating concrete is actually a question about the manner of approaching non-formal content that concrete is used to convey.

Thus, concrete buildings allow us to peer into the nature of a material that has established a rich iconography, one constituting a collection of meanings, ideas and formal intentions of a work of architecture. In relation to other materials, designers do not treat concrete as an “indifferent” material, but rather as a significant, deciding element of a work, its “modernity” intended to define excluding it from a system of meanings ascribed to other types of matter. Concrete has become the sensual medium which, in its most elementary sense, is something that must be noted in order to be able to observe what a work offers as a whole. Mark Kingwell writes about the essence of the proper treatment of concrete, as it responds in kind and opens new possibilities and aspects of beauty and expression before the designer/viewer<sup>158</sup>.

Until recently, there was much deliberation as to what to do to make concrete flawless and without imperfections; how to make it more durable, stronger and more resistant to external factors. But it turned out that concrete, when used to build buildings, is not “resistant” to meaning, that it has its own diverse content and symbolism – a “depth of matter”. Differently to traditional materials, whose significance often treats them as objects of nature, the significance of concrete is “fluid” and subjected to transformations. It corresponds to the general belief that all

<sup>157</sup> F.L. Wright, *In the Cause of Architecture VII: The Meaning of Materials – Concrete*, “Architectural Record” (August 1928), p. 99-108, [in:] F.L. Wright, *Collected Writings*, Vol. 1, New York 1992, p. 301.

<sup>158</sup> P. Petricone, *Concrete ideas: Material to shape a city*, London 2012, p. 13.

construction materials resemble individual words, which carry no meaning in and of themselves. They can thus be used in a trivial or vulgar manner, but when used properly, they are capable of expressing wondrous ideas.

In the twentieth century, concrete made it possible to expand symbolism, metaphor and individual form. It also became synonymous with something very durable and indestructible, but also not without its flaws and the ugliness of a boring construction material.

It appears that the idealisation of matter is, in a sense, a rational attempt at “completing the world” of architecture – starting from conceptual attempts at materialising an architectural idea to the final phase of the presentation of a material within the structure. Andrew Benjamin explained the notion of the idealisation of matter, which had previously been treated as the visual quality of materials in a fundamental understanding of structure and tectonics, as a playing field for the game of elementary notions, a look inside the essence of architecture, the elementary essence of the significance of form and the content of the material. The role of walls, decks, partitions and openings assigned by the designer establishes the sense of treating the material of architecture as an art that elevates not only its physical elements, but also its space which, although composed of the most basic elements, can manifest itself as a timeless materiality. The idealisation of elements of architecture, as well as its tools, leads to acknowledging the “potentiality” of architecture’s material<sup>159</sup>.

One important characteristic of attempts to idealise matter is to give continuity to meanings by formal and structural similarities. This transition from the idealisation to the ideation of material leads to the redefinition of both the character and the patterns of architectural theory. Ideation in this context is something new to concrete – it is an attempt at naming something that was encountered by insight into the cohesive unity of matter and, along with the idea, their joint essence and character – how the designer expresses them and what he presents through them. The interpretation of “how” depends on understanding the character of “what”. “What” belongs to the domain of describing the world of architecture, while “how” is an attempt at interpreting it.

In architecture, based on the pursuit of constant relationships and conveying them in a dynamic balance of the image, coming closer to the matter of art corresponds to the pursuit of the “new” and the “timeless”, but based on a common original pattern.

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<sup>159</sup> A. Benjamin, *Plans to Matter: Toward a History of Material Possibility*, London–New York, p. 23.

**1.2. The aspect of material imagination.** In architecture, thought, form and matter create an inseparable entity, just as we cannot separate the components of architectural space: its visible, physical structure from the “transparent” idea of the building. The entirety of a work establishes some generally understood matter of architecture, to which the type of aesthetic notion is responsible for defining the capacity of the observer’s senses and their manner of perception. The phenomenology of form, understood as an act of the intuitive (subjective) study of objects or the process of achieving insight into their essence, is helpful in deciphering the relationships between the idea and the matter/material of architecture. Edmund Husserl writes that spatial objects always manifest themselves in a certain “orientation”. This “orientation” is the individual perception of spatial objects in perspective projection, objects that are alien to true, objective – absolute space<sup>160</sup>.

Architect-phenomenologist Juhani Pallasmaa suggests that, when we experience a work of architecture, we imagine an authentic meeting through idealised impressions. To the Finnish architect, materials and surfaces have their own language, which evolves the message and cause of their use:

[...] The timeless task of architecture is to create embodied and lived existential metaphors that concretise and structure our being in the world. Architecture reflects, materialises and eternalises ideas and images of ideal life. [...] space, matter and time fuse into one singular dimension, into the basic substance of being, that penetrates our consciousness<sup>161</sup>.

These most important experiences are tactile sensations, which, in an authentic work of art, become elements that comprise the essence of said work. The Finnish architect refers to Marce Merleau-Ponty’s theory, who argues that essence is not the objective here, but a *m e a n s*, which can depends on the viewer-recipient’s attitude to the same object. The necessity to penetrate the essence of something does not imply that we try to follow the thesis of the visible world of architecture, but rather that we need a field of *i d e a l i t y* to study and confirm the sense of beauty and perfection – or simply ideality, as a consequence of the employed artistic gesture. The pursuit of essence, according to the assumptions of phenomenology, is nevertheless not a search for the idea, as said idea is reduced in the shadow of the impressions and experiences of every individual. Studying the essence of a work is an operation that unites imagination with the intellect, which facilitates the perception of the visible-aesthetic and sensual world. In light of this sensual treatment of matter,

<sup>160</sup> E. Husserl, *Idee czystej fenomenologii i fenomenologicznej filozofii*, vol. 1, Warszawa 1967, p. 523-524.

<sup>161</sup> J. Pallasmaa, *The Eyes of the Skin*, part 2: *Architecture and the Senses*, London 2005, p. 72.

the idea remains a reference hidden behind the object that resides in this material world, sustaining it and making it visible. The idea is thus one of the entanglements of the physical object – its “transparent” component<sup>162</sup>.

Deciphering this type of idealisation of the matter of architecture must be based on deciphering the deliberate intentions of the designer, who tries to give the work a meaning that can be read by the viewer. When looking at objects formed in matter, we come to the realisation that “we build images and read them”, and that we “experience architecture by walking and wandering”<sup>163</sup>, for no image will tell its message by itself”, although we can expect that the interpretation inserted by the author of the message does not always correspond to the active thought of the observer.

Steven Holl, when phenomenologically defining his work, describes this trail of thought as that which determines the shape of a work – from the conceptual proposal to the physical dimension of a building. Are architectural thoughts an equivalent to architectural “meaning”? Does a way to design in a material exist? Can the manner of thinking about a material carry over to the specificity of architecture? According to Holl, creating new architecture is primarily associated with thinking about forms and materials from which they are made. The properties of the selected materials and optical phenomena open as an additional field to explore. The spheres of phenomena open up to sound, smell, taste and temperature, which cause matter to transform. This manner of perceiving architecture appears in the architect’s work as an experience in perceiving “condensed force”, made visible at the intersection between space, light, and also matter and the developed idea. All of the mentioned spheres are, to the American architect, possible to depict in the “pre-theoretical” phase of architecture (the drawn conceptual proposal), but are predominantly the characteristic of every building, which, regardless of scale and the material it employs, wants to have the right to speak about its essence<sup>164</sup>.

The previously mentioned Juhani Pallasmaa, who sees the fundamental sense of architecture in its physical dimension, which translates into all manners of sensory factors, among them tactile stimuli (touch) should be as justified as the visual stimuli associated with the “culture of the image” that came to dominate

<sup>162</sup> M. Merleau-Ponty, *Widzialne...*, *op. cit.*, Warszawa 1996, p. 155.

<sup>163</sup> H.G. Gadamer, *Aktualność...*, *op. cit.*, p. 60-61. The philosopher explains the problem of the flawed nature of translating the image of architecture to a constructed object, stating that one of the greatest falsities that appeared as a result of the mastery of reproduction achieved in our times is that when we first look at the great edifices of human culture in their original form, we are often somewhat disappointed. They need to be approached and entered. One has to exit them and walk around the building, gradually “working” to achieve that which a given work of architecture promises to our own experience of life and its magnification.

<sup>164</sup> S. Holl, *Idea and Phenomena*, Wien 2002, see also: S. Holl, *Pre-theoretical ground*, [in:] *The Steven Holl Catalogue*, Zurich 1993.

the twentieth century – ocularcentrism – has similar views to the phenomenological idea of Holl’s architecture. The argument concerning architectural space, which forms inhabited spaces and not merely one that physically fences off an abstract shape, is the essence of the Finnish architect’s thinking about the interaction between the matter of an architectural object and the user. Smell, light and shadow, touch, are qualities of both matter and the entire architectural space. A work of architecture should be perceptually material and communicate with all senses simultaneously. The critic highlights the significance of the materiality of a work of architecture in terms of its enrichment by authentic transformation and deterioration over time: “[...] the patina of wear adds the enriching experience of time to the materials of construction”<sup>165</sup>.

The beliefs of Gaston Bachelard are a temporally distant reference to the words of the Finn. Bachelard saw the world of the individual poetics of space through the prism of an intense correlation of the idea in a specific type of matter: He wrote that if a dream is to be sufficiently lasting, it must find for itself a matter, a material element that would give it its own substance, principle, a specific poetic<sup>166</sup>. In the philosopher’s opinion, the use of a specific construction material should be concordant with the imagined form.

**1.3. The nature of concrete. The “activity” and “resistance” of matter.** In the twentieth century, concrete became an objective in and of itself to the architect – he created it in his imagination, out of a need to present the form and significance of its physical and aesthetic properties. The selection of substance has always been accompanied by the choice of the technology with which to create the object. The shuttering of concrete, however, appears to be a matrix for a form which is the “positive” of the architect’s idea. It is also “charged” not only with energy, laws or Aristotelian *p o t e n c y*, but also with the diverse manner of artistic and pre-artistic development.

Concrete architecture is an example of a creation, in which the designer makes decisions concerning the idea and form on the basis of a matter for the structure selected a priori. Similarly to a sculptor, whose work depends entirely on matter, the architect first searches for a material and then makes the decision concerning the shape “hidden” within. Concrete, contrary to steel, brick and timber, is perfectly predestined for this role, as it is itself matter *in statu nascendi*, one that gains sense and alters its meaning along with a change of the context in terms of the idea or form. This aesthetic “effectiveness” of concrete is a characteristic belonging to the will of the designer to display a certain general content, in which concrete plays the role

<sup>165</sup> J. Pallasmaa, *The Eyes of the Skin*, part 1, London 2005, p. 31.

<sup>166</sup> G. Bachelard, *Wyobraźnia poetycka*, section: *Wyobraźnia i materia*, Warszawa 1975, p. 116.

of a base, and the more detailed ones, wherein concrete reflects the essence of its use. Maria Gołaszewska reminds us of this significant property of matter, wherein the essential content of a work of art becomes that, from which the work is to be made, when it becomes “artistically active”. She writes:

This “activity” takes place when a certain artistic vision starts to coalesce around the general content. This vision emerges, when the second element comes into play: the material. It not as much “externalises” the general content, but actually creates it as artistic. Sometimes it is the opposite: the material becomes the origin of a vision. Examples include marble, with its physical properties, a word or a gesture. A poem often starts with the sound of a word, a sculpture – with a stone by the wayside... They become active when artistic sense bestows them with general content<sup>167</sup>.

Luigi Pareyson describes a different specific “activity” of matter in aesthetics. He considers “resistance” to the formal thought-idea that adapts it (Pareyson uses the term *formative intention*) so far as it has its own nature and distinct properties, which the artist intends to exploit, as its fundamental characteristic. To the philosopher, matter is not selected as something submissive, passive, which can be moulded any way one wills it – the artist selects a given type of matter, “because” it *resists* him. The philosopher wrote:

[...] This resistance surely limits his freedom, but at the same time consolidates and defines it: freedom without boundaries would suggest a possibility of scattering, ease, carelessness, while limitations, although hampering and excluding certain possibilities, compensate for this dedication, suggesting and highlighting many other options<sup>168</sup>.

Henri Bergson likewise assigns matter’s “resistance” an essential role, continuing this idea as a system of quality, which upholds everything that is associated with human creativity<sup>169</sup>. To George Simmel, the “soul” can manifest itself under the condition that matter “resists it” and where the chisel, overcoming the “hard resistance” of marble, can display the sense of life and its fulfilment in form<sup>170</sup>. The creative intention and the “resistance” of matter do not run counter to each other within the same aesthetic work—creative intent ascribes a “formal calling” to matter’s “resistance”, while matter defines and enhances the shape, significance and expression of the form.

<sup>167</sup> M. Gołaszewska, *Świadomość...*, *op. cit.*, p. 406-407.

<sup>168</sup> L. Pareyson, *Estetyka...*, *op. cit.*, p. 58.

<sup>169</sup> H. Bergson, *Materia i pamięć. O stosunku ciała do ducha*, Kraków 2012, p. 187.

<sup>170</sup> G. Simmel, *Estetyka ciężkości*, [in:] *Most i drzwi. Wybór esejów*, Warszawa 2006, p. 87.

Concrete is a type of matter produced in a technological process – hence the questions about its specificity and detailed solutions. The architect should foresee this process, design it, even, so that the concrete he will see when the shuttering is taken down is that, which was created as the start of the thought about the building as a product of an idea.

Liquid concrete poured into the formwork-matrix with appropriately prepared rebar is not immediately finished. The object devised by the designer must “mature” in isolation until the liquid mass sets and can display its final and... ultimate form. This is how shape, called the architecture of matter, speaks to us – creating an image in the designer’s mind, defined by its spatial idea. This is where the essential difficulty appears – the monolith of concrete can express the ultimate shape of a devised object, if we find the negative of its form in the selected formwork.

This negative is none other than the image of the structure created in the mind and drawn on the sheets of the design, divided into smaller fragments. Each subsequent attempt at subjecting concrete to further treatment or repairing the structure of the material’s surface is merely a desire to restore the initial idea of the form of an architectural object. It is rightly believed that designing in concrete is just as laborious as a sculptor’s work in stone – one wrong strike of the chisel at the stone monolith produces an irreversible mistake. The matter is similar in architecture – concrete appears unforgiving to design and construction errors. It is often a lasting image of human imperfection and error. It brings us closer to confirming the importance of Louis Kahn’s statement that concrete is an exceptionally sophisticated material and its specificity should be respected – for beauty is part of the material that one uses<sup>171</sup>. The architect explicitly defined the role of every designer who used concrete stating that when one deals with concrete, they must know the natural order and the nature of concrete and what it tries to be<sup>172</sup>.

The words of Adam M. Neville, who so patiently repeats the statement that concrete is an excellent material, but that it depends on the sum of various actions that accompany it, and which are not always sufficient to achieve the intended result, appear quite appropriate:

Surprisingly, the ingredients of a good concrete are exactly the same, and it is only the ‘know-how’, backed up by understanding, that is responsible for the difference<sup>173</sup>.

<sup>171</sup> R. Twombly, *Louis Kahn: Essentials Texts*, op. cit., reprint of L. Kahn’s, *Lecture at Pratt Institute* (1973), New York–London 2003, p. 277.

<sup>172</sup> L. Kahn, *I Love Beginnings* (1972), [in:] A. Latour (ed.), *Louis I. Kahn: Writings, Lectures, Interviews*, New York 1991, p. 288.

<sup>173</sup> A.M. Neville, *Properties of concrete*, preface, Harlow 2011, p. 10.

He also always adds that: “Concrete is not fool-proof”.

Concrete is not a natural material – it is a composite created in minds, in laboratories and on construction sites by material engineers, structural engineers or architects. And despite this, it is considered to be an artificial or semi-artificial material, it is appreciated as a medium in which architects try to search for its most natural-appropriate form and the most natural-expressive character. Concrete that “pretends to be something” and concrete that “demonstrates something” are two different images of this material, responsible for the dual sense of reading architecture. Concrete bestowed with its “own character” by designers, possesses obvious characteristics derived from its structural potential, but it also has a “second nature”, from which it draws its formal and sensual quality.

**1.4. Mythologies and metaphors of concrete. The matter of the absorption of meaning.** Adam M. Neville’s words lend credibility to the argument that, in contemporary times, concrete is not always an architectural narrative that is identical with the object one imagines. Over the course of the past century, the modern material myth was negated numerous times by the myth of an object that is ugly, imperfect and boring. The difficulty in reaching out with its “concrete meaning” is also caused by the fact that, along with the potential of limitless access, concrete appears to be a cheap material. “Poor concrete” is suitable for work that does not require good qualifications, although on the other hand reinforced concrete, along with the added image of a modern construction material, is treated as an advanced technology or specialisation.

It appears that *n o v e l t y* is one of the most enduring myths that have stuck to concrete. The mixture of water, cement and aggregate, from the moment when it had still been an “unnamed” matter, transformed into the “philosopher’s stone”, which converts the muddy mixture into a mineral that reveals the successive meanings and stylistic senses of architecture. Concrete appears to have no history – in this mythogenic definition it always remains “new” and “fresh” in its reception. Władysław Stróżewski argues that in every question about a misunderstood origin of anything (*-arche*), there must be a question about the *m y t h*. The function of the myth is surprise, and surprise is the natural function of looking up to something. According to the philosopher, the myth is that which surprises man. It is an answer to the question that man does not ask – it “presents” – but does not explain, it reveals – but does not clarify<sup>174</sup>. In this perspective, concrete, despite being known for over a century, still demands that its products be assessed as if they were new, the first, completely innovative and surprising. The mythogenic power of working in concrete

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<sup>174</sup> W. Stróżewski, *Istnienie i sens*, Kraków 1994, p. 7.

is significant enough that Pekka Salminen describes every designer who reaches for this material with notable enthusiasm as a “man of concrete”<sup>175</sup>.

One hundred years ago, architects invented concrete to suit their needs. They created it using the same metaphor they use today, thinking that the material they created will become a tool of giving shape to individual forms.

The essential metaphor of concrete is simple and arises partially from the specificity of its visual code and its semantics – concrete imitates stone, it can have its optical, tactile and technical properties. The unity of stone and concrete has already been established by the first metaphor of concrete as “artificial stone”. It was presented by Auguste Perret in his practice, as he described concrete as “rejuvenated stone”. Le Corbusier also discovered it after building the Marseilles Housing Unit, in which concrete took on the properties of natural rock, and the designer himself stated that it is “[...] of course possible to treat concrete as if it were recreated stone, worthy of exposition in its natural state”<sup>176</sup>. During the construction of the *Salk Institute*, Louis Kahn defined concrete as “liquid stone” or “hollow stone”, a material that takes on all of its constituent properties – its poetics, symbolism and mythology. To many, concrete is the “stone of contemporaneity”, to others, “matter without the flaws of stone”, which has become the conveyor of all manners of architectural ideas and is the quintessence of materiality. It has become a material, whose secret is revealed in knowledge, the “mystery” of matter which is a method of logical and scientific conduct, whose *usus* is granted by discovering successive connotations. In a time when the pinnacle of the potential of the stone structure has passed along with the history of Medieval cathedrals, the symbolism of stone: hardness–indestructibility–eternity, has remained in concrete for decades.

