

## Objectively Speaking

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So artists, leaving the truth to take care of itself, do in fact put into the images they make, not the real proportions, but those that will appear beautiful.<sup>1</sup>

(Plato, *Sophist*, 236a)

Once we accept a theory of proportions as the basis of an architectural aesthetic in general, we come immediately to the question of whether we talk about the proportions of a building or about the proportions perceived in a building. This question is also closely related to the question, What is the aesthetic object of architecture—the building, or an idea of a building, or a project, a set of drawings, or some other entity? Answering this question means not only offering an answer to the question, What is architectural history actually about? but also—as some disputes on the interpretation of Palladio's *Quattro libri* show—suggesting a justification of a theory of proportions in modern times.

The idea of this text is to discuss this problem within the framework of Kant's theory of space—not so much in order to see what Kant would say on the topic, but much more in order to show that an epistemology like Kant's, which pretends to be a full catalogue of cognitive processes, must allow space for positing ideal architectural objects.

“THE GREAT THEORY” is a term first used by Władysław Tatarkiewicz<sup>2</sup> to denote all aesthetic theories that reduce the beautiful (partly or entirely) to a system of numerical relationships. Ever since Pythagoras and his disciples, such concepts have recurred in the intellectual history of the West. This article sets out to discuss the relationship between these ideas and the problem of aesthetic subjectivism and objectivism in the spatial arts, most particularly architecture.

The Great Theory is, in fact, an indispensable precondition of any theory of proportions. Though neutral with respect to concrete proportional systems (it merely claims that the beautiful is reducible to a numerical relationship, without specifying whether this relationship is the golden section, triangulation,

or something else), it necessarily presupposes a number of attendant claims in the absence of which it cannot be consistently defended. The reduction of the beautiful to systems of relationships implies the acceptance of some formalist ideas. And though some formalists, Hildebrand for instance,<sup>3</sup> have objected to some aspects of the theory of proportions, advocates of the Great Theory will share both the formalists' anti-emotionalism and their opposition to the reading-in of conceptual contents into works of art. The most radical will even attack some universally accepted views. For instance, they may well refuse to differentiate between the original and a good copy; if the copy faithfully reproduces the proportions of the original and if the proportions are what make the original beautiful, then the copy is as beautiful as the original, which can lay claim only to greater cultural or historical value. They will grant the artist genius, but without the mystification of inimitable uniqueness. A composer discovers a harmonious group of tones as a mathematician discovers a truthful theorem; beautiful works of art exist ideally, like mathematical truths, and if they remain undiscovered by a mathematician/artist of genius, another one will surely find them. Unlike most people nowadays, a proponent of the Great Theory will be very reluctant to glorify performing artists: a construction worker on a building site is no less a performer than the top-class violinist, and only jazz musicians, whose performance includes a great deal of improvisation, can be said to participate in the creation of beauty.

The Great Theory may be seen as a starting point for a number of views which could easily seem bizarre, but we are here chiefly concerned with its position in the conflict between aesthetic subjectivism and objectivism. Will a supporter of the Great Theory be inclined to view the beauty of an architectural object as the effect of its own proportions, or as the effect of the proportions perceived in the object by the subject?<sup>4</sup>

1. ΞΕ. Ἄρ' οὐν οὐ χεῖρεν τὸ ἀληθὲς ἴσσαντες αἱ δημιουργοὶ νῦν οὐ τὰς οὐσας συμμετρίας, ἀλλὰ τὰς δοξάσας εἶναι καλὰς τοῖς εἰδώλοις ἠναπεργάζονται; Plato, *Sophist*, 236a.

