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Review paper

AESTHETIC THEORIES AND THEIR PATHS IN ARCHITECTURE: MILUTIN BORISAVLJEVIĆ AND HIS SCIENTIFIC APPROACH TO AESTHETICS OF ARCHITECTURE

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Abstract

Aesthetics as a philosophical discipline emerged in the 18th century, though key aesthetic questions were already present in its pre-philosophical phase in antiquity. The task of separating architectural aesthetic thought from the broader development of philosophical aesthetics remains largely unfinished, with few architects having addressed it directly. One of the pioneers in this area was Milutin Borisavljević, who, in the 1920s, earned his doctorate at the Sorbonne in Paris in the field of aesthetics. Borisavljević focused on the aesthetic experience of architecture and laid the foundation for studying aesthetics of architecture on scientific grounds. While philosophical aesthetics maintained a speculative and deductive research apparatus, Borisavljević's approach prioritized experimentation as the most reliable and objective method. He developed an original aesthetic framework grounded in experimental psychology, visual perception physiology, and neurological studies. In his exploration of the aesthetic experience of architecture, Borisavljević paid particular attention to phenomena such as harmony, composition, rhythm, proportion, symmetry, and asymmetry. Seeking to establish the laws governing the sensory experience of architecture, he remained faithful to the classical tradition of the École des Beaux-Arts, applying its principles in practice through numerous residential buildings and villas constructed in Belgrade between the two world wars. This paper examines the early formation of aesthetic thought beginning in antiquity, tracing the relationship between architecture and nature, as well as between architecture and human nature — a central focus of Borisavljević's scientific aesthetics of architecture. The enduring challenge of defining criteria and rules for explaining architectural beauty and its sensory effects on humans continues to inspire, enriching the dialogue between engineering and art.

Key words: *Aesthetics of architecture, Aesthetic experience, Milutin Borisavljević's scientific aesthetics of architecture, Experimental methodology*

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1. INTRODUCTION

The development of aesthetic thought can be traced back to the times of antiquity and philosophical thoughts on issues of beauty and art. It was not until the 18th century that aesthetics was established as an independent philosophical discipline. Through the important endeavours of Baumgarten, Lessing, Goethe, Herder, aesthetics made its way primarily in the fields of poetry, literature, and the arts of painting and sculpture. In the era of the philosophers of German idealism, through the works of Fichte, Schelling and finally the great aesthetician Hegel, aesthetics paved the way for an independent discipline that remained closely connected to the philosophy, history and theory of art to this day.

Regarding architecture, treatises on aesthetics remained very poor and scientifically little-explored field of research. In this sense, Borisavljević's research on aesthetics of architecture represents a major international contribution to the theory and aesthetics of architecture.

Figure 1. Milutin Borisavljević, Villa Flašar, Kornelija Stanković Street, Neimar, Belgrade, 1932. Recognized as a cultural monument and protected by the Cultural Heritage Preservation Institute of Belgrade. Photo by Irena Kuletin Ćulafić.

Milutin Borisavljević was born in 1889 in Kragujevac, then part of the Kingdom of Serbia, into a respectable middle-class family. His father was a physician, and his mother a homemaker. He was the eldest of five children. He graduated in 1913 from the Technical Faculty in Belgrade and, as a recipient of a military scholarship from the French government, went on to complete his doctoral studies at the Sorbonne University in Paris. His dissertation, supervised by the prominent aesthetician and philosopher Professor Victor Basch, was titled *Essai critique sur les principales doctrines relatives à l'esthétique de l'architecture* (*Critical Essay on the Principal Doctrines of the Aesthetics of Architecture*). It was published in 1926 by the renowned Parisian publishing house Payot [1].

After his return to Belgrade in 1927 until the beginning of the Second World War, he was very actively engaged in the architectural design practice. He founded the architectural and construction company "Partenon" and built over 130 buildings (123 are located in Belgrade). In addition to his very successful career as an architect (Figure 1), he was actively engaged in criticism and theory and aesthetics of architecture. He wrote critical texts concerning architecture and urbanism for many daily newspapers and published several books and many scientific papers during the period between the two world wars. After the Second World War in 1950, together with his wife Jelena, he emigrated to Paris, where he lived on the edge of existence from a small state pension. He lived in Paris until his death in 1969, and in this last phase of his life he devoted himself completely to the research of theory and aesthetics of architecture and the optical-physiological perspective and its application to architecture.