Although concrete still hides its “soul”, it reveals it to those who are capable of imagining and “embodying” it. To Louis Kahn, the attitude to the material is explicit: every building has a “will” to exist along with the material from which it is constructed; hiding the specificity of a material is unacceptable in an architecture that reveals the truth about the nature of space – “what a building wants to be”. The statement of the American architect that matter is used light, attests to the unique treatment of the abstractions that the reception and significance of applied materials – concrete, brick or stone – bring with them<sup>177</sup>. In the *Jonas Salk Institute* building (1959–1965) in La Jolla, California, the “strong” concrete acts as a background for “lighter” timber; other combinations are also expressed by combining “warm” timber with “cool” concrete. the character of the contemporary monument “given

<sup>175</sup> P. Salminen, *Piękno...*, *op. cit.*, p. 111.

<sup>176</sup> S. Giedion, *Czas...*, *op. cit.*, p. 573.

<sup>177</sup> B. Leupen [et al.], *Projektowanie architektury...*, *op. cit.*, p. 120-122.

will”, required that the monolithic structure in La Jolla be uniform, which is why the *Salk Institute* is a project with an unprecedented concreting technology and countless attempts at making concrete similar to stone. Kahn and his colleagues experimented with various mixtures, including the addition of volcanic pozzolans to the mix, so as to give concrete an appropriately warmer colour, close to that of travertine.

Kahn set a different goal before concrete in the interiors of the *Kimbell Museum* (1966–1972) in Forth Worth. The surface of the concrete vault, unobscured by paint, was used by the architect to generate a space built from matter “sensitive” to light. Concrete, along with travertine suspended on the walls, constitutes the main source of light in the museum’s spaces – the function of screens “accepting” sunlight reflected from aluminium blinds suspended underneath a slit in the roof – Kahn’s version of an oculus. The brightness of the concrete vaults of the museum is intended to be a visible shine of an idea – an illumination which enters matter only when it is appropriately thought-out and prepared. Louis Kahn’s architecture, as an art of searching for the relationship between light and concrete, demonstrates those qualities that St. Thomas Aquinas deliberated on, highlighting the level of art that experiments with the physical medium: *formare* and *informari* – giving form to something and something being given form<sup>178</sup>.

In the work of Dariusz Kozłowski, concrete becomes a legible material of architecture, one that constitutes an assumption of the idea that the architect calls the Wonderful Lie of Art. The concrete used to build the *XX Seminary of the Congregation of the Resurrection* in Krakow proves something – that the matter of Kozłowski’s architecture is submissive and is always used to create an architecture that is “polysemic, complicated, artificial, ironic, extravagant, unreal, allusive, but most importantly – wonderfully deceitful...”<sup>179</sup>. The demonstrative proclamation of the fiction of art is thus a pretext to create objects in a monolith, but also an assumption that art should be watched through the foggy pane of consciousness, that the world we observe is *a r t i f i c i a l*. Concrete, as the matter of this architecture tangled with the past, is the substrate of reminders and memories and the basis for the continued existence of certain meanings, regardless of the vanishing of architectural ideas. The mutual complementation of the idea and matter of the Krakow seminary is accompanied by belief in the continued existence of poetics as the only possible space for establishing an ideal world of architecture created from an ideal material – the fiction of art.

<sup>178</sup> St. Thomas Aquinas, *Summa Theologiae*, I–II, Q.57, a.3, ad. 3, op. cit., s. 31; *opera per corpus exercita* – actions performed using the body, [from:] G. Kurylewicz, *Błogosławiona materia – uwagi z kręgu estetyki klasycznej Tomasza z Akwinu*, [in:] *Materia sztuki...*, op. cit., p. 351.

<sup>179</sup> K. Kucza-Kuczyński, *Sakralizacja betonu*, [in:] *Architektura betonowa 2001*, Kraków 2001, p. 57.

To Stefan Kuryłowicz, concrete was an ordinary material – the notion of concrete’s *g e n u i n e s s* was, to the architect, more of a rhetorical figure than a description of reality. The architect highlighted that concrete had no particular significance, discussing concrete as poor and genuine, one that does not imitate anything – “it is what it is”, under the condition that this is the intention of its use by the architect:

Even poor concrete – a passive material that allows one to do with it what they will, can find the sense of the manner of its use through work on shuttering<sup>180</sup>.

Jacek Cybis, an apologist of the work of the Warsaw-based architect, argues against this statement, describing the qualities of the prefabricated elements used in the *Reprograf* building (2001–2002) at Wolska Street in Warsaw – as the need to enrich unique textural effects, an atypical use of the play of subtleties between the ordinary and the stale and that which is extraordinary and carefully designed. Concrete takes on the form of scraped, matte cladding suspended on stainless steel anchor bolts, which bestow decorative properties on the entire structure. Kuryłowicz’s highly “immodest” building material was intended to facilitate a game of appearances in architecture – in the *Reprograf* building, a cheaper material must imitate a more expensive one to create an effect of “a fiction of fictionlessness”<sup>181</sup>.

Stanisław Fiszer is not alone in his opinion of concrete. The architect, acknowledging the typical “submissiveness” of concrete matter, defines the sense of its use – concrete is a “cretin” who gives up easily, and one can do to it what one likes and one can explain anything to it: “It is simply a nitwit. [...] Concrete, the brave cousin, who has dreamt of being stone its whole life”<sup>182</sup>.

In the phenomenon of the extreme assessment of concrete as being the deciding factor in the positive reception of architecture or – on the contrary – being the reason for its rejection due to its semantic poverty – a problem not observed in the case of other materials – one should note attempts at *g i v i n g* it further individual and poetic meanings that highlight its quasi-natural assets. These actions are primarily based on reversing the established status of concrete as a cheap and imperfect material by tailoring its properties and similarities to the natural environment or context in a process of adaptation, imitation and camouflage. Examples of completed buildings demonstrate that this is a process that is not without its successes, and is a psychological “game” – a type of “manipulation” in convincing others of the unique and innate qualities of the “grey substance”. In this phenomenon we can

<sup>180</sup> J. Cybis, „*Reprograf*”, czyli *prefabrykat uszlachetniony*, [in] *Architektura betonowa 2006*, p. 34.

<sup>181</sup> J. Cybis, *op. cit.*, p. 34.

<sup>182</sup> P. Pięciak, *Rzemieślnik i myśliciel*, interview with S. Fiszer, „*Budownictwo–Technologie–Architektura*”, iss. 04–06, 2007, p. 10-13.

find both “combining opposites” (rugged–natural–“genuine”; raw–modest–“saintly”; submissive–visually expressive–“ideal”), and attempts by designers to link the “sensitivity” of matter to the potential impressions of the viewer. Describing the phenomenon as “absorbing meanings” by concrete is a symptom of the mixing of the visible and tactile meanings of concrete with the logic of metaphor, ethics or symbolism. From a rational point of view, despite all of these processes appearing to gain the status of a Freudian “coercion” – a “transference fantasy”, the phenomenon of the redundancy of concrete’s meaning appears to be a direction towards the essence of the reception of a particular form.

Tadao Andō, through his *Azuma House* project (1975–1976) in Osaka, clarifies the condition of the emergence of his architecture: stating that architecture emerges as a whole: materials, geometry and nature are inseparable<sup>183</sup>. The rigorous layout of the facades of this small cement structure is thus composed of only the visible geometry of the opening of the entrance and the order featured on the surface of concrete – the rectangles and points left behind by shuttering. However, it is not a disciplined pattern, but one marked by small bends and curves, created as a result of a deliberately controlled transformation of the material from a liquid state to the hardening phase. Franco Bertoni, when describing the aesthetic power of Andō’s favourite material, writes that he uses concrete as a contemporary and abstract material, but also reclaims processes – a mixture of artificiality and naturality – so distinct of oriental tradition, full of subtle tension between opposites<sup>184</sup>. Taking on the qualities of “organic” matter, concrete changes its “image”, making itself similar to something that lives in accordance with the principle of its surrounding atmospheric conditions thanks to its smooth “softness”. It ceases to appear to be a material that is solely heavy, massive and aggressive, becoming subtle, austere, reserved and sometimes – dramatic. It also changes its “face” under the influence of the external interference of natural factors like light and rain. Every detail contained in this architecture, composed of concrete’s abstract surfaces, appears to be a path in deciphering the precision of the formation of the entirety of space. In houses designed by Andō, similarly as in buildings of another designer of concrete architecture – Louis Barragan – the naturality contained in the form and matter that have been simplified to the absolute minimum is also a means of producing a certain “logic of myth” – a yearning for the simplicity and earnestness of an experience from the past. Barragan’s concrete, chromatic nostalgias are a poetic version of a space that reveals the peace of childhood memories – smells, flavours, textures. The private reminiscence, treated as the main source of potential, becomes

<sup>183</sup> F. Dal Co, *Tadao Andō. Complete work*, Milano 1994, text by T. Andō, *Materials, Geometry and Nature*, p. 456.

<sup>184</sup> F. Bertoni, *Minimalistische Architektur*, Berlin 2002, p. 96.

a myth of the “magic of one’s own biography” in Barragan’s structure – in Andō’s architecture it brings the myth of “live in rhythm with nature”.

The statement that, in architecture, materials are the conveyors of its simplest expression, is particularly justified in the case of the *Rudin House* in Leymen by Jacques Herzog and Pierre de Meuron. Although the Swiss architects *a priori* reject the typological semantics of architecture, the house (completed in 1997) appears to be a building that discovers the image of a formal archetype. The simple, concrete figure, suspended over the landscape, is a type of monument of “the first architecture” found somewhere between the image of a child’s drawing encoded in the subconscious and the sophisticated notion of formal reduction. To architects, concrete is the most important matter, the effect and cause of their architecture, an apotheosis and celebration of matter – revealed in the unevenly cast, blue concrete of Barcelona’s *Museu Blau* (2002–2004), the photoconcrete of the library in Eberswalde (1997–1998) and the technological monolith of the carpark at 1111 Lincoln Road in Miami Beach (2008–2010). The architects do not hide this, commenting that in their work, the material world affected them directly and they tried to understand what matter is, what does it mean and how they could use it to highlight certain properties<sup>185</sup>.

In the *Rudin House* there are no understatements nor hidden references. According to the principle the architects employ: “to use known forms and materials to make them live again”, concrete poured in smooth-surface shuttering is a manner of unifying the primary form. The concrete roof, walls, terrace and columns create a uniform monolithic figure so as to sustain the abstract image of the house. Herzog and de Meuron’s material never speaks for itself and is never celebrated alone. In its natural form, it is more often confronted with the unexpected “other”, so as to convey new values inside it<sup>186</sup>. The *Rudin House* bears and confronts the monolithic weight of the building with the lightness of suspending it on columns above the ground, its smooth facades unveiling the roughness of the bitumen paper on the roof, and the architecture of the house, despite its “flight from form”, is “filled with form” in its entirety. The smooth concrete, which forms a sort of a skin sensitised to the effects of atmospheric conditions, light, and the seasons of the year, appears to be a fragment of the surrounding nature – when it rains it is wet and sports water stains, when it is sunny it reveals to the observer the differences in the shades of its walls between the northern and southern facade. Herzog and de Meuron’s neutral, smooth concrete is a “naive” element, one that appropriates the conditions of its existence from nature – it is so because, to the Swiss, architecture is an affirmation of nature<sup>187</sup>.

<sup>185</sup> W. Wang, *Herzog & de Meuron*, Barcelona 2002, p. 11-13.

<sup>186</sup> P. Ursprung, *Zbudowane obrazy – budynki wyobrażone: wystawiając Herzoga & de Meurona*, [in:] *Co to jest architektura?*, Kraków 2008, s. 227.

<sup>187</sup> W. Wang, *Herzog...*, *op. cit.*, p. 11-13.

The constant underscoring of the isotropic properties of concrete and stone is the specificity of Fernando Menis' practice. The church in La Laguna in Tenerife (2008), split into four volumes, is an example of the search for those stone-like characteristics of concrete that would be appropriate for the monolithic reinterpretation of the local temple. As a result, the mixture of concrete and volcanic rock named *picón canario* devised by the architect has not only given the building a mimetic character relative to the nearby *barrancos* passes, but has also been given the role of an absorbent of light and the hustle and bustle of the city surrounding the temple. The independent concrete volumes define the darkness of the space of the church akin to a rock niche, where, in the simplicity and rawness of the material, we are accompanied by silence and light that seeps through slits in the porous masses (ill. III.1).

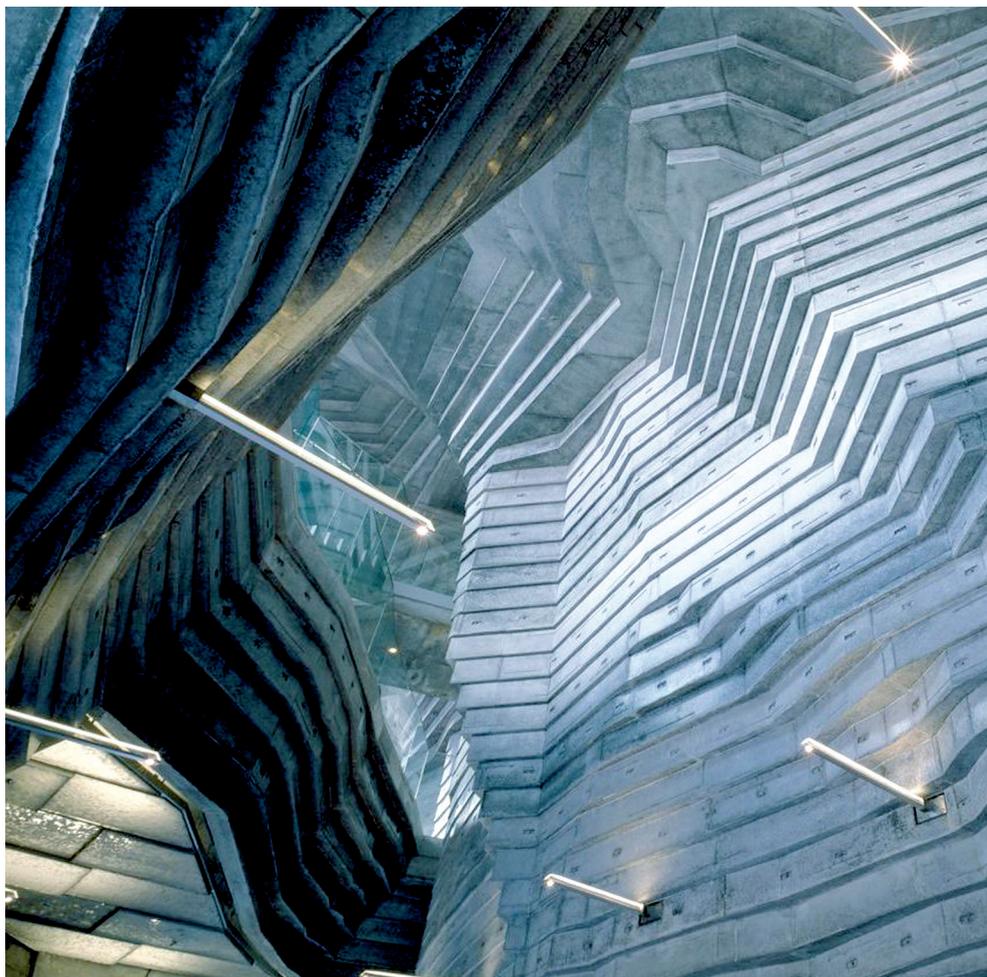
The Ofunato Civic Centre and Library (2008) by Chiaki Arai is an adequate interpretation of a building structure's stone-like nature. The architects gave the building a shape in accordance with the principle of conveying the unique identification of the form with the culture of the local community in the building's shape and meaning. Following the concept of a "societal" linking of the building with the place, a design that had drawn its formal pattern from the nearby coast was selected.

The concrete monolith, shown outside as a biomorphic metaphor (of a crustacean?), reveals an additional, unique interpretation of the shape of coastal rock morphology in its interiors. The sculptural irregularity of the building's massing, along with its stairwell, creates a concrete pattern of Anatooshi-Iso arches – a local tourist attraction, composed of eroding inselbergs amid ocean waters. Similarly, the interiors of the foyer and the auditorium, with a clearly geological character, reference the spaces of a labyrinth and grottoes through the tectonics of their contour lines, spaces that – through their monolithic representation – meet the sense of *topophilia* – a subjective, emotional reception of a space and its material character (ill. III.2).

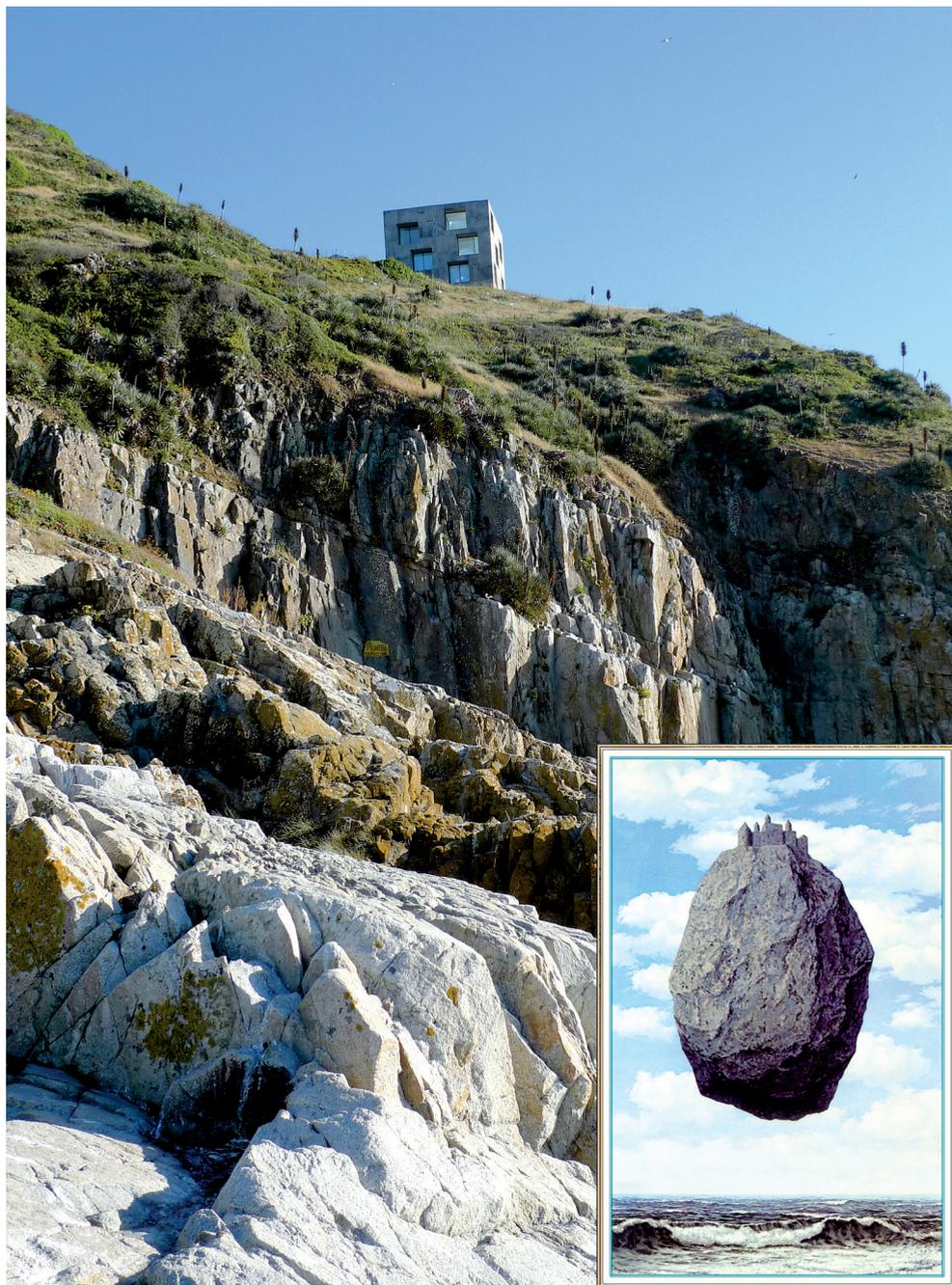
A different building, which stands on a cliff of the Coliumo peninsula near the capital of Chile, is also not far removed from defining the "natural genetics" of concrete. The cubic project of *Casa Poli* (2003–2005), by Mauricio Pezo and Sofia von Ellrichshausen, appears to highlight the context of the work of architecture. At every stage of thinking, recording and design, Pezo and von Ellrichshausen's architecture is an attempt at defining the properties of the context of extracting form from an abstract mass – the matter of absolute nature. In the Chilean studio's practice, this process, which starts with the immateriality of drawings, and ends in a physical structure, is an acknowledgement of a certain "spectrum" of matter and a confirmation that architecture, as a part of the landscape's structure, complements its morphology.