2. W. Tatarkiewicz, *Dzieje Szczęśliwych Pojęć*, Warsaw, 1975.

3. A. Hildebrand, *Das Problem der Form* (1893), 3d ed., Strassburg, 1918, 27.

4. We must take care to define what we understand by a subjectivist viewpoint. What we are discussing here is *not* a subjectivism that reduces the aesthetic experience to an emotional one and claims that the difference in the emotional constitutions of individuals precludes the possibility of universally valid judgments of works of art; nor do we mean

*Milutin Borisavljević and the subjectivist theory of proportions*

Advocates of the Great Theory are often expected to hold objectivist views in aesthetics and to see the beauty of the object as a product of no more than the proportions of the object itself. Yet, how can it be possible to say that the beauty of a building is due only to the harmony of its proportions, if the proportions depend on the angle from which the building is viewed? Faced with this kind of argument, we may be excused for rejecting the possibility of any theory of proportions out of hand.

There is, however, a third possibility. It is possible to claim that the proportions of the object are irrelevant, while the sensation of beauty is produced by the proportions as perceived by the subject (from a particular angle). Such an approach combines the aesthetics of experience with the Great Theory. In a certain sense it is the mimetic approach: if (following Plato, *Sophist*, 236a) we deliberately provide a sculpture with a larger head so that a person observing it from below has the impression of correct proportions, our sculpture imitates, with respect to a given point of observation, a properly proportioned figure.

Milutin Borisavljević<sup>5</sup> is the theoretician of proportions who probably went the furthest in constructing a system of this kind. On the basis of a few subjectivist assumptions he developed a system of what he called "scientific aesthetics"; while addressing itself primarily to architecture, it does not neglect the other spatial arts.

Borisavljević's chief assumption is that the aesthetic experience is *exclusively a sensuous one*, in which the sphere of thought takes no part whatsoever. In the case of the visual arts this means that the beauty of a line is directly dependent on the ease with which the eye follows its course.<sup>6</sup> This reduction of the aesthetic to the opticophysiological serves as the starting point for a number of consequences inferred by Borisavljević. Visual perception being successive<sup>7</sup> (a line is always viewed by moving the eyes, and its length is the length of time needed to view it in its entirety),<sup>8</sup> architecture, it follows, is a temporal art (*un art du temps*).<sup>9</sup> So far, all this would argue against a theory of proportions, but Borisavljević goes a step further, setting out to demonstrate the beauty of horizontal rectangles the proportion of

whose dimensions is the golden section, on the basis of the optical features of the human eye and its physiological construction.<sup>10</sup> For Borisavljević, the golden section is the *rappor des rapports*,<sup>11</sup> whose beauty is due to its adaptedness to our visual perception.<sup>12</sup>

The subjectivist theory of architectural proportions here implies the appearance of certain proportions within the framework of the aesthetic experience, that is, the perspective-induced illusion that certain proportions are to be found in a building. The classical science of geometric perspective, which introduces the picture plane, is, however, unsatisfactory to such a subjectivist architect. Borisavljević provides a detailed description of twenty-three cases in which classical perspective will have to deviate from what the human eye sees:<sup>13</sup> the problem is that the surface of the eye is a hemisphere, whereas classical perspective presupposes that beams of light reach the picture plane in such a way that the outline of the object is projected onto it, as though it were a glass plate on which we can draw what we see through it. Of course, a painting is always a plane; indeed, classical perspective was developed to fit the needs of painters, who wished to create an illusion for the human eye viewing the painting from a particular point. Subjectivist architects, however, are interested in projections, not onto a plane, but onto a hemisphere, for this is the only way they can calculate with certainty the effect they desire to create in a given building. For such architects, Borisavljević's *Optičko-fiziološka perspektiva*<sup>14</sup> will be a reliable and helpful guide.

*Wittkower's reconstruction of the disintegration of the Great Theory in the eighteenth century*

Borisavljević's views gave rise to a great many attacks, a lot of criticism, and heated polemics. Of particular importance for the present subject is an attack by Rudolf Wittkower, which took the form of a review of Borisavljević's book *Les théories de l'architecture*.<sup>15</sup>

The review itself is brief, a single column, but it sums up most of the possible objections to Borisavljević's views: from excessive self-assurance and factual errors to the claim that the subjectivist theory, which Borisavljević is trying to pass off as his own, is neither original nor new. Wittkower mentions Tommaso Temanza, Palladio's biographer, as the first theoretician to have held similar views. Those who are familiar with other texts by Wittkower, most particularly the closing chapter of his

a subjectivism that would base the same claim on an assumption concerning different tastes, and so forth. We are dealing here with a subjectivism that is chiefly epistemological. It reduces the aesthetic experience to a sensuous one and goes on to explain that people with the same perceptory apparatus cannot have the same kind of aesthetic experience when they perceive the same object from different points in space, seeing that their sensuous experiences are, in that case, different.