The encounter with Paris in his youth marked Borisavljević's entire later career. In Paris, the cradle of art and architecture, Borisavljević acquire refined French taste that he applied to his architectural design work. Borisavljević's astonishing villas and houses, still today, adorn many parts of Belgrade [2]. His authentic aesthetic handwriting is recognizable in the refined treatment of façades, the sense of proportion, order and harmony, which stood out from the overly eclectic and aesthetically uneven architecture that characterized Belgrade in the 1920s and 1930s [3].

In the 1920s, Milutin Borisavljević laid the foundation for the study of aesthetics in architecture on scientific grounds. While aesthetics as a philosophical discipline retained a traditional philosophical framework, Borisavljević, in contrast, advocated for experimentation as the most reliable and objective method of research. Accordingly, he developed his own aesthetic conception rooted in the principles of experimental psychology, visual perception, and neurological physiology. He viewed the philosophical concept of aesthetics as overly abstract, allowing excessive interpretive freedom and resulting in each aesthetician constructing a personal system of aesthetic principles. In response, Borisavljević established an autonomous field he termed "scientific aesthetics" — a theory and practice grounded exclusively in verifiable scientific facts and experimental data [4]. This approach offered a novel method of understanding aesthetic phenomena, one firmly based in empirical science and clearly positioned in opposition to deductive reasoning, critical-cognitive methodologies, and traditional philosophical aesthetics.

2. AESTHETICS AND ITS HISTORICAL FOUNDATIONS: FROM NATURE TO ARCHITECTURE

The relationship between nature and architecture is highly complex and, in the broadest sense, can be understood as the interaction between natural and artificial environments. Although architecture is a product of human creativity, both in theory, aesthetics, and practice—from antiquity to the present—it has consistently drawn inspiration from nature.

Although aesthetics as a distinct and independent philosophical discipline emerged in the mid-eighteenth century, aesthetic questions were already being explored by ancient thinkers. Traces of the aesthetic relationship between architecture and nature can be found in the philosophies of the Pre-Socratics. Philosophers such as Thales, Pythagoras, Anaximenes, Heraclitus, Xenophanes, Parmenides, Zeno, and Anaxagoras were deeply engaged with the diversity of nature, prioritizing metaphysical interpretations of the cosmos over individual sensory experience. In the classical world, nature constituted an immutable framework which, from both humanistic and sociological perspectives, was further examined by Socrates, Plato, and Aristotle, building upon the foundations laid by their Pre-Socratic predecessors.

The highest aesthetic values in ancient philosophy were attributed to elements originating from nature, while human-created phenomena such as poetry, music, painting, sculpture, and architecture were generally regarded as possessing lower aesthetic value. Visual arts like painting and sculpture were often viewed as false, mimetic, and deceptive, merely imitating reality rather than expressing deeper truths. Architecture, however, held a somewhat elevated status in comparison, due to its inherent qualities of utility, functionality, and its non-mimetic nature — it did not seek to imitate what already existed in nature, but rather to create purposeful structures in harmony with human needs [5]. Plato argued that the art of poetry, along with the poets themselves, had a corrupting influence on society. He

believed that poets misled people with illusions and emotional manipulations, distancing them from truth and reason. For this reason, in his ideal state described in *The Republic*, he advocated that poets be excluded, as their work did not contribute to the rational and moral education of citizens [6].

The primary reason for the negative perception of the arts in ancient times lay in their ethical-aesthetic evaluation. Art was seen as pursuing sensual pleasure rather than wisdom, which rendered it illusory and deceptive. Consequently, it was believed that the arts could not possess high values, especially not moral ones, as they were seen to undermine divine and ethical principles. Aesthetic knowledge was also deemed unreliable because it depended on the fallible judgment of the senses rather than on rational or philosophical understanding [7]. The very sensory dimension of knowledge, which was viewed with skepticism in ancient aesthetic thought, became the foundational principle upon which Alexander Gottlieb Baumgarten, in the 18th century, established aesthetics as *scientia cognitionis sensitivae* — a science of sensory cognition [8].