III. III.1. Holy Redeemer Church, Fernando Menis, La Laguna, 2008



III. III.2. Ofunato Civic Centre and Library, Chiaki Arai, Ofunato, 2008



III. III.3. *Casa Poli*, Mauricio Pezo, Sofia von Ellrichshausen, Coliumo peninsula, 2004–2006

III. III.4. *The Castle in the Pyrenees*, René Magritte, oil on canvas, 1959

In *Casa Poli*, concrete has the task of revealing the “virgin” relationship between nature and architecture, between the structure of the terrain and the expression of concrete’s monolith. Casa Poli was envisioned as a ruin, intended to become a sort of “embodied tension between the forces of man and nature”<sup>188</sup> from the very start – as Mauricio Pezo describes it, defining the reason for the reference to architecture’s source. The cube shape of the edifice likens itself to the surroundings in its syntax, in the articulation of its openings, walls, mezzanines or ceilings, while also playing the essential role of binding elements from the external and the internal world. After many years, the imprecisely made concrete surfaces, formed using vertical shuttering, have become partially eroded, truly starting to resemble natural creations. The matter of the terrain and the matter of the building are two interchangeable and interdependent substances, remaining in a state of constant negative dependence of sculptural relief. This peculiar relationship is also depicted by the painterly work by René Magritte’s *The Castle in the Pyrenees* (1959), where the uniform, material identity of the castle conjoined with the rock introduces the viewer into a world in which they see for themselves the unreality of the visible world – and its surprising, hyperreal renaming. In the “architectural image” on the Coliumo peninsula, the house and the rocky landscape are one and the same fragment of a larger, “wrought” monolith. *Casa Poli* is a “fragment” of the environment in which it exists and in which one can find the sense of the beauty of architecture that binds the building into a cohesive relationship with nature through its very roots, in an immanent need of mutual coexistence. Concrete is the equivalent of rocky ground, whose secondary qualities became primary – concrete and rock are the main elements that depict the meeting between two monoliths present in their physical presentation, without symbolising anything other than an interchangeability of meaning (ill. III.3, ill. III.4).

## 2. The ethical messages of concrete

The belief that architecture is built by the tangibility of the physical material is accompanied by architects’ faith in the existence of its immaterial, hidden image. Architects try to find the “spirit” of concrete architecture, or rather the “soul” of concrete, by searching for the perfect synthesis of the idea, form and matter. Irrefutably, the spirit opposes m a t t e r, and the soul opposes the m a t e r i a l. Both categories are ascribed the gift of creation, with one wanting our brain to produce imaginings, while the other wants our mind to draw plans on the basis of reality. The “spirit” of the matter of architecture and the “soul” of the material are a certain expression, a reflection (imitation” of our emotional state and our

<sup>188</sup> L. Pareyson, *Estetyka...*, *op. cit.*, p. 138.

corporeality, passion and actions). In every state of the idea, form and matter of architecture we can find changing features (of a “face”) and attitudes (“outlines”). Peace is a state associated with the self-control of the ideal; restlessness, affectation is a state of motion, the stimulation of the outline – of showing the impressions of the designer.

Louis Kahn’s apotheosis is understandable to contemporary architects – the “soul” of architecture, as a category of non-measurable values, is a phase of a work, a composition, and the pursuit of a starting form, which mystically transforms into an actual object. An important and susceptible element, with which this quality of architecture has been presented – concrete and brick have become means of expression and communication in architecture, aiding in understanding “what the building wants to be”, while also being a metaphor of the “material sensitivity” of the architect.

Others are convinced by the distanced words of Dariusz Kozłowski, who equates the “soul” of concrete with the... rebar hidden deep inside its structure – that which is underneath concrete’s surface defines its strength, and that which is external, defines its beauty<sup>189</sup>.

**2.1. Detail in concrete.** One of the places in which designers attempt to find the “soul” of buildings is architectural detail. Detail is a logic that appears to continue the designer’s story about their building; regardless of whether one stands before a work of Functionalism, Postmodernism or Deconstructivism. Detail, in terms of interpretation, appears to have the same power that the designer bestowed upon the entire structure of the building. The fundamental role of detail was established in the nineteenth century by Gottfried Semper, who highlighted the role of the “node” and the “joint” as a constituent element for the genealogy of all of architecture. The new role of the detail was highlighted by Wilhelm Lembruck, an artist-philosopher, who was determined in defining the essence of the significance of the smaller elements relative to the entirety of a work – describing it as a “measure” of art, in which detail should not be negated; on the contrary – “[...] detail is the small measure of a large measure”<sup>190</sup>. A similar principle can be seen in contemporary concrete structures, in which the mastery of form manifests through appropriate detail—in the works of Auguste Perret, Le Corbusier, Carlo Scarpa or Louis Kahn. Although stylistic aspirations are different, the consciousness, clarity and earnestness of the deliberations concerning concrete detail appear to be the same. To Perret it was essential to direct attention towards the past, to the classicism of the Gothic ideal of the cathedral; to Le Corbusier, the notion of the detail’s ideality was also an

<sup>189</sup> Quoted from: M. Czyńska, M. Charciarek, [in:] *Natura betonu – siedzisko*, Kraków 2006, p. 35.

<sup>190</sup> A. Kotula, P. Krakowski, *Rzeźba współczesna*, Warszawa 1985, p. 70.

emphasis on thinking “top-down and bottom-up”<sup>191</sup>. To both, it gave a sense of the architect being in control of the balance and the poles of architecture – the general and the detailed one. After years of technical solutions, Corbusier’s “narrative detail” (*detail parlant*), inspired by the Orphic motif (typically a male-female one), was transformed into a principle of architectural image hidden in a fragment that reproduces the unity of the idea and the material of the entire design. In both cases, their designers established interpretation models, describing the logic of meanings lying in the hidden or evident details of the combination of the reinforced concrete structure’s joints.

To Louis Kahn, detail is the start of idealising all architecture: he claimed that when one deals with a fragment, regardless of size, structure or light, one reacts to its character, its spiritual atmosphere, one observes that everything that man proposes and builds becomes a singular entity”<sup>192</sup>. Kenneth Frampton shares this opinion, as to him detail is a “joint”, which gives the defining, narrative significance to every structure through the visibility and quality of these joints: The critic writes:

Architecture is an art because it is interested not only in the original need of shelter but also in putting together spaces and materials in a meaningful manner. This occurs through formal and actual joints. The joint, that is the fertile detail, is the place where both the construction and the construing of architecture take place. (Furthermore, it is useful to complete our understanding of this essential role of the joint as the place of the process of signification to recall that the meaning of the original IndoEuropean root of the word art is ‘joint’)<sup>193</sup>.

The effect of this type of thinking about the tectonics of a building are attempts at defining what was once an ornament and today is an architectural detail. It is assumed that the shape and significance of the column, or rather the joints between the stylobate and the architrave, are a formula that arises from the links between the structure of the frame (the colonnade and the architrave) and the mass (stylobate) of the temple. The formula of passing and joining not only reflects the system of the structure, but also “highlights” the nodal points for the entirety of its architecture.

<sup>191</sup> A. Bulanda’s interview with J. Sołtan, [in:] J. Sołtan, *Rozmowy o architekturze*, ed. J. Gola, M. Sitkowska, Warszawa 1996, p. 82.

<sup>192</sup> D.B. Brownlee, *Carnet du visiteur: Louis I. Kahn, le monde de l’architecte*, Paris 1992, p. 69.

<sup>193</sup> M. Frascari, *The Tell-the-Tale Detail*, [in:] *VIA 7: The Building of Architecture* (1984), Philadelphia 1984, p. 35. The quote appeared in K. Frampton’s article entitled *Rappel à l’ordre; Głos w sprawie tektoniki*, [in:] *Definiowanie przestrzeni architektonicznej 2011. Trwanie i przemijanie architektury*, „Czasopismo Techniczne”, b. 14, 2011, Architektura series, p. 18 (transl. A. Porębska).

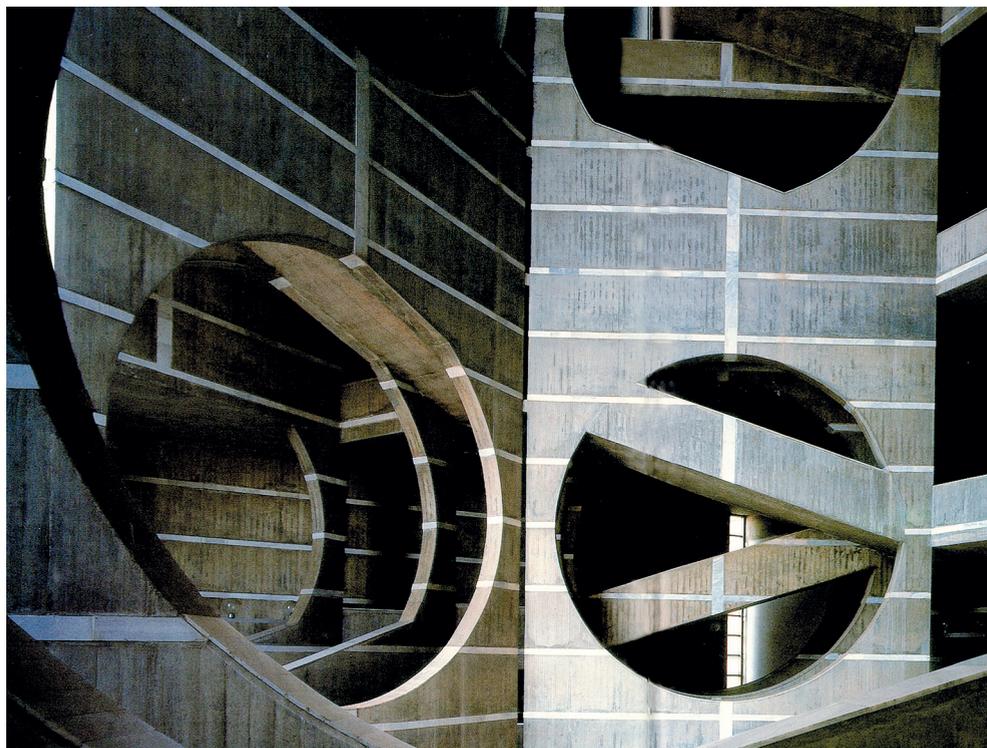
In Louis Kahn's concrete buildings we can read a pattern of compositional thinking, which is close to the principle of elevating technical detail, ranging from showing the purity of the connection of the concrete structure (even such elements like lintels or landing slabs are independent forms shaped in concrete), to relationships with the other materials assigned to appropriate fragments of the structure.

Louis Kahn's architectural detail places itself within the sphere of the universal archaism of the primal form. The architect described detail as something which, in its "non-decorative" essence, adores the nature of a building: he states that "the joint is the beginning of the ornament and the ornament is the adoration of the joint"<sup>194</sup>. However, it is hard to see the reduction that would give detail an identity similar to the clarity of Mies van der Rohe's message in the unblemished purity of Kahn's own. Kahn's architecture is a labyrinth of forms and meanings that finds in its interior the designer's focus on the specific definition of every element individually. In the primary notion of "what the building wants to be", the rawness of matter disappears amid the variety of shapes and structural and formal systems, in the shadow and half-shadow of successive plans. In the search for the meaning of the quality of this space's construction material, concrete loses its natural "ruggedness" and transforms from a grey element into a sophisticated shape equal to stone, timber and brick. Where to Le Corbusier the randomness and imperfection of the work of builders highlighted the sense and strength of a concrete cast, to Louis Kahn they became an occasion to use a marble-like division on the facade walls, intended to level concrete's colour non-uniformity (Dhaka Parliament building, 1962–1974) (ill. III.5). The geometric division is not only an aesthetic measure, but also has a second meaning—to grant the monument a human scale and convey an anthropomorphic dimension. The whiteness of the modular stone grout (every 1,5 m, horizontally) defines the measure for the entire building – it is a reference in establishing scale, size and figures, as well as the symbolism of the materials that were used. To the architect, marble is a feminine element, while concrete is a masculine one.

Giving meaning to both elements was intended to link the artificiality of concrete, which empowers the visual form, with the naturalness of marble, which denotes beauty and ultimately defines the Platonic space of the Parliament<sup>195</sup>. Thanks to this the building is not only an emanation of the qualities of the space that "serve" and "are served", but also – as the architect observes – a differentiation between the "spirit" and the "soul". The "spirit" reflects needs and intentions,

<sup>194</sup> Quoted from: M. Frascari: "The joint is the beginning of ornament. [...]. Ornament is adoration of the joint" [from:] L. Kahn, *Light is the Theme* (Forth Worth 1975), p. 43.

<sup>195</sup> G. Gattamorta, *Louis Kahn: Itinerari*, Roma 1996, p. 168.



III. III.5. National Assembly, Louis Kahn, Dhaka, 1962–1974

III. III.6. Brion-Vega family cemetery, Carlo Scarpa, San Vito di Altivole, 1969–1978

becoming a sort of a reflection of harmony; the “soul” is the mind, expressed by the intuition, imagination and dreams of the designer.

Vincent Scully uses the same tone to describe Kahn’s design of the monolithic ceiling of the Yale University Art Gallery – an example of the use of concrete detail as a model highlighting the sense of structural meanings. The idea to carry over the “archaic” shape of the tetrahedron to the structure of a coffer ceiling enclosing the space of the gallery is a beginning of a thinking about architectural expression that was unthinkable in Modernism – it finds the synthesis of the expressive sum total of the geometric wills to create, structural imagination and cold technical calculation<sup>196</sup>. Scully describes the visual homogeneity of the ceiling and its significance within the space of the gallery as a rare pattern of the authenticity of form and matter, comparable to examples from the Italian Renaissance.

Carlo Scarpa’s architecture demonstrates an extraordinary ability to create architectural meanings within a space composed of form fragments. Throughout the Venetian’s entire career, detail has been the object and means of designing every shape of architecture. Scarpa’s detail – created in concrete, wood or steel – is a mode of arriving at the essence of form, studying shapes that are elements of the world’s afterimages – and while it is an archaic world, it is perfect in its wealth and visual integrality. In this version of architecture there is no room for repeatable and serial technology, as instead there is the patient “establishment of the spirit” of the monolithic ornament. Thanks to the Brion family cemetery in San Vito di Altivole (1969–1978) (ill. III.6) we know that “material erosion” of architecture (or perhaps a “state of foreseeable decay”) by design appears normal and that the timeless ideality of architecture can be built from fragments of thought and matter. Scarpa’s designs appear to continue the meanings of Giovanni Battista Piranesi’s paintings entitled *Antichita Romanae* (1748) – the drawn space of the mythical city created and established through the expression of fragments, “ruins”, “monoliths”. The Brion family necropolis, understood as such – as a “lapidarium” – serves not only to preserve the memory of the dead, but is also a shape of the City of the Dead, in which we will find a “gateway”, a “chapel”, a “tomb”, a “bridge”, a “park”, a “canal” – metaphoric structures submerged in the water and surface of the terrain. Every inch reflects the integrality of the design, with all ziggurat motif-infused forms creating a coherent language, one which refers both to the language of the Italian Renaissance, and the more recent practice of concrete “textile details” of Frank Lloyd Wright. This expressive aesthetic guides us to the source of defining the “beauty of architecture” as a category that takes its beginning from individual beauty – “the beautiful detail” or “beautiful parts”, which, through being combined

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<sup>196</sup> P. Cummings Loud, *The Art Museum of Louis Kahn*, Durnham 1989, p. 86.

into a whole, transform into an ideal beauty<sup>197</sup>. Marco Frascari writes of Scarpa's great mastery, which referred to non-technical meanings – to strictly architectural interpretations, stating that in various periods and in various places, the meaning of the word “technology” can be discovered in its original components: from *techne* and *logos* one can form the mirrored relationship of the *techne* of *logos* and the *logos* of *techne*. He argued that in Scarpa's architecture such a change did not occur, that technology was present in his work in both forms, as if in an intertwined, reversed narration. He stated that to translate this inversion to a language appropriate for architecture was to argue that there is no structure without interpretation and no interpretation without structure<sup>198</sup>.

Scarpa's concretes do not reveal the nature of the construction material, as it is smooth or has a well-treated surface, supplemented with a fragment of rare timber, ceramics, ornamental glass or copper sheet. In the *Brion family cemetery* the quality of concrete casts and their joining with mastery precision is so distinctive that no more or less significant elements can be seen here. Each detail is a supplementation of the form in such a way so as to produce the impression of a *Gesamtkunstwerk*, in which the form should be analysed in its entirety and in all of its aspects, as a structure of space and matter, regardless of whether it manifests itself in the balance of solids, the alternation of light and shadow or sound; regardless of whether it is an architectural, sculptural or painterly form.

Attention to architecture's detail is also a field of Mario Botta's work. Of note in Botta's design practice is the harmoniousness of the use of concrete blocks, both in floor plans and in the shape of the entire building. This geometric order is composed of not only plans and facades, but also structural elements, which form the main sense and goal of the architect's work. Charles Jencks writes about this, stating that Botta gives them an almost holy quality, as if they are from marble, instead of an industrial material. Jencks also noted that Botta draws and controls the placement and orientation of each individual block, which grants them a decorative, hieratic role, akin to the use of masonry by the Cistercians<sup>199</sup>.

Botta's concrete houses (*Casa Rotonda*, Stabio, 1980–1981; House in Morbio Superiore, 1982–1983) gain a new meaning not only thanks to their structure, but because of the pre-programmed autonomy of every fragment of construction material used throughout them. On the outside they pretend to be “Classical” buildings, exposing the solid mass conjoined with the terrain, the geometry of form and the significance of the gravity of the concrete walls. Inside, his houses are

<sup>197</sup> J.J. Winckelmann, *Dzieje sztuki starożytnej*, Kraków 2012, p. 146.

<sup>198</sup> M. Frascari, *The Tell...*, *op. cit.*, p. 37.

<sup>199</sup> Ch. Jencks, *Architektura...*, *op. cit.*, p. 151.

white, combined with the black colour of window frames and railings. To Botta, the modular concrete cube is the “measure” of a precision established long before – in the precise reflection of the concrete material, presented in the architect’s meticulous technical drawings.