5. Also to be found as Miloutin Borissavliévitch, in French sources.

6. M. Borissavliévitch, *Traité d'esthétique scientifique de l'architecture*, Paris, 1954, 74.

7. *Ibid.*, 41.

8. M. Borisavljević, *Optičko-fiziološka perspektiva*, Belgrade, 1948, 95.

9. Borissavliévitch, *Traité*, 74, 84.

10. *Ibid.*, 161.

11. *Ibid.*, 124.

12. *Ibid.*, 161.

13. Borisavljević, *Optičko-fiziološka perspektiva*, 23-65.

14. See above, n. 8.

15. M. Borissavliévitch, *Les théories de l'architecture*, Paris, 1926 (repr. 1951); R. Wittkower, "Subjectively Speaking," *Architectural Review*, CXI, 1952, 265.

*Architectural Principles in the Age of Humanism*,<sup>16</sup> will be aware that Wittkower was by no means sympathetic to subjectivism and relativism in the theory of proportions. The chapter in question presents the disintegration of the system of harmonic proportions under the influence of subjectivist and sceptical argumentation throughout the seventeenth and eighteenth centuries. Our concerns here are the subjectivist advocates of the Great Theory, much more than its opponents who criticized it from a subjectivist position, for example, Hume, Burke, or Hogarth. Here again, Wittkower names Temanza as the earliest among those advocates. Temanza was the first to notice that the eye is unable to perceive all the dimensions of a room at once<sup>17</sup> and that, consequently, architectural proportions must be evaluated under the same angle under which they are observed.<sup>18</sup> Guarino Guarini, a practicing architect, noticed that in order to please the eye, proportional relationships had to be adapted, for some objects were situated below eye level, others high above, and so forth.<sup>19</sup>

The first victim of this subjectivist view was the theory underlying the proportioning of enclosed spaces; the eye can never perceive the entire room it is in at once, and it is therefore pointless to draw up lists of ideal relationships as, say, Palladio did.<sup>20</sup> Anyone familiar with the significance of such lists<sup>21</sup> within a system like that of Palladio's *Quattro libri dell'architettura* will easily conclude that the author must have been an objectivist, which is in agreement with the thesis that seems to be implicitly expressed in Wittkower's *Architectural Principles*, namely that subjectivism emerged only in the seventeenth century. It was not only this kind of subjectivism that caused the Great Theory to be abandoned in the seventeenth and eighteenth centuries, however. In another article, Wittkower discussed the rejection of the Great Theory in the eighteenth century as a consequence of "understanding the Universe purely through mechanical laws with no ulterior plan, which consequently meant an emotionalist understanding of art, which didn't have to follow the superpersonal standards, but an irrational creative urge."<sup>22</sup>

On the whole, Wittkower is not concerned with prebaroque versions of subjectivism, whether supportive of the Great Theory or critical of it. He comes the closest to a formulation of

prebaroque subjectivism in his study of Brunelleschi and proportion.<sup>23</sup> The theory he develops in that article regards the emergence of a consciousness of the actual proportions of a building in an observer who sees it in perspective, by introducing a homogeneous structure of the visible part of the building—a sort of modular coordination of elements, where the proportions of the parts we see in the orthogonal projection (unconsciously) prompt us to reach a conclusion about the proportions of those parts that we see obliquely. This, however, would require that we see at least one of the façades undeformed by perspective, that is, orthogonally.