The most significant architectural treatise from antiquity is *De architectura libri decem* (*Ten Books on Architecture*) written by Marcus Vitruvius Pollio, which laid the foundation for subsequent practical and theoretical discourse on architecture. The importance of Vitruvius' work lies in the fact that it is the oldest surviving architectural text, though it functions more as a technical manual offering guidance to architects than as a sophisticated aesthetic treatise. Vitruvius acknowledges beauty as an essential component of architecture and articulates the famous triad *firmitas, utilitas et venustas* (strength, utility, and beauty), asserting that architectural beauty is inherently dependent on structural integrity and functional purpose [9]. Vitruvius draws upon Pythagorean teachings on harmony and symmetry, according to which the concept of beauty is realized when a building, in all its parts, exhibits appropriate proportions of height and length, and fully meets the requirements of symmetry. For Vitruvius, the same principles of harmony and symmetry apply not only in architecture, but also in painting, sculpture, and nature itself — serving as universal ideals by which all human creation should be guided.

The aesthetic theory of the early Middle Ages in art does not adhere to Aristotle's concept of mimesis, or imitation of the real world, but instead follows the Platonic principle of the ideal world of ideas. The Neoplatonist philosopher Pseudo-Dionysius the Areopagite, in his work *De divinis nominibus*, formulates beauty through the dualism of harmony of proportions and brilliance (*consonantia and claritas*). The term "brilliance" refers to light and remains somewhat vague, a characteristic often associated with mysticism, which seeks to reconcile Platonic ideas with Christian doctrine [10]. In the scholastic tradition, the ancient notion of aesthetics is continued by the medieval thought of Thomas Aquinas, who links beauty to cognitive ability. According to Aquinas, things that are pleasing to the eye are considered beautiful [11].

Renaissance aesthetics of architecture was primarily built upon the experiences of antiquity. Leon Battista Alberti transforming Vitruvius' triad into *necessitas, commoditas, and voluptas* (necessity, convenience, and pleasure) [12]. In the spirit of humanism and Neoplatonism, Alberti's perception of the beauty of architecture focuses on *voluptas* as the sensual pleasure that an architectural work evokes in us. Alberti emphasizes the subjectivity of sensory perception, which is subordinated to Renaissance idealism in the search for the absolute values of architecture, which are reflected through *decorum* and *concinnitas* — principles based on appropriateness, harmony, and the perfection of proportions. According

to Alberti, the beauty of an architectural work is expressed through the mathematical, logical, geometric, musical, philosophical, symbolic, and aesthetic relationships between the whole and its parts, where it is impossible to add or subtract anything without altering the ideal harmonious unity [13]. For Alberti, the beauty of architecture is reflected in the connection of the system of proportions that are derived from nature and from man (anthropomorphism) and applied to architecture. In this view, the architectural structure is understood as a universal organic unity, where the microcosm reflects the macrocosmic unity and harmony.

Renaissance aesthetics of architecture sought to explore in detail the relationship between nature and man, who is not an outsider in the world of nature, but is placed within the universe of nature. His highest goal is to create architecture in accordance with the laws of nature, geometry, music, and divinity. Alberti remains the greatest Renaissance aesthetician within the Neoplatonic and mystical conceptions of beauty, which, in subsequent epochs, became an important field of aesthetic research. The renowned treatises of Sebastian Serlio, Giacomo Barozzi da Vignola, Andrea Palladio, and Vincenzo Scamozzi approached the theory and aesthetics of architecture in a much more rational and programmatic manner.

Aesthetics, as a separate and independent discipline, distinct from philosophy, was officially founded by the German philosopher Alexander Gottlieb Baumgarten. He introduced the term *aesthetica* derived from the Greek word meaning sensation or perception. In 1750, Baumgarten published his seminal work *Aesthetica*, with the second volume being released in 1758 [14]. Baumgarten was a student of Christian Wolff and was profoundly influenced by the philosophy of rationalism proposed by Gottfried Wilhelm Leibniz. Leibniz's system, centered around the concept of monads, emphasized the idea of cosmic harmony, which he attributed to the governance of God [15].