Stanisław Fiszer’s “eclectic architectures” are close to the meanings of Ricardo Bofill’s and Carlo Scarpa’s detail. However, Fiszer’s buildings are not, as it may appear at first, Postmodern – they belong to the Classical Revival style by assumption and build. They hide in them a desire to return to the practice of searching for proportions, articulation, the traditional division of the facade with the base of the ground floor and the cornice. To the architect, who believes himself to be a continuator of the works of Leone Battista Alberti, Victor Horta and Carlo Scarpa, the matter of concrete must have the qualities of a wealth of ideas – it is a play of textures, technologies, colours; the surface is treated as a patchwork that deals away with Modernist uniformity – it is diversity. Making the facade more visually expressive is done with a certain highlighting of formal qualities, even “densifying them”, in which combinations of prefabricated slabs with concrete cast on-site are not unheard of; sanded surfaces are accompanied by polished, stone elements, typically supplemented by well-made steel applications. Fiszer’s concrete is a material of consistent architectural *pastiche*, one that blends in with the scenography of a city which fits the aesthetic of nineteenth-century Paris. This message continues to be conveyed by the buildings of the Paris National Archives (1988), the Theatre and Mediatheque in Saint-Quentin-en-Yvelines (1993) or the National Stock Exchange in Warsaw (2000).

**2.2. The morality of concrete Brutalism.** In the twentieth century, aesthetic theories completely re-evaluated the essence of work “on”, “with” and “in” matter. And thus, for the larger part of contemporary art, matter became not only the body of a work, but also its goal, an object of aesthetic discourse. Of course, this does not mean that artists from other periods were not aware of that from which their structures, technical obstacles and artistic liberations were derived. However, when we describe the value and fertility of matter, treated as a source of inspiration, one must conclude that the twentieth century brought the discovery of additional potential for defining physical substance through its ethical dimension, which is understandable at the moment when an idea is reflected in it and when it is given appropriate form. And so, the more architects focused their attention on matter alone, the more the fact of the rejection of old conventions pushed them towards successive domains of possible forms and meanings.

Concrete, although it quickly became a well-known material used by designers, had remained an “unnamed matter” up to as late as the 1950s. In the twentieth century, the belief that concrete is the “stone of contemporaneity” and can be rugged,

unpolished or have the texture of the natural print of its formwork, became a matter of ethics and not just aesthetics. The use of untreated concrete was acknowledged as praise given to the imperfection of human nature – an exposed beauty potentially understood by the recipient and the user. After four twentieth-century decades of hiding behind manifestoes of abstraction, Functionalism and the logic of structure, raw and untreated concrete showed itself as the synonym of thinking about a return to the humanism of architectural space. The manner of defining the new, ethical significance of concrete matter became the objective of arriving at the morality of Modernist architecture and granting it meanings, which ended in rejection and slow demolition years later.

The demiurgical significance of the material in which August Perret built the temple in Le Raincy in 1923 was discussed by architecture critic Henry-Russel Hitchcock: “When Perret erected the church of Notre-Dame at Le Raincy [...], near Paris in 1922–3, concrete came of age as a building material”<sup>200</sup>. However, it was not the form of the edifice, but the significance of its material that defined its impact on architectural ideas prior to 1945. According to Peter Collins, it was Perret in Le Raincy who first ennobled concrete, calling it a noble material, which made it possible to give architectural structure clarity and grant a new significance to religious architecture. The architect called this attempt at designing form in a concrete shape an aesthetic of “rawness” (*brut*) or “nudity” (*nudité*), in which one can find nobility, but not modernity.

Peter Collins’s stance is a proposal of a re-reading of the beginnings of concrete’s significance in architecture. The author cites the words of poet Paul Jamot, who visited the church and described the “state of rawness” of the concrete (*état brut* in French) as an aesthetic fact, which should not be negated by limiting the church’s construction budget. As proof, the critic cites the Perret brothers’ significant popularising efforts, in which he saw the original impact of concrete on the significance of architecture at the start of the twentieth century, stating that nude concrete had, for the first time, played the role of a noble matter, one that discovered in its rawness (*rudesse*) a category of beauty that had previously been absent in monumental buildings. Consequently, in 1959, Peter Collins, contrary to Reyner Banham’s use of the term New Brutalism (1955), employed the significance of Perret’s concrete in the paraphrased term Old Brutalism<sup>201</sup>.

Collins’s conclusion, although precisely setting the time and place of the establishment of the concrete rhetoric, presents concrete’s expression as an isolated, even singular aesthetic fact. The concrete church of St. Anthony by Karl Moser,

<sup>200</sup> H.R. Hitchcock, *Architecture: Nineteenth and Twentieth Centuries*, Harmondsworth 1967, p. 315, [from:] P. Collins, *Concrete...*, *op. cit.*, p. 315 see. p. 57.

<sup>201</sup> *Ibidem*.

erected somewhat later (1925–1926) in Basel, appeared to be more of a pursuit of concrete’s expressive characteristics for a monumental formula rather than a deliberate reference to the principle initiated by Auguste Perret that would – as critics accurately observed – arise from an internal necessity to create a beauty that would be a combination of technical purposefulness and programme.

The aesthetic thought established by the temple in Le Raincy returned in a new incarnation thirty years later – in 1952, when all of the apologists of the post-war aesthetic, with Reyner Barham at the fore, decided that the first application of *béton brut* to be of significance to the idea of architecture took place in Marseilles, during the construction of Le Corbusier’s housing unit. The Marseilles structure – without plasters or retouching, sporting a grey and rugged texture, with visible signs of construction defects, proclaimed the creation of a new metaphor to the world, one that would initiate the style of Brutalism and *béton brut*. The visual naturality of concrete was the result of the decision to expose traces left by technology and random effects of the setting process or construction defects and imperfections. The architect highlighted the ease of the use of concrete, its “loyalty in reciprocating” conceptual thought and adaptation to future construction. Le Corbusier defined the sense of this material anew in each project. Used in the buildings of the Marseilles Housing Block or the parliamentary complex in Chandigarh, it was meant to deliver to the world a message of humanism, earnestness and genuineness in adapting idea to form and form to matter; used in the monastery building in Sainte Marie de la Tourette, it was a cheap, rustic material without decorative aspirations. The architect also used many metaphors to justify the aesthetic of “nude concrete”, which was intended to symbolise a part of the style of post-war architecture. For the first time, Le Corbusier acknowledged rawness and intense contrast as a means of creating beauty in architecture:

I have decided to create beauty through contrast. I will conduct dialogue between rawness and delicateness, between the colourless and the intense, between precision and randomness. I will force people to think and to reflect. [...] so that their imagination will operate more vividly<sup>202</sup>.

In the *Maison du Brésil*<sup>203</sup> (1953), situated in a university park in Paris, the style of contrast reveals itself as an attempt at analysing the concrete material, intended to create a legible unity of function, form and structure. Starting with the reception area, through the hall, theatre, library, the administrative complex and the residential

<sup>202</sup> Le Corbusier, *L’Unité d’Habitation*, [in:] *Le Corbusier & P. Jeanneret, OEuvre complète 1946–1952*, Zurich 1953, p. 19.

<sup>203</sup> The history of this design is a record of the course of stylistic events. The design, initially drafted by Brazilian architect Lucio Costa, had been intended to establish a continuation of the pre-war logic of the five points of modern architecture. However, when coordination and supervision over

storeys, the pavilion is an accumulation of Le Corbusier's post-war references to the sculptural function of architecture and building its semantics through a contradiction of forms supplemented by the rawness of concrete.

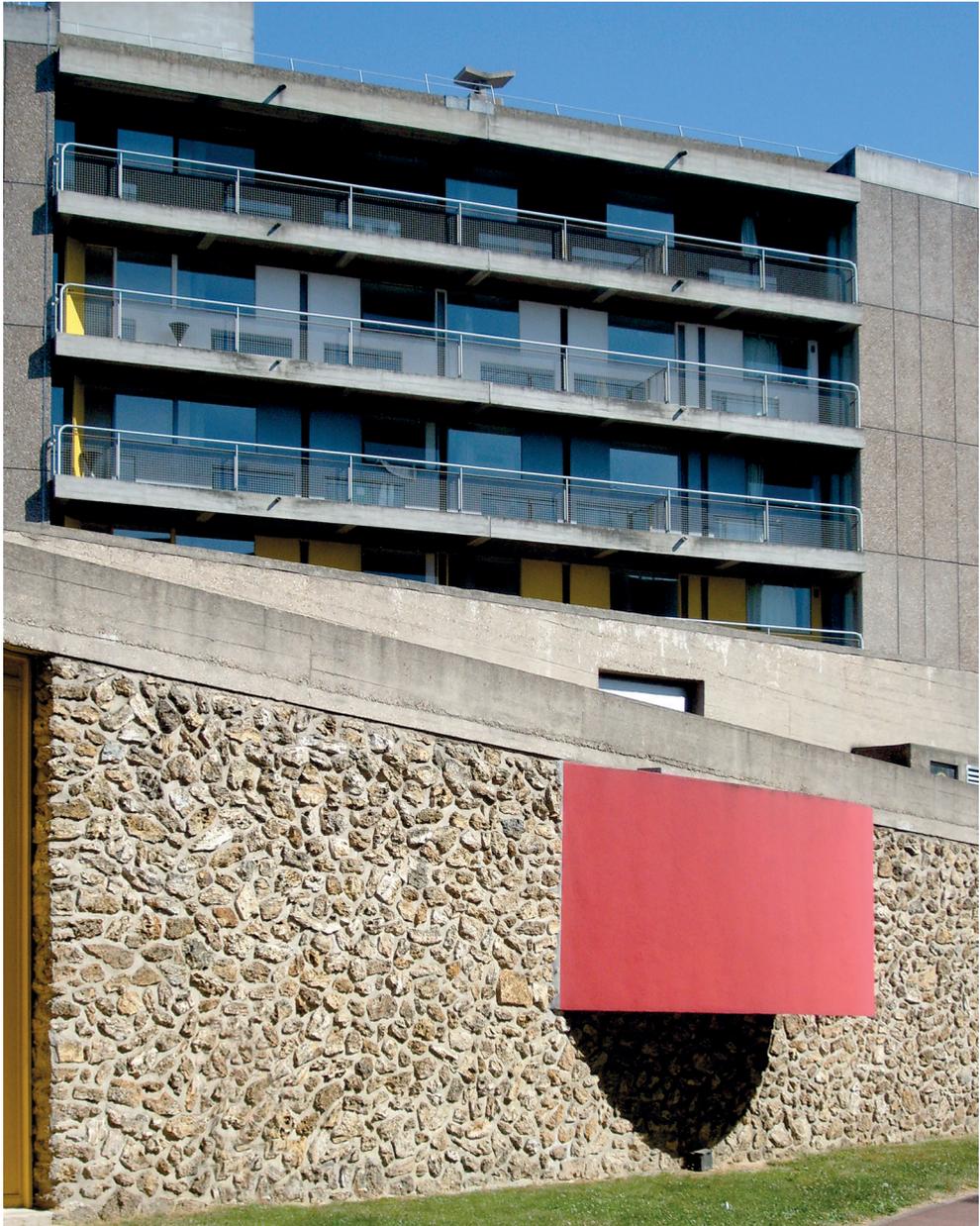
The space of *Maison du Brésil* is not solely created using the open plan, but also acts like a labyrinth – it defines the shape and direction of the paths for the formal culminations sculpted in concrete. The regularity of the building, which stands on seven concrete supports, is juxtaposed with the loose figure of the building's ground floor (“the cloud”, which houses a foyer and an administrative section. The successive plans, forms and surfaces that emerge from the shadows give the surroundings a sense of being a type of scenography – something controlled by the designer through appropriate access to sunlight. The entirety is supplemented by the anthropomorphism of the *Modulor* – a rule of the humanism of the shapes that were proposed – visible in the building's scale, dimensions and divisions. In the pavilion, concrete is mixed with river stone, with the texture of the raw material blending with the painted wood of the windows and doors, while the layout of irregular wooden siding is linked with the prefabricated *brise-soleils* of the loggias. The intense colour of the internal furnishings is contrasted with the black, uneven stone of the floors, tiles and the dark-coloured French polish of the furniture. The lack of plasters on the walls reveals an inspiration with the primitive, which, through the visual power of textures, rugged surfaces and the structure of concrete surfaces, re-establishes the significance of rustication, intended to confirm Le Corbusier's words that the “profile and contour are the touchstone of the architect”<sup>204</sup>. He also reminds us that good architecture should offer shapes and surfaces formed with “an eye searching for the pleasure of touch” in mind and that reveals the humanism of this “carnal” space” (ill. III.7). In a sense, this image of purely material expression is a reference to the poetic derived by Gaston Bachelard, which refers to the essence of form through the imagination of its matter, wherein concrete, defined by the value of “material”, could be assigned to the element of *reveri*<sup>205</sup>. The philosopher points to the object of material imagination as the one that reaches into the depths of existence, searching for that which is both primal and eternal, focused on substance, on the content of matter and the “interior” of objects, that delves into what is primal, trying to reach the “core” of objects.

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the design was given to Le Corbusier's studio, it turned out that, while leaving in place the essential framework of the conceptual proposal's formation, Le Corbusier proposed a new material image of the work. The “old” aesthetic of machine architecture unsuspectingly gave way to a “new” one – which demonstrated an uncompromising, sculptural use of concrete. Le Corbusier, after Lucio Costa's ostentatious departure from the project, had the building constructed (1959) following his own architectural vision – a version of architecture built using Brutalist concrete.

<sup>204</sup> Le Corbusier, *Vers..., op. cit.*, p. 201.

<sup>205</sup> G. Bachelard, *Wyobraźnia..., op. cit.*, p. 117.



III. III.7. *Maison du Brésil*, Le Corbusier, Paris, 1952–1953

Bachelard describes such objects as a “wonderful need to penetrate”, which enters the sphere of stimulating the viewer’s imagination, but is also an equivalent factor in presenting space that is concordant with the vision of the notion of the “imagination of form”. In Le Corbusier’s work, concrete similarly plays the role of a total material of a work of art – an edifice, in which there is no border between the structural and ornamental arts – an art that combines the emotion of work on both the exterior and the interior.

Le Corbusier had set the course along which Brutalism evolved from a manifestation of raw matter that preached the transcendence of new architecture to decorative games with concrete surfaces, supported by successive ideas to structurise and texturise buildings. The genesis of Brutalism also has a different foundation, which is the search for the answer to the question about the quality of post-war architecture and its ethical message. Thanks to Le Corbusier, it was acknowledged that the uncontrolled naturalness of the material that some had seen as defective could become a tool of architecture’s moral message. The excessive deformation of concrete became a cognitive tool – a function of presenting the world how it is, a message conveyed deep inside the material that the truth is not the property of bodies, but virtues. Umberto Eco even wrote that contemporary artists acknowledge the essence of the coexistence of opposing attitudes as the ugly-beautiful dichotomy no longer holds any aesthetic significance; ugliness and beauty are two means of experiencing in a most neutral way<sup>206</sup>.

In the previously unknown sociological aspect, it was decided that architecture should provide people with a sense of identity, which is their fundamental psychological need. The construction of Le Corbusier’s Marseilles Habitation Unit that had been commented on from the very start became a model for understanding the post-war difficulties of creating a new order of space for human living. In the years that followed, the views of New-Brutalist architects were shaped by a rejection of the humanist notions of beauty in favour of a humanism of new emotion that was featured in materials and spatial visuality. New Brutalism, with its “nude” structure – of formal “poverty”, which rejected all finishing treatments as an expression of the directness of experience, wanted to create a new social ethic. Reyner Banham, who propagated this new aesthetic, described all visual of its visual manifestations (paintings by Jackson Pollock and Michel Tapié or sculptures by Edouard Paolozzi); among them also being architecture, presenting its new essence and order within the natural hierarchy: of a clean plan, exposed structure and the naturalness of materials and their characteristics. According to the critic, this image of architecture, along with its materiality, was to depart from the classical notion of beauty established by

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<sup>206</sup> U. Eco, *Historia brzydoty*, Poznań 2007, p. 19.

St. Thomas Aquinas, wherein beauty is not derived from *quod visum placet*<sup>207</sup> (from that which is known, what is liked), but through that, which can be defined as *quod visum perturbat* (that which stirs emotion, which leaves an impression) – it is not an individual experience, but one that is a communal, societal one. The visibility of matter (different than before) and a different manner of the use of construction material “as found”, became the cause behind establishing new relations and linkages in experiencing architectural form<sup>208</sup>.

Paul Mendes da Rocha is Banham’s contemporary continuator, seeing Brutalism as a fitting style for our times. The architect symbolises *béton brut* by defining the possibilities of the contemporary mind and intellectual freedom, which should not be hidden underneath anything; concrete is a product of knowledge and technology, not imitation, and always answers the question as to what an object should be. His architectural ideas are just that – socially responsible, economic and accessible. The architect confirms the fact of using simple means to realise simple and “proper” forms from concrete, stating:

I think everything superfluous is irritating. Everything that is not necessary becomes grotesque, especially in our time<sup>209</sup>.

**2.3. “Sacred concrete”.** The propensity to think about the material world as predestined to present its appropriate ethic and sanctity was subjected to further transformation during the twentieth century. This was not a new situation in architecture. It should be reminded that there exists an ageless drive to entangle matter into dependencies on and connectedness between two complementary planes of reality. The transformations of idea and matter in contemporaneity are a confirmation of the unending search for morality through the wealth of matter’s meanings and symbolic references, with an uninhibited metamorphosis of “motion”

<sup>207</sup> St. Thomas Aquinas, *Summa theologiae*, I q. 5 a, 4 ad 1, [from:] W. Tatarkiewicz, *Dzieje..., op. cit.*, p. 139.

<sup>208</sup> R. Banham, *The New Brutalism*, “The Architectural Review”, Vol. 118 (708), 1955, p. 351-358. The style of Brutalism and New Brutalism, which operates with the expression of the naturalness of material, requires that one is reminded of a different source of the classical notion of *terribilità* – a term that directly refers to primal meanings that are used to describe objects and that elicit a certain unease in the viewer. In the sixteenth century, this term evolved from a broadly understood qualitative term with a specific visual expression of a style that was never fully described and that featured forms that were “strong” and “powerful”, “terrible” and “raw”. During the period of Mannerism and the Baroque, Italian artists discovered a new and ultimate sense in the notion of *terribilità*: as an exceptional and odd, striking and extravagant side to a work of art, with a specific character of formalising the human body, sculpture or architecture by a non-standard view, choice and idea. After numerous decades, this term, associated with negation, entered a phase of positive and enriching meaning, yet it still had the sense of describing an intense impact of a work of art.

<sup>209</sup> From: Essay by Francesco Dal Co written for the occasion of awarding the Pritzker prize to Paul Mendes da Rocha in 2006, <http://www.pritzkerprize.com>; accessed: 18.07.2013.

in symbolic and theological imagination. This bond has had a fundamental character for centuries, for the value of the profane was created by the sanctity of matter that emerges from it through the will to transcend. The perfect unity between the sacred and the profane, as attested in the Middle Ages by Nicholas of Cusa as *coincidentia oppositorum*<sup>210</sup>, unites within it all the constitutive values of both spaces. The objective of the material (sensual) sphere is therefore the pursuit of ascension. This establishes the will of the profane to constantly improve and perfect itself. In the period of medieval cathedrals, people started to tell apart the beauty of form and the beauty of expression. A distinction was made between the sensual and intellectual reaction to forms of art. It was said that their beauty acts both on the eyes and the soul. The separation of the sensual and the intellectual reaction led to the separation of the matter of a work from its form<sup>211</sup>. Similarly, the entire Byzantine ritual was characterised by that which had been called mystical materialism. The builders of those times realised their mystical intentions through material sanctity; architecture led to God, but it did so through aesthetic experiences discovered in construction materials. In the nineteenth century, the perception of sanctity in the purely material sphere was read as signs of pantheism – the entanglement of art in the romantic element of nature and its absolutisation.