What is certain is that Temanza was not the first to have held such ideas. In his *Sophist*, Plato describes the difference between two modes of representation, *eikastike* and *phantastike*.<sup>24</sup> If we take statues of humans as an example, the former mode would require that a statue's proportions are equal to those of actual human beings, while the latter would prefer a statue that appears to have such proportions when viewed from a particular point. Plato himself favors the realistic, *eikastike*, but the idea of aesthetic subjectivism was obviously already in existence. Vitruvius seems to have been the first to advocate a theory of proportions while at the same time, at least in part, approving subjectivism. Though he suggests that architects adhere to the mathematical formulae of the theory of proportions, he admits that it is proper to make some adjustments in order to please the eye.<sup>25</sup> The similarity with Guarini is evident.

Aesthetic subjectivism, therefore, is no baroque invention. Combined with the Great Theory, it has been around since classical antiquity.

This brief historical survey, based for the most part on Wittkower, reveals another constant in the views of all subjectivist advocates of the Great Theory: the reduction of the beautiful in architecture to the visually pleasing and of the aesthetic experience to a process in the eye. Obviously, if they believe that the experience of the beautiful is possible, objectivist supporters of the same theory, who claim that an object owes its beauty to its proportions regardless of the angle under which it is viewed, will have to place such an experience outside the sense of seeing, within one of the spheres of thought. Extreme views are not to be ruled out either; for instance, if the aesthetic experience of architecture is extravisual and related to a sort of *ideal architecture*, then it is possible in the architectural experience to avoid the visual altogether. This radical conclusion (which does not necessarily follow and should rather be described as a hypothesis) calls to mind an anecdote from Lomazzo's *Trattato dell'arte della pittura* (1584), quoted by Wittkower: the architect

16. R. Wittkower, *Architectural Principles in the Age of Humanism*, London, 1949. Citations are from the authorized German translation, *Grundlagen der Architektur im Zeitalter des Humanismus*, Munich, 1983.

17. Wittkower, *Grundlagen*, 117.

18. *Ibid.*, 118.

19. *Ibid.*, 120.

20. A Palladio, *I quattro libri dell'architettura*, Venice, 1570.

21. D. Howard and M. Longair, "Harmonic Proportions and Palladio's *Quattro Libri*," *JSAH*, XLI, 1982, 116–143; B. Mitrović, "Palladio's Theory of Proportions and the Second Book of the *Quattro Libri dell'Architettura*," *JSAH*, XLIX, 1990, 279–292.

22. R. Wittkower, "The Changing Concept of Proportion," in *Idea and Image*, London, 1978, 109–125 (first published in *Architects' Year Book*, V, 1953).

23. *Idem*, "Brunelleschi and Proportion in Perspective," in *Idea and Image*, 125–137 (first published in *Journal of the Warburg and Courtauld Institutes*, XV, 1953).