Baumgarten founded aesthetics as an independent philosophical discipline based on the study of sensory cognition. Prior to his work, the question of knowledge had been primarily viewed through the lenses of rationalism, where reason formed the basis of logical thought, and empiricism, where experience served as the foundation of practical knowledge. Baumgarten, however, shifted the focus to sensory cognition, which began to gain increasing attention from philosophers and came to be recognized as a distinct form of knowledge that could complement and even challenge the traditional dominance of logical, rational cognition.

During the Enlightenment and subsequently in the Romanticism, sensory cognition increasingly drew the attention of thinkers, writers, and philosophers, particularly within the realms of literature and art. Aesthetics, as a philosophical discipline, began to define its object of study within these domains of human creativity, with architecture assuming a distinctive position. In alignment with the prevailing rationalist philosophy of the 18th century, sensory cognition was often regarded as a lower form of knowledge. Both rationalists and empiricists approached beauty from a functionalist perspective — asserting that what serves a practical purpose is thereby beautiful. David Hume, for instance, argued that everyday objects such as tables, chairs, chimneys, carriages, and plows, along with works of art, are considered beautiful insofar as they fulfill their intended functions [16]. In contrast to the eighteenth-century notion of beauty as functional fitness, Edmund Burke offered a significant critique in his treatise *A Philosophical Inquiry into the Origin of Our Ideas of the Sublime and Beautiful* [17]. Burke argued that many objects are undoubtedly beautiful, yet no notion of utility can be attributed to them. In a similar departure from utilitarian aesthetics, Gotthold Ephraim Lessing, in his treatise *Laocoön, or On the Limits of Painting and Poetry*, explored the distinctions

between visual and literary arts. He articulated aesthetic principles that prioritized imagination and creative expression over imitation, and he was among the first to acknowledge the legitimacy of the aesthetics of the ugly [18].

The most significant contribution of the empiricist tradition to aesthetics lies in the articulation of the concept of aesthetic experience, which is rooted in sensory perception and occurs immediately, independent of rational cognition. Aesthetic experience constitutes a distinct form of engagement, often detached from reason or functional considerations. As a result, the ideas of eighteenth-century empiricists laid fertile ground for the development of aesthetics as a field with increasing theoretical rigor and scientific autonomy. To this day, the phenomenon of aesthetic experience remains central to aesthetic inquiry, although it was originally considered exclusively through the lens of beauty. In this broader intellectual context, Milutin Borisavljević's investigations into aesthetic phenomena in architecture represent a noteworthy contribution, particularly in the evolution of aesthetic theory and architectural discourse in the 20th century. In his analysis of aesthetic experience, Borisavljević placed great importance on Immanuel Kant's insights, which he further elaborated within his own framework of a scientific aesthetics of architecture [19].

Modern aesthetics begins with Immanuel Kant and his attempt to reconcile the limitations of both empiricism and rationalism. Kant proposed that cognition arises from the interaction between a priori forms of understanding and sensory experience — asserting that pure reason without experience is empty, while sensory knowledge without the guidance of reason is blind [20]. The foundations of aesthetic appreciation of both natural and built environments can be traced to Kant's *Critique of the Power of Judgment*, where he introduces the concept of functional beauty as a key element of aesthetic experience. According to Kant, aesthetic satisfaction arises not from sensory impressions or rational concepts, but from a subjective necessity — an immediate response that is both universal and disinterested [21].

Kant's notion of aesthetic disinterestedness plays a central role in Milutin Borisavljević's aesthetic theory. Disinterestedness, as defined by Kant, refers to a distinct type of aesthetic experience that stands apart from rational-cognitive, religious, or moral forms of engagement. In this framework, the aesthetic object is perceived and evaluated independently of its utility or practical function — appreciated solely for its formal qualities. This concept draws from Aristotle's insights on cognitive experience and aligns with Thomas Aquinas's idea that beauty is perceived through an intuitive sense of clarity and immediacy. Kant's position remains within the classical tradition of art, wherein a work is considered beautiful when it elicits a sense of pleasure without a discernible reason. For Kant, aesthetics must be divorced from interest, meaning that aesthetic judgment should be free from considerations of usefulness or purpose.