In the twentieth century, along with the advent of Functionalism, sanctity ceased to be associated with non-physical existence, and the search for it focused primarily on the material world, on creations of technical progress devoid of the power to create the sacred. Among the early searches for a concept of a Modernist version of the sacred we will find the works of Karl Moser, Rudolf Schwarz and Otto Barning, to whom the reference was not the imitation of past forms, but rather their “fundamental atmosphere” of the temple<sup>212</sup>. Rudolf Schwarz’s theory stands out among them, as he rejected the dogma held among avant-garde circles concerning the dominance of the technical factor in architecture. In light of the rising tendency to separate form from content, Schwarz argued that the shape cannot be independent of a previously determined meaning<sup>213</sup>. The community of the faithful was to mean a unity made evident in uniform matter forming simple forms and “simple things”, themselves considered a source of Christian life.

On the other hand, the reform of liturgical space that took place immediately after the Second Vatican Council (1962–1965) led to giving religious space a character of “liturgical functionalism”, which, in effect, produced a new post-council rite that forced only those changes that pertained to adapting the interior to the requirements

<sup>210</sup> U. Eco, *Sztuka i piękno w średniowieczu*, Kraków 2009, p. 187.

<sup>211</sup> W. Tatarkiewicz, *Historia estetyki*, vol. 2, *Estetyka średniowieczna*, Warszawa 1988, p. 139.

<sup>212</sup> C. Wąs, *Antynomie współczesnej architektury sakralnej*, Wrocław 2008, p. 184.

<sup>213</sup> *Ibidem*, p. 35.

of worship to the greatest degree. In the sense of material, reinforced or pure concrete replaced stone along with all of its biblical references, and geometric abstraction and the style of Brutalism took the place of the cosmology of the circle and the square, with its traditional structure of the temple treated as a *corpus mysticus*. Reinforced and pure concrete – construction materials believed by representatives of the avant-garde to be less refined than steel and glass – were, however, perfectly suited for creating monoliths with a visual integrality – “open” to visual meanings, individual in terms of the author’s experience of the sacred. The consequence of this was the transformation that took place in the 1950’s and 60’s – the “clear space” of Bauhausian Modernism gave way to the aesthetic of concrete’s “quantitative space”, perceived as energy and matter. In the “qualitative” concept of religious architecture, the lacking image of the notion of the church as a “world model” was replaced by a search for a structure whose explanation would not lie in spectacular inventions, but tradition, a newfound religious symbolism.

Charles Jencks writes that Le Corbusier’s religious works are the reflections of his individual characteristics: as a man who was implacable, stern and yet sensitive, and his most significant buildings – the Sainte Marie de la Tourette monastery (1957–1960) in Eveux and Notre Dame du Haut in Ronchamp (1953–1955) are two different examples of architecture with an immense impact on the designers of the second half of the twentieth century. Although both buildings are linked by the architect’s favourite material, the manner of its use is different in each of them. The monastery is a building that is a continuation of the idea of *béton brut*, defining an entire spectrum of new meanings associated with the design principles of the 1950s. The ever-present untreated concrete surfaces of the project were intended to become a crystallisation of the harmony of forms assembled in the light, of simplicity and the directness of behaviour between the faithful. Brutalism of form and matter is the element that highlights texture, a natural decorum – it is not only a conveyor of aesthetic values, but also moral ones that deepen the sense of the religious form, of the earnestness and naturality of matter unpolluted with excessive symbolism.

The Purist language of the monastery in La Tourette is contrasted with the chapel in Ronchamp. To Modernism, this “architectural sculpture” revealed the decline of abstract geometry and the advent of a time of metaphor in architecture. The conglomerate of masonry and reinforced concrete structures, designed and built without any rational motivations on the part of the architect, also became the intellectual and ethical source for an entire spectrum of styles, manifested in a diversity of forms and comparisons. The building in Ronchamp is a synthesis of physical “closure” and symbolic “opening” – creating the essence of a church that is a centre of religious meanings, wherein man can experience a return to his mysterious beginnings. Christian Norberg-Schulz describes the significance of the

chapel as a cave, open to the most significant meanings of human existence, proving Heidegger's claim that "on Earth" means "under Heaven"<sup>214</sup>. The expressiveness of the form found in Ronchamp was so considerable that the following years saw the construction of buildings that demonstrated the symbolic capabilities of concrete form and formed a breakthrough for monolithic structures. The pilgrimage church in Neviges by Gottfried Böhm (1968), the church of the Holy Trinity by Fritz Wotruba (1974–1976) in Vienna or buildings from Poland: the church of Mary the Mother of God, Queen of Poland, known as the *Lord's Ark* (1967–1977) by Wojciech Pietrzyk and the church of St. Jadwiga in Krakow (1978–1987) by Romuald Loegler, Jacek Czekaj and Marek Piotrowski – all of them, despite not adhering to the traditional layouts of church interiors, retain the fundamental qualities of Christian temples. They demonstrate the significance of the physical presence of the material from which they are built and are a lesson in a new approach to the visuality of concrete.

This reasoning can also be seen on the example of the Sainte-Bernadette du Banlay church in Nevers, by Claude Parent and Paul Virilio (1966). The architects, when designing this building, decided that only the monolithic mass of the temple, designed so as to resemble a grotto, can provide an authenticity of the experiences of the mystic of Lourdes and the reality of her revelation. The Brutalist structure of the monument is far from presenting traditional religious symbolism. It was created so that it could become the equivalent of a *monolithic* bunker, which offers an atavistic shelter for most human needs (ill. III.8). In this formal expression, the church also appears to resemble a fortified Romanesque temple, becoming a holy place, which symbolises the protection of life in its simplicity<sup>215</sup>.

The studies that Paul Virilio had been conducting since 1958 on the bunkers of the Atlantic Wall were not without significance to the formal principles of this edifice. The stable Nazi fortifications, anchored in the ground, became a pretext for the use of the entire dictionary of fortifications and defence, ranging from the lowered entrance niche, the rounded corners and attic, to the window splaying – "embrasures". The innovation of this building is thus based on the homogenous cutting out of solids and infusing expression into the uniform shape of the "grotto" – all so that architecture could be given one more meaning; communicating that monolithness is equated with monumentality. The building by the design team of Architecture Principe has a "mask", behind which is the starting shape of a hexagon, which forms the principle of the shape that presents the relationship of breaking the form and space between the zone of the sacred and the profane in both the plan and the cross-section. It is also impressively used to demonstrate yet another metaphor – making the temple's

<sup>214</sup> C. Norberg-Schulz, *Znaczenie...*, *op. cit.*, p. 213.

<sup>215</sup> C. Parent, P. Virilio, C. Joly, *l'Église Sainte-Bernadette-du-Banlay à Nevers*, Paris 2004, p. 7.



III. III.8. Sainte-Bernadette du Banlay church, Claude Parent and Paul Virillo, Nevers, 1964–1966

plan similar to the shape of the human heart. The geometry of the building is neither affirmative nor obvious, it is eroded and used. The angles are not right, the mass does not rest on the ground, but is supported above a central, raised foundation, it is cut and radiates an image of fracturing and being broken (which was the architects' favourite).

Another work of sculptural Brutalism that is often praised is the complex of buildings of the *Mariendom* pilgrimage church in Neviges (1972) by Götffried Böhm. The solid, windowless structure was intended to create a symbolism and value of a "temple tent". Other similarities are also possible – to the "biblical rock", "artificial mount", "grotto", with all of its qualities that refer to the cult of stone as the primal intuition of Christian symbolism. The expressively broken figures from concrete are also a metaphorical supplementation of the organic vision of a church in reference to the tradition of "holy mounts" or "crystal mountains". The comparison between monolithic shapes that, in inanimate nature, are considered to be the most perfect in terms of form, also hides a more general sense – the pursuit of perfection amid the freedom to use concrete. The "crystal concrete" of the *Mariendom* is, in essence, both on the outside and inside, a diverse uniformity, in which each form has created the metaphorical potency of the design of the entire temple (ill. III.9).

Le Corbusier's last work – the church of St. Peter in Firminy, completed in 2006<sup>216</sup> – is a religious monument. The structure of the building is clear in its formal assumptions: the building presents the form of an irregular concrete pyramid, based on a square plan with sides 25 m in length, which changes into an irregular conical geometry. The explicitness of its formal expression causes its symbolism to be as rich as it is unambiguous – the church is meant to be an expression of a link between Heaven and Earth; a type of "holy path" featured in the structure of an *promenade architectural*. The main core of the building, which fulfils a religious function, is traditionally raised on reinforced concrete columns, among which – on the lowest level – there are exhibition and administrative spaces. The building is serviced by Le Corbusier's favourite functional element: a concrete ramp which

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<sup>216</sup> The church in Firminy is a building with a long history, as it awaited 41 years for its completion. In 2006, thanks to the involvement of persons associated with Le Corbusier's legacy, the design was finally completed. After being inscribed onto the UNESCO World Heritage Sites List (the design had two original models and a documentation drawn to a scale of 1:1000), and the decision of the municipal authorities supported by the actions of the local Faculty of Architecture in Saint-Étienne, it was decided that the work should be completed (the stadium, housing unit and community centre were built by 1965). The entire project was supervised as José Oubrierie, who had been Le Corbusier's co-worker since 1957. Towards the end of Le Corbusier's life, it was he who became the person responsible for the initial construction of the building in Firminy and it was him who made the decision about the ultimate shape of the church and the selection of the category and technology of concrete.



III. III.9. *Mariendom*, Götffried Böhm, Neviges, 1967–1972

leads to the building's main storey. The ideational basis for this space – the five points of architecture, which had been absorbed into the creative subconscious over the years, gave way to a space created out of a “poetic reaction”, and thus a form shaped in a sculptural manner.

The temple's architecture fits with the tradition of religious buildings in which the meaning of the metaphor that had been applied in the chapel in Ronchamp is used – “of a vessel of intense concentration and meditation”<sup>217</sup>. The untreated, concrete, solid walls of the church's interior have the task of depicting symbolic senses – they mimic the sphere of the vaulted ceiling – the “heavens” that build the aura of worship and forms a focus for thoughts and prayers. The building's “light cannons” (*canons à lumière*) – four openings in the dome that are laid out in a shape of the Orion constellation, also have their mystical secret. The space of the church is defined by the notion of an *e n c l o s e d s t r u c t u r e* – an internal, isolated game between form, function and matter. Its compact concrete massing also defines that its space is supported by the play of light and shadow (ill. III.10). Konrad Kucza-Kuczyński describes the interior of this temple as a spatial mystery, built using light, real matter and visible signs and symbols:

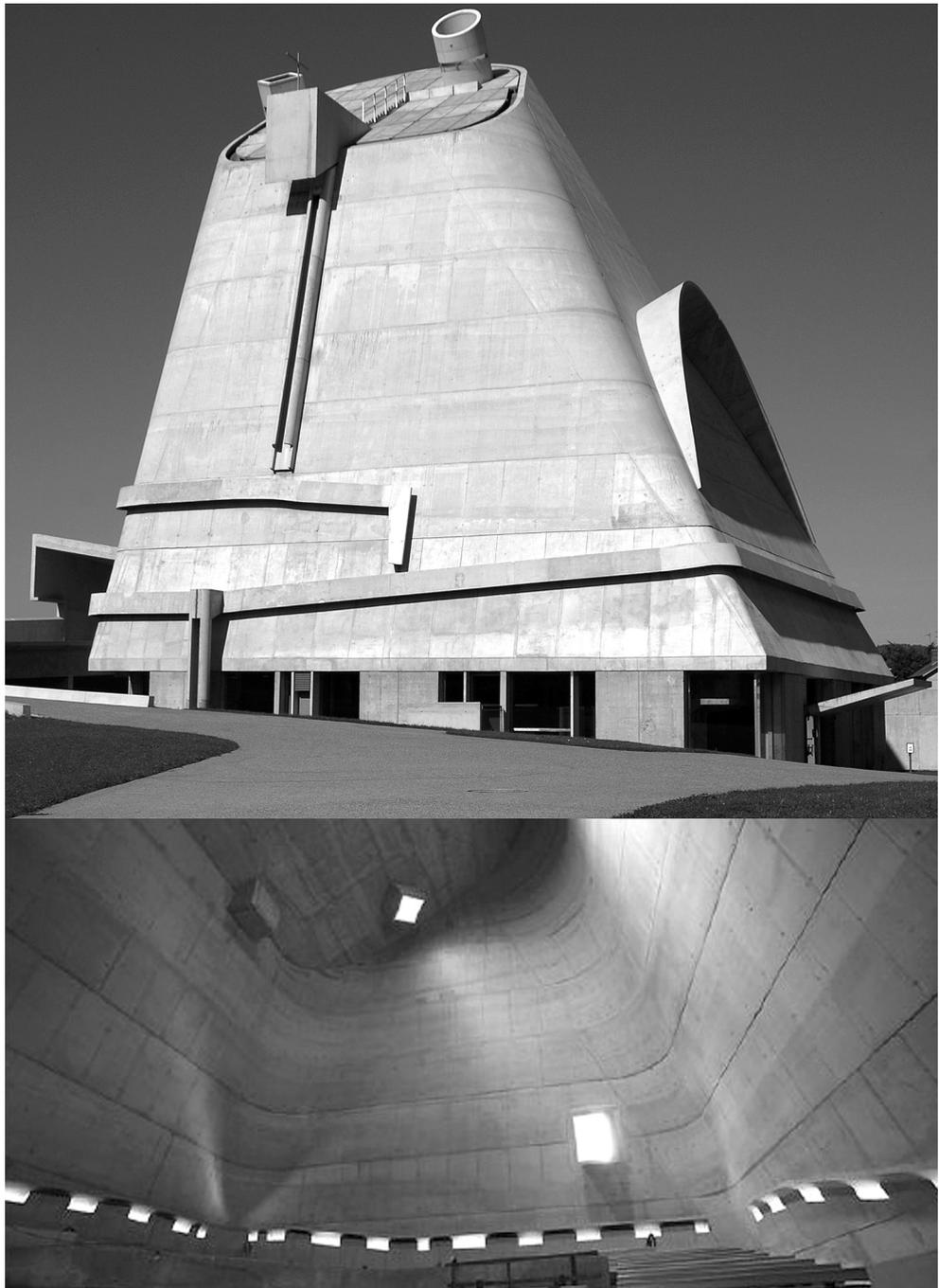
[...] Thus, in the delicate darkness of the Mystical Grotto, the scenographies of light on concrete build the mystery of this remarkable, gradually built church. The ageless motif of the wandering of Light that plays out against the background of the raw textures of the nave, in the surprising modesty of the concrete furnishings of the presbytery, in the simplicity of the wooden altar cross and the timber of the piers, is perhaps the best reflection of the desired simplicity of noble beauty<sup>218</sup>.

The monolith of the church's form is intended to produce an image of the visual integrity of form, the function of matter and its content. Sculpting in a single massing defines the principle by which there is no room for distinction between the roof or the wall or the window or a concrete skylight that introduces light into the temple. The arbitrariness of the shape of architecture defines its perfection, in which nothing can be subtracted or added – where Le Corbusier's agnostic “passion” transformed dead stones into a space filled with religious focus<sup>219</sup>.

<sup>217</sup> *Le Corbusier & P. Jeanneret...*, *op. cit.*, p. 72.

<sup>218</sup> K. Kucza-Kuczyński, *Ostatni kościół modernizmu*, „Tygodnik Powszechny”, no. 3 (3106), 13.01.2009.

<sup>219</sup> The church was built from a self-densifying concrete mix – Agilia Formes® and Agilia Verticale®. According to expert Jean-Louis Cohen, the design faced many challenges, both from a purely functional point of view, as well as concerning adapting it to currently applicable construction code concerning the use of the latest techniques and innovations – “[...] in effect, the building has smooth lines and is less “rugged” than Le Corbusier could have imagined”, [www.lafarge.com](http://www.lafarge.com).



III. III.10. Church of St. Peter, Le Corbusier, Firminy, 1970–2006

In Le Corbusier's contemporary legacy, Tadao Andō's religious architecture is an example of the fact that the sacred can exist without monumentality that is otherwise mandatory in places of worship. To Andō, light is the beginning of everything and the bringer of the "presence" of matter. Light extracts the sense of things, revealing their mutual relationships, autonomies, symbolism and their sanctity. In this perspective, architecture must condense form to the minimum in relation to other forms.

In Tadao Andō's reduced forms of architecture, concrete is a mass that sets the rules for partitioning internal space (the sacred) from the external space (the profane). In the Church of Light (1987–1988) in Ibaraki, the external light that enters the church through a cross-shaped opening explicitly establishes a transcendental, abstract and orthogonal space, which is reminded to us by another model that defines the sanctity of a place using similar means – the Roman Pantheon. There is no aspiration to present the structural properties of concrete here, but there is a will to pursue the proper relationship between the materiality of the wall and the unstated emptiness of space. The ever-present palpability of concrete and its relationship with nature are intended to create something that is mystical and timeless. Andō clearly states that his path to the sacred in the church on mount Rokko (1985–1986) in Kobe and the Church on the Water (1988) in Tomamu is a confrontation between and the appropriate separation of architecture from nature, the matter that is artificial and the matter that is animate—when plant life, light, water or wind are separated from nature and defined by man's will, they gain the value of sanctity<sup>220</sup>. In all of Andō's religious buildings, light and concrete constitute tools for discovering the "spirit" of architecture in the physical elements of space – they are type of pantheist elevation of matter, sole and everlasting. Andō's concrete creations are also, to some degree, a supplementation of Le Corbusier's *game of forms* assembled in the light and a real-world application of Louis Kahn's principle that architectural space must be defined by matter and the character of its light<sup>221</sup>.

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As it appears, the contemporary smooth concrete of the temple is not only a confirmation of Aaron Betski's statements that Modernism simply continues to exist, but also becomes an occasion to remind ourselves of natural selection and the adaptation of architectural material. The means and tools of shaping architecture will always be subjected to modification and will always have an impact on the end result of a work.

<sup>220</sup> T. Andō, *La Capella sull'acqua e la chiesa della luce*, [from:] *From the Chapel on the Water to the Chapel with the Light*, „The Japan Architect”, June 1989.

<sup>221</sup> L. Kahn, *Space and Inspirations*, [in:] *Louis Kahn...*, *op. cit.*, p. 225.