24. Plato, *Sophist*, 235d–236a.

25. Vitruvius, *De architectura*, III.iii.13.

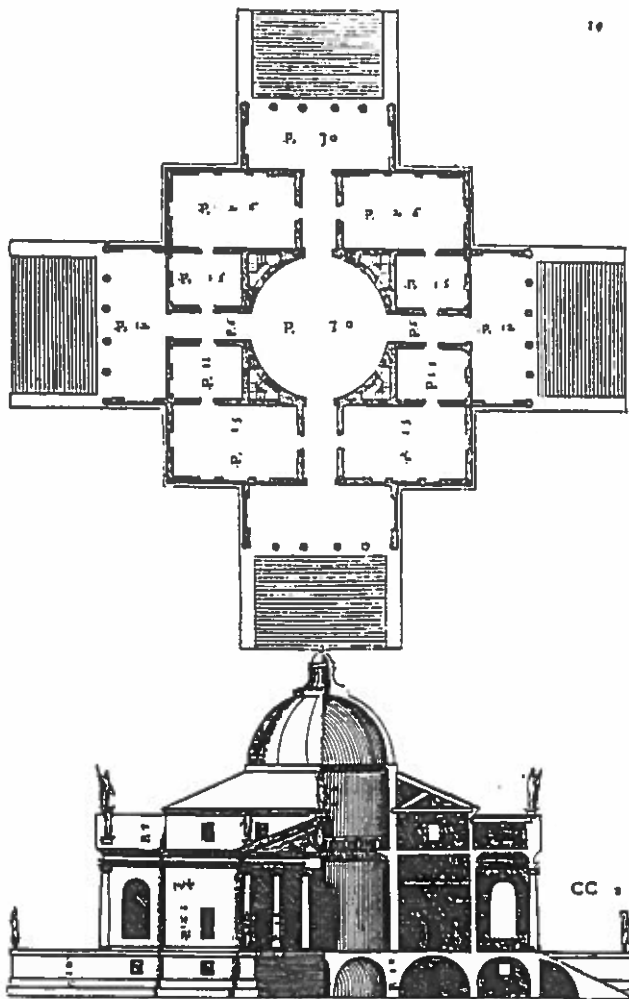


Fig. 1. Andrea Palladio, Villa Almerico-Rotonda (*I quattro libri dell'architettura*, II, p. 19).

Giacomo Soldati, Lomazzo says, added a sixth to the five classical orders and called it "harmonic," explaining that this new order cannot be clothed in a visible form.<sup>26</sup> In this sense it might be more appropriate to talk of *visualism* and *antivisualism*, but we shall adhere to the usual terminology, which confronts subjectivism and objectivism.

*Rupprecht's account of Renaissance objectivism in architectural presentation*

The conflict has its repercussions on practical architecture. A visualist architect who wishes to apply subjectivist theoretical views consequently will have to insist on the study of perspective, just as Borisavljević did. An objectivist, on the other hand, will never attempt to represent the building as it is seen but, rather, will want to represent *the idea of the building*. As we can never perceive a building in its entirety at once, the experience of architecture, in this view, always takes place on the ideal plane. What the human eye sees from a particular viewpoint is

26. Wittkower, *Grundlagen*, 98.

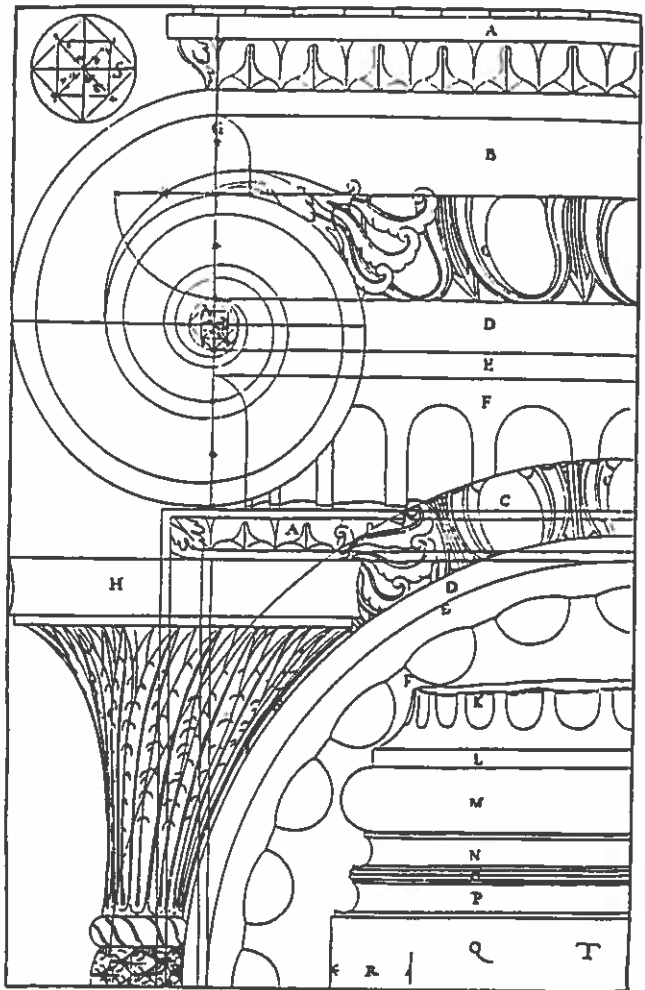


Fig. 2. Andrea Palladio, details of the Ionic order (*I quattro libri dell'architettura*, I, p. 34).

distorted: the more distant parts of the building appear smaller. Perspective is equally unable to reproduce the actual proportions, which is why an objectivist will reject it in favor of other forms of architectural representation which can be considered as more relevant, that is, those which faithfully reproduce proportional relations and are derived from the orthogonal projection (horizontal and vertical sections, elevations), and also axonometric and isometric projections. An architect's attitude to architectural presentation may reveal his leanings on the subjectivism vs. objectivism controversy.