Kant's notion of taste refers to the capacity to make judgments about beauty that are entirely free from personal interest. For Kant, something is deemed beautiful if it elicits a feeling of satisfaction in the observer that is independent of desire, usefulness, or practical function. This form of judgment is grounded in what he describes as "a purposiveness without purpose" — the idea that a work of art seems to have a form and coherence as if it serves a purpose, yet it does not fulfill any specific utilitarian goal. Through this framework, Kant draws a clear line between the aesthetic experience of beauty and mere sensual pleasure or emotion rooted in daily human activities. By establishing this distinction, he provides a philosophical foundation for understanding art and architecture as autonomous fields, separate from commercialism and utilitarian constraints. This distinction marks the boundary

between aesthetic experience and the ordinary perception of everyday objects, a principle that Borisavljević extends in his formulation of a scientific aesthetics of architecture, reinforcing the idea that architecture should be appreciated not merely for function, but as a phenomenon eliciting pure aesthetic response.

In the architecture of the 18th and 19th century, a large number of theories and debates based on supreme kinds of values: truth, good and beauty (*verum, bonum* and *pulchrum*, lat.) were prominent. The theories of French architectural theorists such as Jacques-François Blondel, Germain Boffrand, Charles-Étienne Briseux, Marc-Antoine Laugier, Jean-Louis Cordemoy, Pierre Patte, Claude-Nicolas Ledoux, Étienne-Louis Boullée, among others, were particularly influential. In their significant written treatises, they sought the ideal style in architecture, focusing on *bon goût* (good taste), both universal and individual notions of taste, and concepts such as *vérité* (truthfulness), *simplicité* (simplicity), *naturalism* (naturalness), and *bienséance* (appropriateness) [22]. The aesthetic theories of the 18th century were of great significance for the modern study of aesthetics of architecture, precisely because of their detailed exploration of aesthetic experience, aesthetic judgment, and the nature of aesthetic values, particularly in relation to other forms of value such as moral and historical values [23].

Romantic elements remain recognizable in contemporary aesthetics of architecture, tracing back to the 19th century and the theories promoted in architecture and design by figures such as Augustus Welby Northmore Pugin, John Ruskin, and William Morris [24-28]. Aesthetic and ethical values were unified in the work of the Arts and Crafts movement and its founder, William Morris. Their contribution remains relevant today, particularly in the field of interior design, where the Arts and Crafts style continues to be regarded as synonymous with authentic British design. Morris's core idea in architecture and design was to promote comfort, functionality, and social equality for every user, while preserving nature and its resources. He emphasized small-scale production, craftsmanship, and, above all, the rejection of industrial manufacturing, which he believed had mentally and physically devastated English cities in the 19th century.

Despite these romantic ideals concerning the unity of the natural and architecturally designed environment, aesthetics of architecture had no alternative but to increasingly rely on industrial production and the possibilities offered by standardization. New materials — concrete, reinforced concrete, iron, and glass — gave rise to a new architectural and design aesthetic, first affirmed through the work of the Deutscher Werkbund (Association of German architects, designers, industrialists, and intellectuals), and later through the enduring dominance of modernism in architecture and design. In the first decades of the 20th century, avant-garde thought in architecture was closely linked to art, particularly through movements such as Italian Futurism, Russian Constructivism and Suprematism, the Dutch De Stijl, and the German Bauhaus. The Bauhaus, as the first school dedicated to the modern education of architects and designers, revolutionized both the practice and theory of architecture, establishing modernism as the dominant ideology in architecture.

Most modernist architects did not engage deeply with the theory and philosophy of architecture, with the exception of Le Corbusier, who possessed the gift of eloquence. As the greatest advocate of modernism, he articulated his architectural thoughts in his books and writings [29]. In contrast, most modernist architects expressed themselves more through their buildings. Ludwig Mies van der Rohe, the last director of the Bauhaus and a key figure who, alongside Gropius and other European architects, brought modernism to American soil after

World War II, was not inclined to write about architecture. Nevertheless, his aphorisms, such as “Less is more”, became immensely influential.