**2.4. The matter of collective memory.** The desire to commemorate figures and their deeds reminds us of an important fact: that memory can become the most enduring if we give it an appropriate symbolic significance through material form. Monuments fall into this sphere of human imagination, which is responsible for the notion of idealising the memory of the past, creating an image of the history of people and their legacy. Through culture and mass experience, they become the material outline of traces left by people and their deeds, and through the narrative of form and matter – a medium of communication and a conveyor of values. They become an allegory and are thus a story that is half-true and half-false, which has one fundamental objective – to continue to exist. Memory contained in monuments transforms into an idea, in which, as Henri Bergson states, the role of matter is not to collect all memories, but to select the most suitable fact – the one that will most effectively supplement the awareness of the viewers and make their conceptions clearer<sup>222</sup>. The architecture of monuments is therefore inseparably tied first with the archetype that transforms into a symbol, as they become universally understood and sometimes even sacred because of this. Some of these elements are repeatable and recognisable: the path, the gate, water, the tree, the border, the garden, the house. Monuments and places of memory are a materialisation of the idea through perpetuation in a construction material – and thus the creation of an image of a model, in which the image of a work's matter appears to belong to the archetype just as its formal shape does<sup>223</sup>.

Adrien Forty writes about the significance of concrete as the primary matter for creating monuments of the twentieth century, stating that concrete became a standard material for constructing monuments, and that in all early cases of its use other arguments had been used. He stated that, when the potential of the material was concerned, the matter was probably concrete's relative indestructibility, and the growing probability that something which could have been forgotten otherwise would now be preserved for eternity: for the larger and more compact a concrete block, the safer was the memory. He also wrote that a different answer was associated with the anonymity and dumbness of concrete, which make it a material that is perfectly suited for reflection and mental projection<sup>224</sup>.

In Modernism, although the sense of the tradition of erecting monuments was negated, there were instances wherein architects, rejecting the sense of symbolism and metaphor, engaged in designing monuments associated with social change<sup>225</sup>.

<sup>222</sup> H. Bergson, *Materia...*, *op. cit.*, p. 171.

<sup>223</sup> A.M. Wierzbicka, *Architektura jako narracja znaczeniowa*, Warszawa 2013, p. 138.

<sup>224</sup> A. Forty, *Beton i pamięć*, „Konteksty”, iss. 1–2, 2009.

<sup>225</sup> The case of Karel Teige's attack on Le Corbusier's *Mundaneum* design in 1929 is well known. Teige attacked both the very idea of the competition, which he believed to be detrimental, and Le Corbusier's design itself, which he saw as a betrayal of the fundamental principle of Modernist architecture

The clinker monument to Rosa Luxemburg and Paul Liebknecht (1925–1926) by Mies van der Rohe is undoubtedly among them, as is the concrete and stone War Memorial in Como (1931–1833) by Giuseppe Terragni. The most well-known Modernist monument is the concrete Monument of the March Dead (*Märzgefallen*, 1921–1922) designed by Walter Gropius and built in Weimar. It is a monument that is surprising in its form, as it is the only built example of an expressionist work by the Bauhaus director.

The monument's abstract form, presented as a crystal with the shape of a "lightning strike" was intended to symbolise the spirit of the workers' struggle and the constant resurrection of the idea of socialism<sup>226</sup>. The shape, designed out of limestone, was replaced with a concrete structure after the approval of its expressive form – it was the only material that could support the form's instability. Concrete also became the foundation of a different meaning – its durability and uniform structure were intended to give the monolith a metaphor of the "stirred" revolutionary working-class masses. Concrete, with its connotations of a modern material, one that was still nascent and had not really been perfected yet, was applied by Gropius as a matter of "analogy" or even "politics" – contrary to stone, the material worshipped by Nazi propaganda. This did not hinder the concrete, diligently treated by Bauhaus tradesmen into a *Betonwerkstein*, in becoming one of Germany's first examples of treating the rugged cement cast as a noble and sophisticated matter.

Rachel Whiteread's "architectural sculptures", the most significant among them being: *House* (1993) or the *Judenplatz Memorial* (1996–2000) in Vienna, can serve as illustrations of specificity in the spatiality of the reception of sculptural works and their ephemeral content. Whiteread's projects are not only a question about the past, memory and the present. They are questions about space and form – in this case, matter plays the role of a medium.

The *Judenplatz Memorial*, a monument with a geometric, ascetic form, is a structure that commemorates the genocide of the local Jewish community. Through the symbolism of the negative presentation of a library room – its white cement walls are intended to create a partition from the hidden and inaccessible emptiness of the interior. To Whiteread, the principle of producing the image of

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– purposefulness. Teige wrote that monumental and votive architecture used for the purposes of any monument to revolution or liberation – all of the period's arches of triumph, celebration halls, tombs, palaces and castles – were becoming dreadful. He believed the examples of both concrete and utilitarian architecture, as well as the omens of a new, metaphysical, monumental architecture had clearly showed that, in his mind, architecture was failing if it did not serve the actual needs of societal and economic life. K. Teige, *Mundaneum* (1929), transl. L.E. Holovsky and L. Dolezel, *Oppositions*, 4, 1975, p. 89, [in:] „Oppositions Reader”, New York 1998, p. 595.

<sup>226</sup> The monument was intended to commemorate seven trade union members who died in March 1920 in the putsch by the right-winger Wolfgang Kapp. It was destroyed by the Nazis in 1926 and rebuilt in 1946.

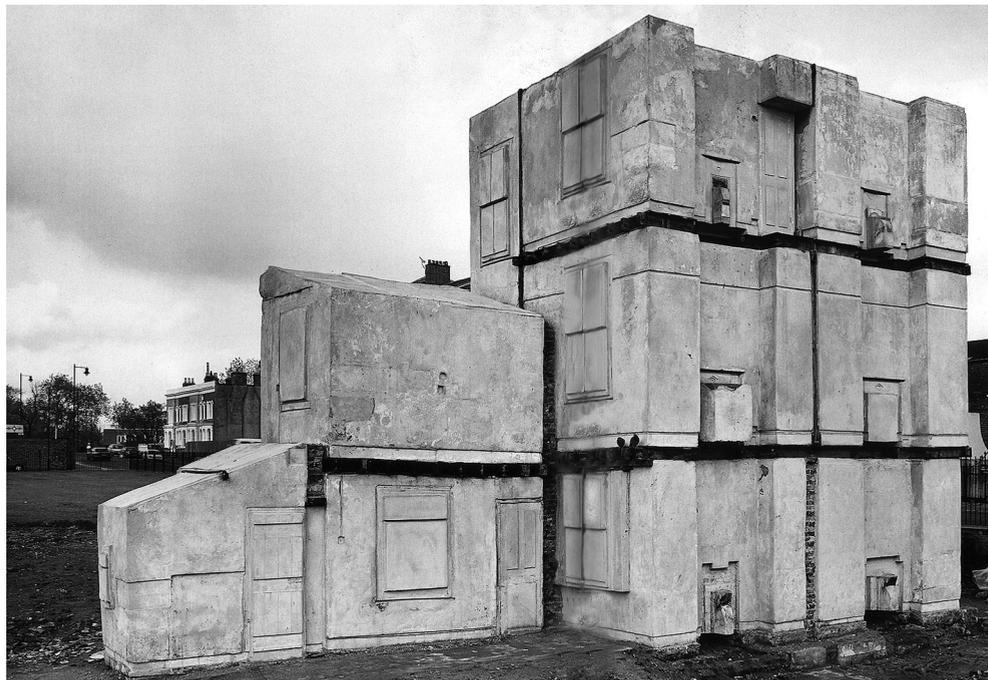
“absence” among the “naked” impersonal form frozen in concrete becomes the fundamental image of the Holocaust. The “concrete memorial” is also an experience of a transformation in collective memory – forgetting deeds by presenting only the matter of things and utilitarian space – hidden in the form of an “urban” exhibit. Similarly, Daniel Libeskind, in his design of the Jewish Museum in Berlin, attempted to give meaning to form through the selective “erasure” of collective memory, as Rachel Whiteread made an attempt to give it to the trace of an “individual” so as to make the theme a legible reference to the tragedy of extermination. The monument defends itself against accusations excessively aesthetising space through the rugged finish of the walls of its cuboid figure, which, when viewed from up close, reveal themselves to be defective, coarse, and resembling lime or gypsum. The monument, in its cementitious simplicity, appears to be an archaeological “mine”, disrupting – in its “ghostlike” form – the urbane peace of Vienna’s central block.

The sculpture named *House* presents Whiteread’s consistent style – as a figure pressed in the negative of its formwork, it becomes a sort of “matrix” of memory of a demolished traditional house that stood in East London (ill. III.11). The 1:1 cast placed on-site on the lawn of the property was intended to look like an abstract sculpture, a three-dimensional image – a memory of a place, shape and volume that refers to the value of private life. The artist utilised the metaphor of the house, an essential form well-understood in Anglo-Saxon culture and at the same time created a universal sign of evanescence, based on the dualism of that which is both present and absent. In ideational reality, the most often repeated terms are associated with death, as the house appears to be a visualisation of something akin to an “architectural death mask”<sup>227</sup>. This “monument” to architectural space is also an attempt at answering the question about the expression of a useless form created as a positive from the matrix of an object, whose primary objective is to embody a past act of destruction. The relationship between the cast and the matrix is not, in any case, a technological process associated with repeating a form – it is an act of the birth of a form by reminding us of it and the renewal of the fundamental meanings of existence.

A design prepared in 2004 for the Tenth International Architectural Biennale as a part of architectural confrontations on the subject of the new *Cricoteka – Tadeusz Kantor Museum*, is a suitable reference to Rachel Whiteread’s concrete

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<sup>227</sup> A. Markowska, *Rachel Whiteread – próby niebudowania*, „Czasopismo Techniczne”, conference proceedings *Definiowanie przestrzeni architektonicznej. Co to jest architektura?*, b. 11-A/2005, Y. 102, Kraków 2005, p. 83. Anna Markowska described the London-based project as follows: “The structure [...] made a striking impression – on a green lawn, in the context of urban development, there stands a grey, mummified house. The internal space, which constitutes the essence of living, is inaccessible, the casts of doors and windows do not invite one inside”.



III. III.11. *House*, Rachel Whiteread, London, 1993

forms<sup>228</sup>. The site for the design (a corner of Szczepański Square) brought to mind an essential thought of the “placement” of this architectural object, explicitly associated with Kantor and the Krakow Group. The significance of the place and its context reminded one of the etymology of the word “*Ort*”, which denotes a place that alters concepts into the real-world shape of a monument – an architecture that establishes the function of a catalyst of memory.

Tadeusz Kantor’s words about the essence of matter as the only trace of existence, which defines elements such as colour, light, composition, structure and time as the traditional intermediaries between the present and the past, appeared to be the deciding factor:

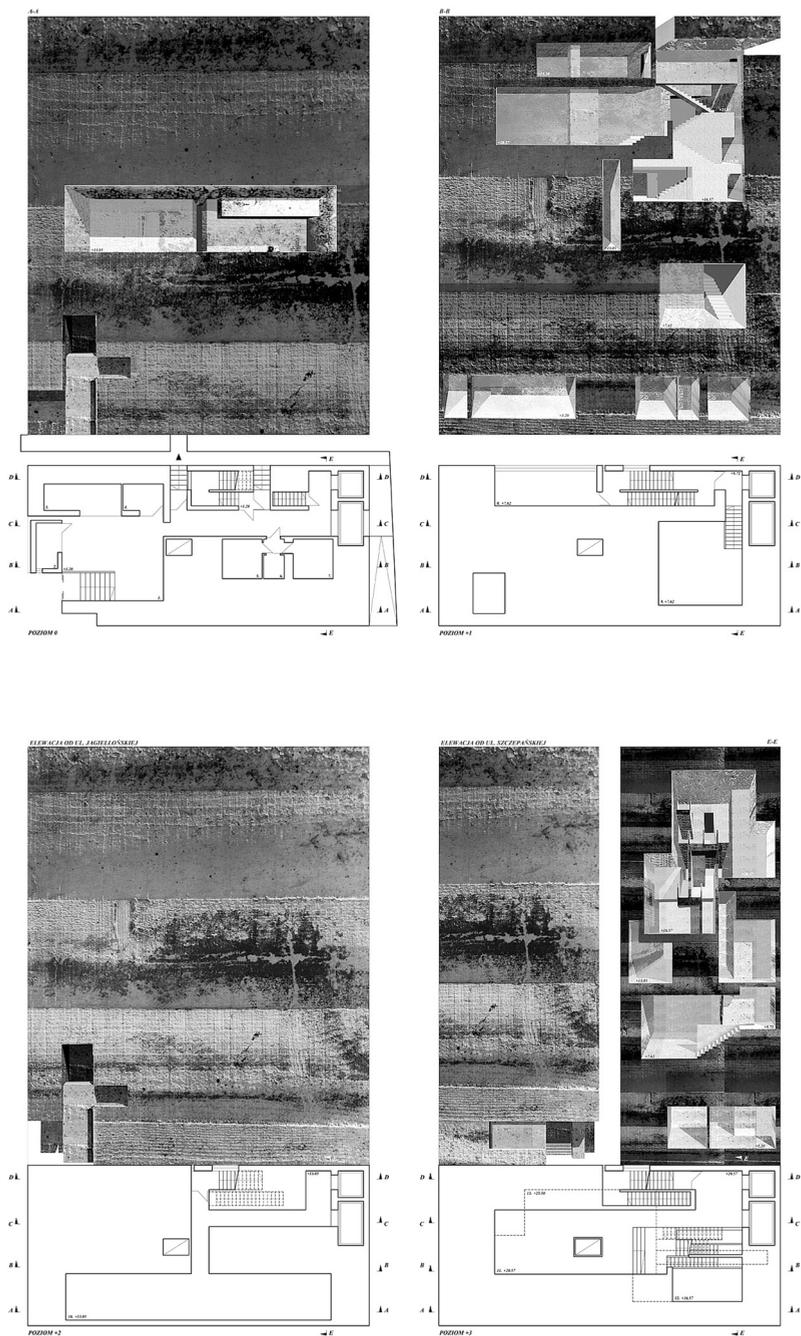
[...] Matter, which rejects the mediation of traditional means of expression through its obsessive presence and non-imitation of anything, causes shock. It is the shock [...] of direct contact with ontological reality that the world has lost because of long and complicated mediations. It turns out that today, the minimum of “mediation” can be enough to reflect a genuine and deep image of life<sup>229</sup>.

The principal idea thus became a neutral, solid concrete volume, which interprets the artist’s thoughts concerning opposing the role of the “meaning” of form in contemporary art/architecture. The structure is to present the logic of a reduced work, in which only matter defines space. The monument of the *Cricoteka* tries to operate without light or colour, a visible composition and structure. According to Kantor’s will, it is to be a manifesto against expression that is without aesthetic value and without engaging values. The museum is to simply be a material object – an object that rejects any external message. The content of this form is the metaphor hidden in the labyrinth of reinforced concrete.

The drawings drafted for the competition, created in a certain notational extreme, depict a certain concordance between the simplicity of the structure’s external shape in relation to that which is hidden inside the “invisible” shape of the interior. The sense of carving in matter (in reinforced concrete) is meant to engage the viewer in the game of finding invisible meanings: those of a “house”, a “labyrinth”,

<sup>228</sup> A fragment of the text also appeared in the article entitled *Widzialna i niewidzialna struktura architektury, czyli pokoje Pana K.*, [in:] „Pretekst”, *Zeszyty KAM*, no. 2 (2006), p. 93; also: *Stereotomie. Pokoje Pana K.*, [in:] SARP, „Projekt Roku 2005” competition. The design (authors: Marcin and Katarzyna Charciarek) won the Grand Prix award of the 2004 Tenth International Architectural Biennale. „Architektura – sztuka przyszłości. Miejsce sztuki w mieście”. Publication of the design in the competition proceedings: *X Biennale Architektury 2004, Architektura – sztuka przyszłości. Miejsce sztuki w mieście*; also: along with M. Charciarek’s text. Also nominated for the award „Projekt Roku 2005”.

<sup>229</sup> Conversation between Tadeusz Kantor and Jerzy Madeyski for „Życie Literackie”, no. 44 (406), 1959, [in:] *Tadeusz Kantor – wędrówka*, festival issue „Kraków 2000”, p. 55.



III. III.12. *Rooms of Mister K.*, Tadeusz Kantor Museum, floor plans and stereotomies, Marcin Charciarek, Katarzyna Charciarek, 2004

a “trek” – presented in fragments on stereotomies selected by the authors. The building does not have traditional decks, walls, or windows, as its basis lies in celebrating an aesthetic idea created from thickness and weight, from the solid and the void (ill. III.12). The three-dimensionality of concrete appears to be the basis and property of creating its meanings and its formal system. The metaphor of the *Cricoteka's labyrinth* is a lead along the path of the artist from Wielopole Street, while also constituting the fulfilment of a higher sense that underscores the logic of the internal figure. This thought is the belief that architecture is a definition of space using a “purpose” (rooms) and a “path” (exposure). The design is also a presentation of a metaphorical “house” filled with “rooms” – a mysterious and cameral space that outlines a shelter for ideas and objects<sup>230</sup>.

### 3. The pure image of concrete

**3.1. One idea – one matter.** Completely different arguments are put forth by proponents of a style of concrete architecture that avoids Le Corbusier’s idea that referred to the “earnestness” of concrete’s meanings. It is about continuing the thought of Mies van der Rohe featured in the concise statement that *less is more*. Here, simplicity in architecture becomes a sort of a tactic aimed at arriving at an uncomplicated aesthetic – the externalisation of the purity of form and matter. Contemporary architecture achieves this by simplifications that not only eliminate that which is redundant, but also by searching for that which is of generally established significance.

In the period of technical production and reproduction, the art of Minimalism has become the most appropriate space for design that depicts the dominance of matter in culture. Despite the rank of producing objects created using the same mould (as Walter Benjamin would have it) leading to the disappearance of the aura of artistry and the loss of its authenticity and the authority of the artist, it is reproduction that brings us closer to the notion of the “renewal” of the Modernist idea of purity and departure from the pathos of twentieth-century art. In Neo-modernist and Minimalist architecture, this search and simplification become an artistic challenge in which reduction should be understood as the function of articulating the simplest current form by specific meaning and materiality. It even appears that, to a Minimalist designer, the “physical” approach to their work plays the dominant role in relation to the idea of the work itself. In tendencies of reducing architectural meaning, authors bring artistic value down to a minimum, using a limited canon of forms – lapidary, stereometric shapes like the cube, the cylinder, the surface, the angle and the edge.

<sup>230</sup> “And thus, backing away, I find my successive houses in delight and then in despair. All uninhabited and empty”, T. Kantor, *To wszystko prawda!*, „Teatr”, iss. 9, 1991, p. 24.

Designers deliberately opt not to give value to surface structures – all that defined the value of previous architecture. The ideas of traditional aesthetics – treated as a process of the material’s transposition – are also reduced or “neutralised”.

In architecture, “less” means the deliberate impoverishment of any matter, wherein the idea becomes merely a singular verse – a thought that binds the material into a whole. We can use “more” to describe that which is attached to the principle of the use of matter – this “more” is the hidden meaning of architecture, its symbolism, the experience of the viewer. This “something more” causes art to be what it is – it has to be the effect of creating a shape with perfect form. The object of the viewer’s interest is the aesthetic and material object of contemplation, a game with the image of architecture that, with its properties of space, introduces us to a sense of pursuing the absolute, inalienable essence of an architectural work’s form and content. In Robert Morris’ paraphrase that the simplicity of shape does not necessarily equate the simplicity of experience<sup>231</sup>, we can currently find not only the message that simple forms do not limit semantic relationships, but we can also discover that they can replace elaborate architectural metaphysics through their primal elementarity. The edifices of “reduced” architecture obsessively highlight physical existence and – surprisingly – reject the possibility of ideational analysis as a redundant aspect of transforming into a work of art. Their material neutrality and naturality of colour, in addition to limiting access to light, are intended to be conducive to the greatest possible focus and concentration on the physical phenomena of architecture.

In this context, the architecture of the minimum – an art of pure meanings and the “purest” matter – although paradoxically appearing to be the result of the overproductiveness of thought, strives towards a traditionally understood dualism of the object and subject of architecture – the form and its matter – in its fundamental experience.

Concrete, as an obvious part of the landscape of contemporaneity, through its naturality, neutrality and synthetic character, has become the perfect material for artists operating under the principle of formal reduction – it is a matter of the product of anonymous engineering, production, things that still do not possess established semantic and aesthetic references. As the matter that fits to the stylistic constraint that stirs emotion in the asceticism of shape and material, concrete finds its source in an aesthetic that, through the generalisation of perception, becomes impersonal and without reference. As a non – imitative, non – eminent and absent material, it is the perfect creation for taking away the possibility

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<sup>231</sup> M. Hussakowska, *Minimalizm w sztukach wizualnych. Demitologizacja koncepcji awangardy w amerykańskim środowisku artystycznym lat sześćdziesiątych*, Kraków 2003, p. 236.

of deducting the means of creation from art. Maria Misiągiewicz characterises this method of using concrete in architecture as follows:

[...] From a position of ethics, in order to realise an idea, or perhaps merely the principle of Minimalist architecture, it appears the perfect matter. Here, the unity of the idea is guaranteed by concrete, composed of smooth, satin, undetailed surfaces, displaying a perfect technological genealogy. One can get the impression that neither the architect nor their architecture particularly care about attracting attention. This attitude is likewise proclaimed by concrete matter<sup>232</sup>.

A certain key to understanding the differences between the use of concrete and highlighting the uselessness of form is Donald Judd's approach expressed in his cycle *Concrete Work, no. 12* (1980–1984) in Marfa. Open concrete kiosks (2,5 m × 2,5 m × 2,5 m in size), grouped and placed in a lowlands landscape, are simply functionless volumes with a distinctly defined spatial role of matter. The fact of the peculiar detachment from the context and the return to the paradigm of a ready-made object are likewise surprising. This underscoring of the role of matter, which is the foundation for building every universal, elementary space, provides a basis for the simplicity and orthodoxy of limiting architecture's language; it hides within a desire to discover a greater, purely ideational message – a n o n – f i g u r a t i v e e x p e r i e n c e.

### **3.2. The experience of matter. “Unblemished” concrete – “primal” concrete.**

It should be stated that, in architecture, the notion of dematerialisation and de-ideation does not occur simply because of the obvious fact of assigning and adapting matter to a function, and said function to a specific form. The constant burden of the automatism of reading architectural form by its stereotype/archetype causes difficulties in labelling architecture as an art of Minimalism; here it should be reminded that architecture is the most functional of the arts, as it belongs to objects that contain utility.

Despite this, architectural “forms without function” are created as proof of the will of architects to produce a pure, non-functional, aesthetic e x p e r i e n c e. One example of this is the practice of Erwin Heerich, who develops the natural landscape of the Insel Hombroich (near Düsseldorf) with objects modelled after André Bloc's *sculpture habitacle* or Victor Pasmore's *Apollo Pavilion*. In each of these cases, the constant asking of questions about the absolute autonomy of architecture and its lack of links to a specific function or purpose appear justified. In a sense, this is a result of the tradition of empowering architecture as a material object – that

<sup>232</sup> M. Misiągiewicz, *Architektoniczna geometria*, Kraków 2005, p. 104.

freely filters sculptural forms without distinguishing between furniture, sculpture or architecture – that has been present since the 1960s. On the other hand, we can establish a certain co-dependency within the arts, one based on the pursuit of adapting visual images from the spaces of other arts to interpret it as commonly understandable. All attempts at shaping matter that is appropriate to one art and that define another demonstrate how uncertain and blurred are the borders that divide them. The notion of architectural Minimalism clearly defines the objective and the means – the idea cannot replace the material object. Therefore, a process of the work's materialisation must take place.

The *Cube House* (2000) in Ithaca by Simon Ungers can appear visually close to the works of Minimal art. The building presents to us another sense of the meaning of the form of the “house”, whose architectural expression is confined to a geometric essence and Functionalist figure (the architect calls it a block). The outline of the building, which is situated within a flat landscape, is composed of uniform grey masonry units with a repeatable pattern, which activate the visual power of the building in their non-reducible emblem (ill. III.13). In the *Cube House*, concrete is a material that is treated nominally, superficially and literally – it is what you see<sup>233</sup> – as Frank Stella would want it.

The pattern of the wall modules also reminds us that similar orthogonal grid-or-net-like motifs became the layout that defines the image of the birth of Modernism's basic visual model. The gridded or “netted” space is seen by contemporary designers as a sign of the mind, logic and order. The conceptual purity of Ungers's house is only distorted by the layout of window openings which convince us that we are indeed dealing with architecture – an applied art. The origin of the idea of the house appears obvious and is a result of the desire to depict the confrontation between the artificial and the natural. The concrete wall, which is an object that defines the functional earthwork, leaves a trace of human presence in the landscape that communicates both with the conscious and the senses and defines the dividing line between nature and the environment created by man. All of Ungers's objects are examples of the principle of the “mute form”; they are a reference to this reception of the pattern of “ascetic architecture” as if the architect drew from the principles of mathematic and economic thinking. The *Cube House* is also an appropriate reference for those propagators of the “architecture of simplicity” who believe that perfect Minimalism is based on coming closer to traditional architecture, in which nature and mathematics are not predominantly a question about context but rather about the method of defining elementary space. Ungers's house also constitutes an example of the continued existence of the idea initiated by Alison and Peter Smithson in architecture, one that has been perpetuated

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<sup>233</sup> A. Zabalbeascoa, J.R. Marcos, *Minimalism*, Barcelona 2000, p. 27.



III. III.13. *Cube House/Ithaca House*, Simon Ungers, New York, 2000

by numerous designers who search for an ennoblement of architecture in its material poverty.

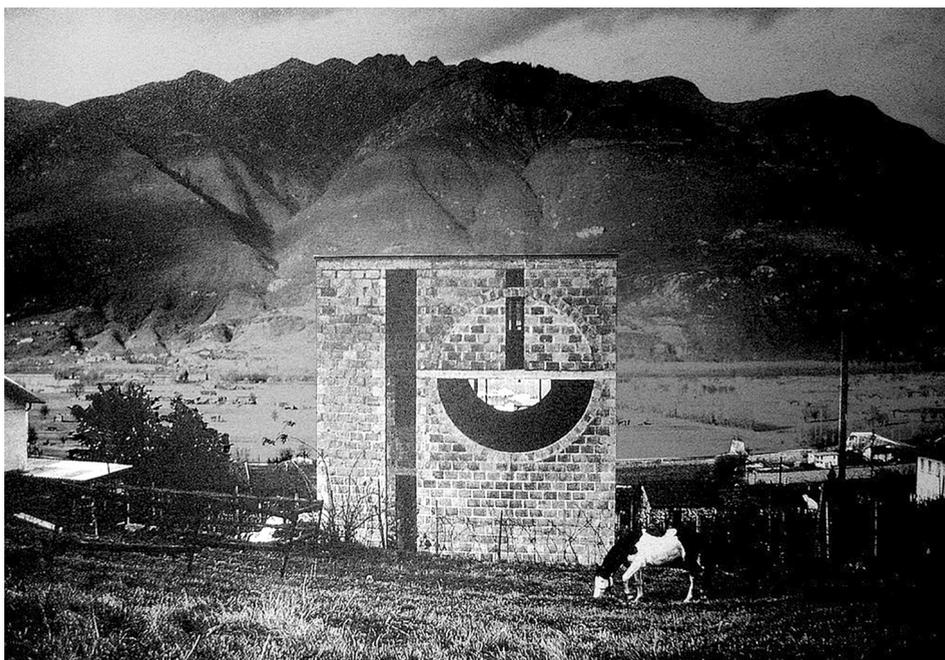
*Casa Caccia* (1970–1971) in the Swiss town of Cadenazzo, by Mario Botta (ill. III.15), and the *Ogura House* (1987–1988) by Tadao Andō in Nagoya (ill. III.14) belong to the same category – both are structures that, through their modest message, try to establish a foundation for the work of Rationalist architects. Both houses reference the principle by which aesthetic and structural solutions reveal the character of the structure – not as much its technology, but rather the manner of its construction. The masonry elements of both houses are based on the simplest principle of creating walls from a grey, concrete brick, traditionally laid in a running pattern, with each layer shifted by half of a brick’s length relative to the next one. Similarly, beams, grates and lintels, all cast on site, are intended to reflect the sense of manual work, without which the effect of stylistic coarseness would be unobtainable. Emilio Pizzi, an expert on Botta’s works, writes that this treatment of the material is in line with the deliberate avoidance of a certain type of imitation in favour of discovering the elementary character of traditional materials by the architect; however, the critic highlights the elementariness of the work more than its deliberate Minimalist reduction<sup>234</sup>. In their treatment of form and construction material, both buildings present the impact of Botta’s and Andō’s role model – Louis Kahn, to whom each element of architecture was to be legible and distinct, to become evidence of actions performed by man.

To both architects, material is an inseparable element of establishing the rigour of the whole. There is no place for illusion in it: beams are beams, cantilevers are cantilevers, the beam is under compression and the cantilever is under tension. All is to be evident and clear, defined with a discipline which, thanks to materials, allows one to discover the planned architectural space.

In these two examples, the wall is the superior “image” of architecture; it appears to be a figure of our imagination and experience through its very diversity of texture and colour. Through this image of the building’s wall, we create in ourselves a certain idea of architecture’s identity. The physical partition (not only the wall, but also the ceiling or floor) is a surface and a background – it can be an analogy to an abstract painterly composition, a figurative one or one that has in it something of a *trompe l’oeil*.

The physical root of architecture thus constitutes a “real image” – an actual, tangible trace, but also an “idealised image”, which reduces its physicality to the imagination of the viewer. Following Henri Bergson, this realistic-idealistic image of architecture connects us with the notion of the “mysterious substance” that binds the physical and mental space. Another word that describes this substance is image,

<sup>234</sup> E. Pizzi, *Mario Botta*, Barcelona 1997, p. 18.



III. III.14. *Ogura House*, Tadao Andō, Nagoya, 1987–1988

III. III.15. *Casa Caccia*, Mario Botta, Cadenazzo, 1970–1971

which Bergson describes as something half-way between an object and a notion<sup>235</sup>. In this perspective, matter (which comprises surfaces, partitions and colour) is the entirety of the images that we experience without excessive speculation about the realism of existence and the idealism of the object.

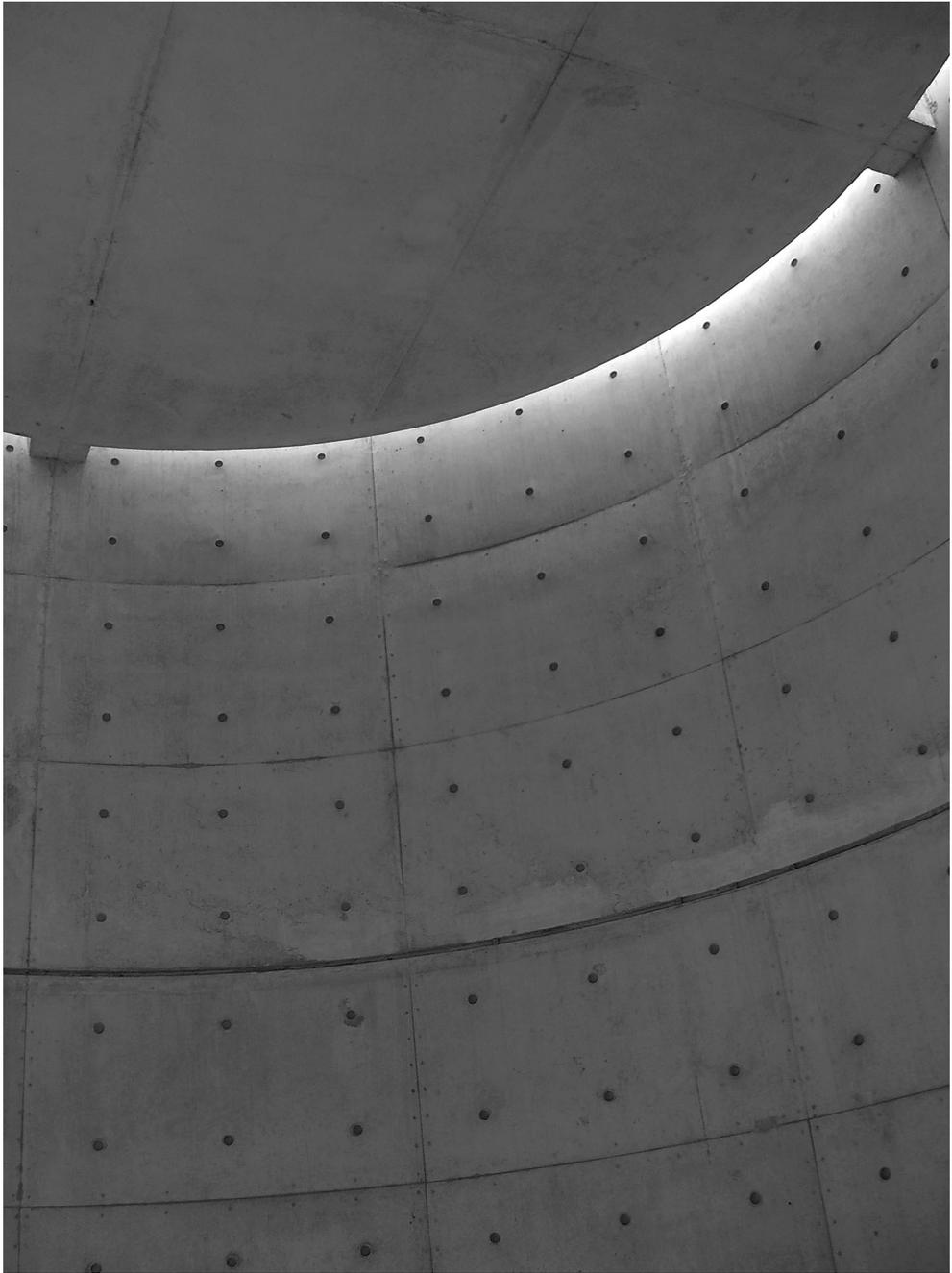
The overarching impression produced by the Meditation Space (1995) (ill. III.16), located in the UNESCO complex (1958) in Paris, is its “materiality”. The massive solid concrete walls of this small cylindrical structure (33 m<sup>3</sup> of floor area and 6,5 m in height) by Tadao Andō establish an expressive boundary that separates the world of the profane from its circular interior. The building, built out of the rigour of a simple pattern of formwork, does not hide its technological provenance; concrete cast in large-format surfaces features traces of its size, shape and the placement of brace openings. The ascetic character of the intent not only reduces the form and its meaning, but also appears to eliminate architectural detail – this is intended to highlight the greatest possible simplification of the figure to the required shape. The matter is similar with acknowledging the most proper colour of this space – the natural grey of concrete. The “tangibility” of Tadao Andō’s architecture is an important sensation. The heavy walls appear to be soft right until we touch them; concrete has the nature of a smooth and slightly wavy fabric, contrasted with cold and hardness – elements derived from stone matter.

However, the deciding significance of this architecture is its “void” – a “level zero” for all meanings or architectural references. Andō’s “level zero” (similar to Roland Barthes’s term) is treated as a transparent message, one that is neutral and close to the concept of a base language, based on an almost perfect absence of style.

The work of the Japanese architect is an example of this architecture, in which the construction material and its shape are devoid of a narrative – whose rationalism is absolutely radical and purely abstract. Contrary to its surroundings – the articulated structure of Pier Luigi Nervi’s assembly hall and the reinforced concrete columns of Marcel Breuer’s UNESCO office building – Andō’s space appears “unreal”, it directs the viewer’s gaze and attention to the uselessness and selflessness of the layer of architectural art. By reducing the notion of references in architecture, Andō leaves it in a sensory experience, as an example of the elementary cognizance of a material object. The perfection of the image of the Meditation Space’s matter mixes with the sacred, just as the formal idea mixes with the perfection of *technē*. *Béton glassé* used in the building’s walls, black stone from Hiroshima on the floor, the light that gently flows in through the gaps in the ceiling and the symbolically used water become the beginning and the end of the world of architecture to the architect. The author comments on this “state” of architecture

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<sup>235</sup> H. Bergson, *Materia...*, *op. cit.*, p. 11.



III. III.16. Meditation Space, Tadao Andō, Paris, 1994–1995

in the following manner, stating that without entering the ambiguous domain of the human spirit – happiness, sympathy, silence, tension – architecture could not achieve its functionality. He stressed that this was architecture’s true domain, but that there was also another one, which is impossible to define and that architecture can enter the realm of art as an expression solely through the speculative combination of the physical and fictitious world<sup>236</sup>.

The “ideality” of Andō’s work is also rooted in the fact that it is the primal beginning of architecture – an iteration of a super-elementary space. It corresponds to the notion of the “extreme of simplicity”, which is a successful attempt at achieving that which artists following the banner of reductionism have been arguing for, yet maintaining the sense of the concrete material and its physical meaning. The adoption of this Minimalist strategy by the architect is not based on solving the riddle of what is matter in a Minimalist work, but on avoiding the procedure of defining what the physical side is. According to this principle, Andō’s architecture grants the physical and natural presence of the construction material in a manner that is so deep and transformed that the concrete walls, ceilings and floors remain, in and of themselves, a primal artefact that reveals the sense of a perfect space.

The consistent pursuit of “experience” in architecture can also be seen in the work of Swiss architects: Christian Kerez, Valerio Olgiati and Peter Zumthor. They understand the problem as a broad one – it is not only about the “experience” of a building, but about purely practical impressions that are linked with studying the surroundings, light and material – so that the architect could be surprised by his own work. This is a paradox whose understanding is difficult for lecturers-architects from Eidgenössische Technische Hochschule (ETH) in Zurich: architecture cannot be fully imagined and predictable or else it ceases to be creative work and takes on the qualities of mass production. The new Swiss avant-garde desires a return to the aesthetic of Realism, Structuralism and Constructivism. By rejecting formal experiments, it does not believe in utopia, and views design as a cultural escape into a world of the synthesis of the purest forms and materials. As Christian Kerez admits, his work is based on a deep awareness of the process of construction, of the physicality that impacts the end result of design; on an awareness of material and technology, but also on a perfection of workmanship. He is interested in expressing and progressing fundamental architectural notions, such as the matter of space or light, which he comments on as follows: “All this should be based on a single idea, which leads to the choices that follow”<sup>237</sup>.

<sup>236</sup> P. Jodidio, *Tadao Andō*, Köln 1996, p. 17.

<sup>237</sup> G. Franck, *Conversation with Christian Kerez*, [in:] *Christian Kerez 1992–2009*, „El Croquis”, no. 145, p. 6-19.

In the design of the Oberrealta chapel in Cazis (1993), Kerez's uncomplicated rhetoric reaches a point in which the reference to Minimalist means denotes a calculation from how many and what elements is a work of architecture composed of. This hermitage-like architecture of the Alpine chapel was created from the monolith of concrete that forms a uniform, iconic shape – an abstract figure covered with a triangular roof. To Kerez, to whom “Not the skin, but the bones, is the target of the design”<sup>238</sup>, the chapel is to be a place of focus and in its “genetic” simplicity and structural formulaicness, it is intended to incorporate architecture into the code that forms an infinite spectrum of systems in the rational process of creating architecture.