Milutin Borisavljević was a contemporary of the emergence of modernist ideas in architecture and one of their most prominent critics. From an aesthetic standpoint, he assigned the lowest aesthetic value to modernist architecture, considering it a disgrace to the discipline — a non-aesthetic orientation and a 'box with holes' that had buried beauty in architecture. According to Borisavljević, modernism was a passing trend that had undoubtedly caused a revolutionary shock in architecture, but he believed that this trend was fading and that architects would inevitably return to the cultivation of traditional academic forms, colors, and materials [30].

3. ARCHITECTURE AS ART OF TIME – SCIENTIFIC AESTHETICS OF MILUTIN BORISAVLJEVIĆ'S ARCHITECTURE

As we have seen in the brief historical overview of aesthetic thought, questions concerning aesthetics of architecture were traditionally closely linked to other forms of art and to general aesthetic views on beauty and creativity. However, they rarely addressed in depth the crucial notion of the aesthetic experience of architecture itself. A significant conceptual shift in this regard can be found in the theoretical research of Milutin Borisavljević. Borisavljević was not only the first Serbian architect to earn a doctorate in philosophy, specializing in the aesthetics of architecture at the Sorbonne in Paris, but also one of the few architects in the world at that time to pursue formal academic specialization in the field of philosophical sciences. Through this unique intellectual trajectory, he established himself as a distinguished expert in architectural theory and history.

As an architect, historian, theorist, aesthetician, critic of architecture, and scientist engaged in the study of optical and physiological phenomena, Borisavljević left behind a rich legacy that includes more than 130 completed buildings, several dozen unbuilt design projects, 18 published books, nearly 170 scientific papers and critical articles published in both Serbian and French academic proceedings and journals [31]. Throughout his life, he remained devoted to developing and articulating his theoretical ideas aimed at establishing a scientific aesthetics of architecture. In his theoretical work until the end he kept the ideological continuity of his aesthetic theory, while remaining consistent with the attitudes and ideas which he conceived in his youth.

Milutin Borisavljević spent nearly thirty years of his life in Paris, a period that had a profound impact on his theoretical work in the field of aesthetics and architecture of optical-physiological perspective. The cosmopolitan influences he encountered in this cultural capital of Europe were essential to the formation and development of his theoretical and ideological positions. While his progressive ideas were often met with limited understanding and acceptance in the Serbian academic and professional context, Borisavljević's work has been widely recognized and highly regarded internationally.

In the 1920s, Borisavljević founded the study of aesthetics in architecture based on scientific principles, opposing traditional philosophical methods. He developed a "scientific aesthetics" grounded in experimental psychology, physiology, and neurological science, focusing on verifiable facts and experimental results. His approach introduced a new way of understanding aesthetics, distinct from general philosophy and traditional aesthetics.

Through the scientific aesthetics of architecture, Borisavljević sought to define the relationship between the lines, surfaces, and shapes in architecture and the inner emotional states experienced by the observer during the aesthetic contemplation of these elements. While our sense of sight is responsible for perceiving architecture as a visual art, Borisavljević emphasized that the aesthetic phenomenon does not end with the eye. It begins there but continues in the brain, where it elicits a specific response from our nervous system to external factors — visual stimuli induced by the architecture [32].

Although he strives to incorporate the precision of the natural sciences into his scientific aesthetics, Borisavljević distances himself from the idea of reducing the perception of aesthetic phenomena to a mere mechanical process. He remains consistent with the concept of *Einfühlung* — the "theory of empathy" — which played a significant role in the work of various philosophers, art theorists and artists during the late 19th and early 20th centuries. The German philosopher Robert Vischer coined the term *Einfühlung*, explaining it as aesthetic sympathy or aesthetic liking. This term later became accepted in Western European culture as "empathy," and its development was explored by German philosophers, aestheticians, and artists, such as Theodore Lips, Alois Riegl, Konrad Findler, Adolf Hildebrand, Wilhelm Worringer, and others [33]. According to Borisavljević's theory of empathy, achieving aesthetic communication requires the subject to become a part of the things they are aesthetically experiencing and to identify with them.

It is important to note that in Borisavljević's scientific aesthetics of architecture, the aesthetic phenomenon is understood as a feeling of satisfaction or dissatisfaction, a concrete fact. If scientific aesthetics were based solely on feelings, it would take on a metaphysical character and would not qualify as a science that investigates specific phenomena, as do physics, chemistry, physiology, and other exact sciences. The primary objective of the scientific aesthetics of architecture is to uncover the physiological determinism of the aesthetic phenomenon, which involves identifying the organic conditions under which aesthetic experiences are generated. In his aesthetic research, Borisavljević begins with formalist aesthetics, focusing on lines as the most basic element of architectural form, then progressing to the study of surfaces, bodies, and collections of bodies – architectural compositions. Through this research process, scientific aesthetics moves towards more complex forms in order to, based on empirical data, uncover a law that governs the relationships between forms. In this manner, the study of the pure form of aesthetic phenomena is achieved, with the main goal being to determine the causes and conditions under which these phenomena occur [34].

In his research, Borisavljević dedicates much of his attention to the aesthetic architectural phenomena of harmony, composition, rhythm, proportion, symmetry, and asymmetry. Within the context of scientific aesthetics, symmetry is seen as an aesthetic phenomenon characterized by peace, seriousness, calmness, sadness, and similar qualities, while asymmetry is associated with movement, restlessness, and exuberance. Composition, according to Borisavljević, is the most challenging aspect of architecture, as it reflects the overall originality of the architect and encompasses all of their creative inventions. The two main elements of composition are proportion and harmony. Rhythm serves as the strongest proof that aesthetic pleasure is both a functional and physiological phenomenon, and it also provides evidence that architecture, from the perspective of scientific aesthetics, is an art of time, rather than space. Borisavljević offered detailed explanations of aesthetic phenomena such as harmony, composition, rhythm, proportion, symmetry, and asymmetry in his

book *Traité d'esthétique scientifique de l'architecture*, which stands as a synthetic work and the pinnacle of his scientific aesthetics of architecture [35].

According to Borisavljević, every aesthetic phenomenon for scientific aesthetics is:

1. optical-physiological, visual phenomenon;
2. optical phenomenon of moving pictures (since architecture is the art of time and its visual perception is successive, according to the scientific aesthetics of architecture, it is considered the art of time, while geometry is the art of space)
3. phenomenon of visual appearance (the visual occurrence of this phenomenon is a subjective impression, which is the subjective perception of truth. According to this, "optical illusion" is considered an error. Optical illusions are only relevant to geometric vision in terms of real objectivity, and never in terms of the perception of appearance);
4. phenomenon of imitation (without the key act of *Einfühlung* – empathy, which signifies our relationship to the world, we would perceive the world as a camera does, in an indifferent way. The things we see would hold no meaning for us. What gives specific meaning to the objects we encounter is our identification with them; we humanize them, they become part of us, and we become part of them);
5. phenomenon equally dependent on the form and content;
6. subjective phenomenon;
7. individual phenomenon;
8. functional psychological phenomenon.

According to Borisavljević, the final stage of scientific aesthetics would involve establishing the psychological determinism of aesthetic phenomena. Since cerebral psychology is still a young science, the scientific aesthetics of architecture is constrained to the study of optical and psychological phenomena, along with other physiological responses that accompany aesthetic pleasure, such as changes in body temperature, heart function, breathing, blood pressure, secretion, digestion, nutrition, and the overall effect on muscles and the nervous system. It is therefore understandable why Borisavljević devoted a significant portion of his research to the study of optical physiology, as it is believed to have a direct impact on the scientific aesthetics of architecture.

One of the main focuses and goals of Borisavljević's scientific aesthetics of architecture is the attempt to measure the perceptual experience of the viewer and analyze the results obtained through statistical methods. In his aesthetic practice, Borisavljević adopts the methodology of experimental psychologist Gustav Theodor Fechner, whose research was based entirely on statistical analysis [36]. The *gout commun* (general taste) that Borisavljević and Fechner refer to is determined by statistics and demonstrates the tendency of most people to prefer certain proportions in the visual arts.