Another chapel – built in 2006 in Wachendorf in the Eifel region in Germany<sup>239</sup> by Peter Zumthor – also constitutes a reference to the source of form, but, most of all, it is a turn towards the foundations of the meaning of concrete. The solid, along with its carved interior, akin to a Neolithic menhir, located in an agricultural landscape, is intended to present yet another archetype of architecture. The material from which the chapel of Brother Klaus is built is “primal concrete” – a natural conglomerate rammed in wooden shuttering similarly to “earth houses” (*pisé*), a substance made from cement mixed with local aggregate. This architecture was built without the participation of technology, in order to obtain the effect of a mark left by the work of human hands on the massing. All of this – the super-raw texture of the concrete (as Dariusz Kozłowski writes – *béton super-brut*)<sup>240</sup>, left black after the burning of the formwork planks in the interior of the chapel, the lead floor, the irregular openings on the walls, along with its skylight – are to testify of the creator's ceaseless pursuit of symbolism in contemporaneity.

The shape of Zumthor's work, its sensuality, the perception and reception of its form and materials are also proof of the architect's favourite praise of consistency. It is a praise of a specific process of shaping the building, in which the consistent and unhurried ramming of concrete layers, which ended in the firing of the interior, is a result of a belief that architecture is a “slowness” of action<sup>241</sup> Zumthor's material patience is also a description of the vernacular effort and laboriousness of the work, in which the aspect of industrial technology is discarded by the architect in a most clear manner. The chapel in Wachendorf appears to be a programmatic negation against the background of all of programmatic formalism, as if art did not need

<sup>238</sup> *Ibidem*, see also: *An Interview with Christian Kerez*, <http://www.tokyoartbeat.com/tablog/entries/en/2013/08/an-interview-with-christian-kerez.html>; accessed: 03.05.2013.

<sup>239</sup> The chapel is devoted to the local St. Nicholas of Flüe (1417–1487), also known as Brother Klaus.

<sup>240</sup> D. Kozłowski, *Beton surowy w architekturze lat 60. i pięćdziesiąt lat później*, „Czasopismo Techniczne”, no. 3-A/2011, b. 12, R. 108, p. 88.

<sup>241</sup> A. Benjamin, *Plans to..., op. cit.*, p. 105.



III. III.17. Chapel of Brother Klaus, Peter Zumthor, Wachendorf, 2005–2006

expression, as if the architect argued that it is not only redundant, but even harmful, for it hinders and collides with the true values of art, which are always fully material and formal. In this order.

This reasoning is discrete enough in Zumthor's work that it allows one to create a certain non-binding interpretative tool which goes beyond examples of the Swiss architect's architecture. The term "involuntary expression" is an adaptation of idealist aesthetics proposed by Zumthor that allows one to issue an assessment of an architecture that, while being outside of the contemporary avant-garde, creates the shape for a new, independent symbolism (ill. III.17). On the other hand, is it not the sign of contemporaneity that it is consumed by such a great need for symbols that, despite all of its breathtaking faith in progress, we were stripped away of the possibility to recognise them again? While the originality of the designers of concrete architecture has ruled out the reading of the old symbol, but it has also created a precedent for slowly discovering meanings and conventions. It is the element that causes architecture to once again be recognised as a realisation of the sense of patterns, repetitions and narratives in its most essential expression.

## Conclusion

### **The concept of the idea and the structuring of the matter of architecture**

Everything that exists in architecture in some way has a form that is the result of an idea and some matter that is subject to it. And there is no matter that would not present itself in a certain form appropriate to it; there is also no form that would be devoid of matter. It appears that this aesthetic state is final and its universality forms the principle of the creation of every work of architecture. Architecture has always meant the discovery of an ideal (or any) potential contained in matter and it can then be said that a given object has its architecture. This argument is confirmed by designers of “concrete architecture”. They are of the mind that architecture is an art dependent on material, and it is the idea of architecture, together with matter, that establishes a certain scope for the imagination of the structuring of an architectural concept. Understood as such, the art of architecture is based on an effective synthesis of the relations between these two elements. And on the basis of these relationships is architecture created as a completed work – something defined and “limited” by matter, whose sense and understanding is established by the material of border of space chosen by the designer.

To architecture, the times of the use of concrete have been a period of searching for new thought structures and their accompanying material experiments with architectural form. Thinking about architectural space as something that is definable by matter and which can even be considered its embodiment is likewise subjected to this rule. The selected matter/material gives the idea a certain logical image, a defined structure, a strength that results from the relationships between each part and their relationship with the whole. Describing this phenomenon has become the challenge of contemporary architecture: a mathematical, poetic or visual creation of the minds of its designers and co-believers – those who have adapted “dead materials” to the requirements of architecture.

Concrete, as a state of matter “without an original image”, appears to be the perfect material that reflects the “matrix” for the form imagined by the architect. The negative form of the formwork is simultaneously the shape of hardened concrete; a substrate for all creative expression and an abstract for the meanings added by the concrete. This peculiarly understood monolithism – as a principle of a structure’s material uniformity – serves to realise the content encased in the variety of forms, but is also the groundwork for the idealisation of established or newly-emergent meanings and poetics. In this transformation, concrete also

becomes a tool for the metaphorisation of architectural form. It appears that concrete architecture (in its monolithic or decorative expression), treated as an actual formal value that combines aesthetic expression with the structure of the edifice, has gained the rank of a model reference in the pursuit of the idea-form-matter relationship.

### **From the material of architecture to composition**

The division into “invention”, “discovery” and “composition” is a certain facilitation in traversing the stylistic meanders of the history of the idea and its accompanying evolutions of the concrete matter of architecture. Concrete architecture has a sense that is close to the meaning pertaining to the entire history of architecture – in the beginning, it was a system of rules governing the shaping of a material and afterwards, a time of the development of forms and meanings. Finally, it became an individual programme of action that every artist formulates deliberately or intuitively in the pre-conceived intent to realise their work.

**I n v e n t i v e** thinking in twentieth-century concrete architecture created an ideology and defined ideas, a construction material and tools for establishing the basis of the subconscious of the twentieth century. The functionalism of matter transforms into a functionalism of forms which are an aesthetic necessity, in which the notion of objectivity, of the “truth of matter”, defines the differentiation of a specific structural model – a “prototype” of architecture. In this context, concrete, although it had not been a new material, became the material that established modernity – through its technical “appropriation” in the progressive transformations of Functionalism.

**I n n o v a t i v e** thinking initiated development and started a process that enhanced technological knowledge and aesthetic awareness. In concrete architecture, this became a visible sign of those changes in the material that resulted in innovation establishing the sense of understanding ideational novelty and stylistic originality. Architectural objects comprising the category of a “discovery” – the transformation of an original (form and material), thus become an interpretation of a model, they are an attempt at aesthetising forms by the expressive unbinding of the will of the artist. Experiencing the potential of the construction material causes concrete to become not only a tool, but also the content of architecture in this programme, allowing the highlighting of added meanings by the style of *béton brut* in the twentieth century, but it is also the essence of creating freeform, monolithic sculptural structures.

To “composers”, concrete is a material that highlights the ideality of an authorial poetic or the essence of archetypical references to a monolithic shape. To some, it is the matter of rational formal systems, to others, as a base of metaphoric meanings, an added value of a “game with the past”. Designers show the world in a completely different perspective – in a mannerist manner or by a radicalism of forms and

thoughts. Thanks to the formulation of the notion of the “Museum of Imagination”, the contemporary architect establishes the “fiction” of the shape of architecture, which typically accompanies idealistic abstraction, rational geometry and poetic metaphor – tools that form “tombs”, “monuments”, “palaces” or “palestras”.

The dynamism and wealth of forms of this world is also (perhaps most importantly!) built by concrete tectonics. The compositional “decomposition” in architecture – the shifting of form and matter to a complex aesthetic and structural dimension, is given sense by acknowledging the fiction of this language as one that assumes a certain instability of notions and readings. Concrete/reinforced concrete plays the role of a material that “supports” and binds the variety of shapes into a whole and highlights the incoherence of spatial organisation. Contemporary deconstruction confirms that the entirety of art is a lie and that there is no truth about the image of the whole, and that architecture is a logic of compositional decomposition that moves towards that which is varied and separate.

### **The ideation of concrete**

That which was concrete’s weakness has turned out to be its creative force. Concrete has gained a material identity in imitating something that it is not – and because of this, it has become a material for all manners of architectural forms and for finding their aesthetic meaning. The ideation of concrete as a medium of presenting architecture is the fact of “reading” a structure as an object of “material imagination” – in this idealised perspective, concrete is the pursuit of this sense of the meaning of the edifice which the author embedded in its entire structure.

The notion of concrete matter, understood as an act or process of intuitively (subjectively) experiencing objects, appears to be helpful in reading the relationships between the idea and the matter/material of architecture. Concrete and its forms are the cause of *i m p r e s s i v e e x p e r i e n c e s* – ones that distinguish extreme reception and aesthetic reactions. By using concrete, designers have been given the ability to bestow new ideational and ethical meanings. The categories of *béton brut*, “poor concrete”, “sacred concrete”, concrete as the “matter of memory”, “unblemished concrete” – have defined and established the scope of successive symbolisms and poetics of architecture. This peculiar image also constitutes the start of thinking about the natural “genetics” of concrete, which appears as a substance that substantively and metaphorically absorbs successive natural similarities – imitating stone, absorbing the image of the surroundings, atmospheric conditions, etc. Concrete detail participates in this game of meanings, considered to be a logical element of the entirety of a building and the narrative reflection of structure. To some designers or viewers, the detail can also convey the “soul” of the building as an expression of the reflection of the state of the “soul” of the designer – their affectation, peace, ideal.

The Minimalist element in concrete architecture is an expression of the need to present the simplest expression of the construction material and the form created from it. According to the argument that less is more, “less” means the deliberate constraint of any idea and matter of architecture, the application of the naturalness of material, the neutralisation of form and its material: the “more” is the addition that arises from the meaning of the edifice that we discover, its archetype, symbolism, a direct encounter with and the experience of physical shape. “Pure concrete”, as well as the “non-imitative”, “absent” and “extremely simple” one, is the ideational cause and material effect of architecture based on formal reduction – creation that reveals a purely physical origin of form in art.

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# Związek między ideą a materia w architekturze betonowej

## Streszczenie

Przekonanie o istnieniu relacji znaczeniowej pomiędzy ideowym przesłaniem architektury a jej realizacją w fizycznym tworzywie stało się powodem poszukiwania przez autora możliwości ujęcia tego związku w temacie *architektury betonowej*.

Tytułowa teza stanowi podstawę do wyróżnienia w pracy dwóch głównych założeń, ustalających formułę do odszukiwania cech widzialnych i impresywnych znaczeń architektury: betonową *materializację* idei architektonicznej i *idealizację* betonowego tworzywa. Materializacja formy i idealizacja tworzywa jest w pewnym sensie próbą racjonalizacji opowieści o „dokończeniu świata” architektury, powstałego wcześniej na kartce papieru, w umyśle twórcy. Ów sposób myślenia i odczuwania architektury pojawia się u wielu twórców jako doświadczenie rozwiniętej notacji i narracji architektury. Mieszczą się w tym zakresie budowle odwzorowujące symboliczną idealność, metaforyczną fikcję i czystą ekstatyczną ekspresję. W stosunku do innych materiałów twórcy nie traktują betonu jako tworzywa „obojętnego”, lecz z pewnością jako składnik dzieła decydujący i znaczący – a jego „nowoczesność” ma stanowić o wyłączeniu go z systemu znaczeń przypisywanych innym materiałom. Istotnym zakresem pracy wydaje się być próba odnalezienia tych symptomów estetyzacji materii betonu (zarówno po stronie ekstremy, jak i po stronie naśladowców), którą należałoby uznać za próbę definiowania architektury jako sztuki wraz z poszukiwaniem w niej tak idealności, jak i przejawów współczesnej ekspresji.

Dysertacja zawiera trzy główne rozdziały, określające kwalifikację *architektury betonowej* jako związek pomiędzy ideą a materia. W rozdziale pierwszym *Poszukiwanie idei – odnalezienie materii...* starano się zdefiniować nadrzędny zakres terminologiczny, odpowiedzialny za konsekwentne nazywanie rzeczy *architektura betonowa* – termin ukrywający dualizm całej sztuki architektonicznej.

Drugi rozdział *Materializacja idei...* stanowi odniesienie do prób definiowania betonowych wątków stylistycznych (formatywności betonu). W zmieniającej się rzeczywistości architektury ostatnich stu lat beton stał się kanwą i celem wszelkiej ekspresji. Przykłady ukazujące mnogość odniesień – począwszy od genialnej wynalazczości i innowacyjności twórców początku XX wieku, przez próby ich naśladowania i modyfikacji wzorców, aż po wyzwolenie ekspresji architektonicznej – potwierdzają ewolucję, jaka dokonała się we współczesności. Beton, od obiek-

tywnego, jednoznacznego związania formy ze strukturą aż po zatarcie granic sztuki w ekstatycznym podporządkowaniu konstrukcji formie, okazał się tak materia eksperymentu, jak i środkiem kompozycji architektonicznej – jednoczesnym narzędziem kreowania pamięci i nowatorstwa.

Trzeci rozdział *Idealizacja materii...* jest próbą opisanania natury betonu – jego „subiektywnego portretu”, tożsamości odnajdywanej pośród mitów, paradoksów i sprzeczności współczesnego, monolitycznego wyrazu architektury. Jak się wydaje, betonowe budynki pozwalają na interpretację natury tego materiału, który do dziś ustanowił swoją, niemałą ikonografię, będącą zbiorem znaczeń, idei i zamysłów formalnych dzieła architektury; jego poetyk, faktur, imitacji. Jak cała współczesna architektura, beton otrzymał tę samą „janusową twarz” – jedna odpowiada za poszukiwanie idealności i perfekcji, druga jest uosobieniem niepozbowionej niedoskonałości poetyckiej ekspresji. Wobec faktu, że beton jest rzeczą stworzoną w procesie – najpierw w umyśle twórcy, później zaś w formie szalunku, architektura z niego stworzona jest stosownym kształtem, ustalającym zgodność w relacji pomiędzy ideą a materia architektoniczną.

Opracowanie dotyczy estetyki w architekturze betonowej w XX i XXI wieku, z uznaniem kategorii współczesności za zbiór tego, co powstało jako kontynuacja lub antagonizm modernizmu. Monografia jest określona zakresem tych przykładów, które istnieją równolegle w zasobach idei twórców europejskiej architektury, jak też ich późniejszych międzynarodowych odniesień. Pominięto prezentację tych przykładów, które sytuują się poza dywagacją formalną (np. wytwory tzw. wielkiej płyty) lub są wynikiem czysto utilitarnego przeznaczenia.

## Rapporto tra idea e materia in architettura concreta

### Sintesi del contenuto

La convinzione che esista una relazione di significato tra il messaggio di idea dell'architettura e la sua realizzazione nella materia fisica è stata per l'autore il motivo di ricerca di possibilità della presentazione di questo rapporto nel tema dell'*architettura in calcestruzzo*.

La tesi fondamentale del presente lavoro costituisce la base per la distinzione di due impostazioni principali che definiscono la formula di ricerca di caratteristiche visibili e di significati di espressione dell'architettura: materializzazione dell'idea architettonica in calcestruzzo e ideazione del calcestruzzo stesso. La materializzazione dell'idea e la ideazione della materia sono, in un certo senso, un tentativo di razionalizzazione del racconto sulla "compiutezza del mondo" dell'architettura, nato prima nel pensiero dell'architetto – creatore, sulla carta. Questo modo di pensare e di sentire l'architettura appare in molti maestri come esperienza di un'ampia notazione e narrazione dell'architettura. In questo ambito rientrano le opere che riproducono l'idealità simbolica, la finzione metaforica e l'espressione pura e estatica. Rispetto ad altri materiali gli architetti non trattano il calcestruzzo come materia "indifferente", ma senz'altro come un determinante e significativo componente dell'opera; e la sua "modernità" deve escluderlo dal complesso dei significati attribuiti ad altri materiali. Un aspetto importante del lavoro sembra essere il tentativo di individuare gli indizi dell'estetizzazione della materia di calcestruzzo (sia da parte dei rappresentanti dell'estremismo, sia da parte dei seguaci), tentativo che dovrebbe essere riconosciuto come prova della definizione dell'architettura che è la ricerca dell'idealità e della manifestazione dell'espressione moderna.

La dissertazione comprende tre capitoli principali che definiscono la qualificazione dell'*architettura in calcestruzzo* come rapporto tra idea e materia. Nel primo capitolo, intitolato "La ricerca dell'idea – il ritrovamento della materia..." l'autore ha tentato di definire l'ambito basilare della terminologia, responsabile dell'uso rigoroso del termine *architettura in calcestruzzo* come termine che nasconde il dualismo idea – materia in tutta l'arte architettonica.

Il secondo capitolo, intitolato "La materializzazione dell'idea...", si riferisce ai tentativi di definire i temi di stile dell'architettura in calcestruzzo (la sua formattività). Nella mutevole realtà architettonica degli ultimi cent'anni il calcestruzzo è diventato il canovaccio e l'obiettivo di qualsiasi espressione. Gli esempi che mostrano un gran numero di riferimenti – a cominciare dalla geniale invenzione e innovazione dei maestri dell'inizio del XX secolo, alle prove della loro imitazione e della

trasformazione dei modelli, fino alla liberazione dell'espressione architettonica – confermano l'evoluzione avvenuta nei tempi moderni. Il calcestruzzo – da una connessione oggettiva e univoca della forma e della struttura fino alla estatica subordinazione della costruzione alla forma – è apparso sia come materia di esperimento, sia come mezzo della composizione architettonica.

Il terzo capitolo, intitolato “L'ideazione della materia...”, è un tentativo di descrivere la natura del calcestruzzo – il suo “ritratto soggettivo”, l'identità ritrovabile tra miti, paradossi e contraddizioni dell'espressione moderna e monolitica dell'architettura.

Come sembra, gli edifici in calcestruzzo permettono l'interpretazione della natura del materiale che fino ad oggi ha creato una sua notevole iconografia: insieme di significati, idee e concezioni formali dell'opera architettonica e delle sue poetiche, fatture e imitazioni. Come tutta l'architettura odierna, il calcestruzzo ha ricevuto lo stesso “volto di Giano”: uno è responsabile della ricerca dell'idealità e della perfezione, l'altro è raffigurazione di un'espressione non priva di imperfezione poetica. Poiché il calcestruzzo è un qualcosa creato in un processo – prima nel pensiero dell'architetto, dopo nella cassaforma – l'architettura che ne nasce è una figura finale che definisce la coerenza nella relazione tra idea e materia architettonica.

Il presente lavoro riguarda l'argomento dell'estetica dell'architettura in calcestruzzo del XX e del XXI secolo, con il riconoscimento della categoria della contemporaneità come un insieme di ciò che è nato come continuazione o opposizione al modernismo. La monografia viene definita dall'ambito degli esempi che esistono parallelamente nel pensiero degli autori dell'architettura europea e nei loro riferimenti successivi internazionali. È stata omessa la presentazione degli esempi che si collocano fuori dalle considerazioni sugli aspetti formali, oppure quelli creati allo scopo strettamente utilitario.