Borisavljević believed that his study for discovering these proportional relationships was empirically most provable within the classic architectural and artistic tradition of the École des Beaux-Arts. According to Julien Guadet, this is what ultimately leads to the *canonization definitive* (definitive canonization) of these proportions [37]. This view was also supported by Borisavljević, who believed that it represented a kind of universal declaration regarding masterpieces of architecture, such as the Parthenon, St. Peter's Basilica in Rome, the Louvre, Versailles Palace, and the Gothic cathedrals in Reims, Chartres, and Paris, among others.

4. DISCUSSION

In his continuous effort to justify the scientific foundations of the scientific aesthetics of architecture, Borisavljević developed a distinct scientific metacontext in which he situated this new discipline. The framework of his aesthetic science was grounded in auxiliary fields such as physiology, psychology, medicine, physics, optics, ophthalmology, neurology, and other branches of the natural sciences. In doing so, it positioned itself in clear opposition to the traditional paradigms of continental philosophy, descriptive geometry, and linear perspective. Borisavljević further advanced this scientific aesthetics of architecture through a critical response to the prevailing philosophical aesthetics of his time. Emphasizing the contrast and asserting the complete independence of scientific aesthetics from its philosophical counterpart, he championed experimental and inductive methodologies. His central objective in developing this new metascience was to introduce simplicity, objectivity, precision, and universality into aesthetic contemplation — establishing a model of inquiry aligned more closely with the principles of the natural sciences than with abstract philosophical speculation.

It is important to highlight the duality in Borisavljević's approach to defining scientific aesthetics: on the one hand, he sought to articulate it with precision, clarity, and simplicity; on the other, he acknowledged the inherent complexity and ambiguity of aesthetic experience, particularly those emotional states that arise from the dynamic interaction between the perceiving subject and the perceived object. His ambition was to objectify the subjective experience of aesthetic phenomena by employing statistical methods and precise measurements, aiming to uncover underlying laws that could serve as the foundation of his scientific aesthetics.

In his pursuit of laws, facts, and empirical evidence, Borisavljević adopted a methodologically rigid approach to aesthetics, ultimately limiting its potential for broader scientific development. In seeking simple and scientifically valid principles, he confined his aesthetic theory within a fixed structure in which most elements were predetermined and rigidly defined. This system of strict rules left little room for theoretical evolution, effectively restricting the future growth of his own framework. However, a key strength of Borisavljević's scientific aesthetics lies in its interdisciplinary orientation and its reliance on insights from fields such as psychology, physiology, medicine, physics, and optics. The empirical nature of this approach distances aesthetics from the traditional realms of the artist's studio and philosophical discourse, moving it closer to the methodologies of laboratory-based scientific and experimetal inquiry.

It is true that Borisavljević's efforts to measure experimental results in aesthetic discourse remain undefined. The attempt to quantify perceptual and sensory experiences through statistical analysis serves only as a general framework, forming the foundation for further research. Given the significant advancements in perceptual psychology and physiology, the potential for such research is substantial. With the evolution of scientific knowledge, the scientific aesthetics of architecture could achieve practical relevance and be considered one of the exact sciences, leading to a considerable increase in its significance.

5. CONCLUSION

The study of Borisavljević's aesthetic theory presents a complex challenge, raising numerous questions. In this regard, there are two main approaches to interpreting Borisavljević's scientific aesthetics of architecture: the first sees it as a metascience — an artificially constructed theoretical model with no direct successors in the field; the second regards it as a theoretical and practical approach that, in light of today's scientific advancements, is a realistic direction, considering the progressive development of scientific thought. In conclusion, although Borisavljević's concept of scientific aesthetics had its limitations, it undeniably represented a significant contribution to Serbian architectural theory between the two world wars, allowing it to be integrated into the global discourse on architectural theory through Borisavljević's scientific insights.

It is surprising that today, half a century after the death of Milutin Borisavljević, interest in his work remains relatively modest considering the significant contribution he made to Serbian culture. Borisavljević's name is preserved from oblivion primarily through a few brief studies focused on his architectural design practice, while his theoretical work has only been partially addressed in several academic papers. One possible reason for the limited scholarly attention to his theoretical legacy lies in the fact that many of his written works have never been translated into Serbian, are not held in libraries or archives in Serbia, and are thus difficult to access. Without a doubt, Borisavljević's contribution to the theory and aesthetics of architecture is of global importance and deserves greater scholarly attention in the future.

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