Discussions of Renaissance objectivism as related to architectural presentation have been particularly lively ever since Gian Giorgio Zorzi's interpretation of the illustrations in Palladio's *Quattro libri*. Zorzi not only denied their significance but went as far as to question Palladio's authorship, offering the radical idea that they were due to the xylographers who worked for the editor, De Francesco.<sup>27</sup> Bernhard Rupprecht, on the other

27. G. G. Zorzi, "L'interpretazione dei disegni Palladiani," *Bollettino del CISA*, X, 1968, 97-111.

*Partus ubi est I. orthographia est, ubi in O. sciographia.*

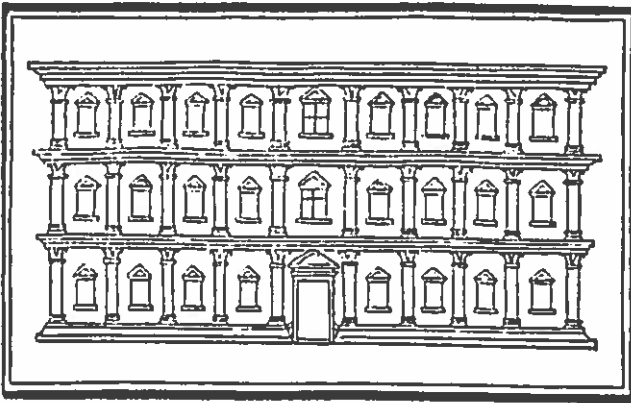


Fig. 3. Fra Giocondo, *orthographia* (*Vitruvius per locundum*, 1511, fol. 4v).

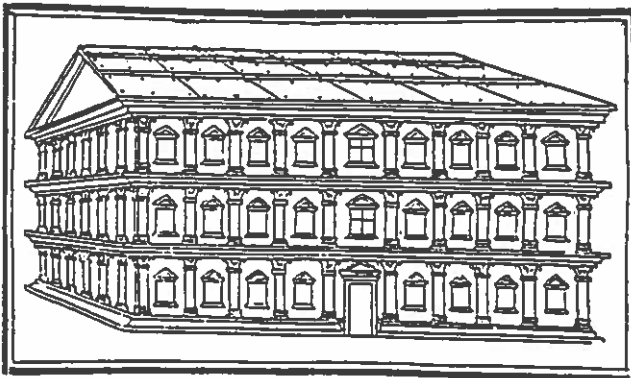


Fig. 4. Fra Giocondo, *scaenographia* (*Vitruvius per locundum*, 1511, fol. 4v).

hand, holds that the illustrations are of crucial importance and that the popularity of Palladio's study throughout the centuries is largely due to his consistent system of presentation.<sup>28</sup> By "consistent" he means that Palladio systematically avoided perspective (except where three-dimensional representation was particularly appropriate, for example, in showing simultaneously construction layers and the elevation of a wall) and used projections derived from the orthogonal (horizontal and vertical sections, elevations). Palladio also devised a specific combination of horizontal and vertical sections and elevations in the same drawing; while hopelessly far from suggesting what can be perceived at a single glance, this method perfectly expresses the architectural idea, whether of an entire villa or of a detail, say, of an Ionic column (Figs. 1 and 2).

In order to show that this was no mere coincidence but the systematic application of a program, Rupprecht resorts to the passage in Daniele Barbaro's 1556 translation of Vitruvius where the three types of architectural drawings are enumerated: *ichno-*

28. B. Rupprecht, "Prinzipien der Architektur Darstellung in Palladios I Quattro Libri dell'Architettura," in *Vierhundert Jahre Andrea Palladio*, Heidelberg, 1982, 11-43.

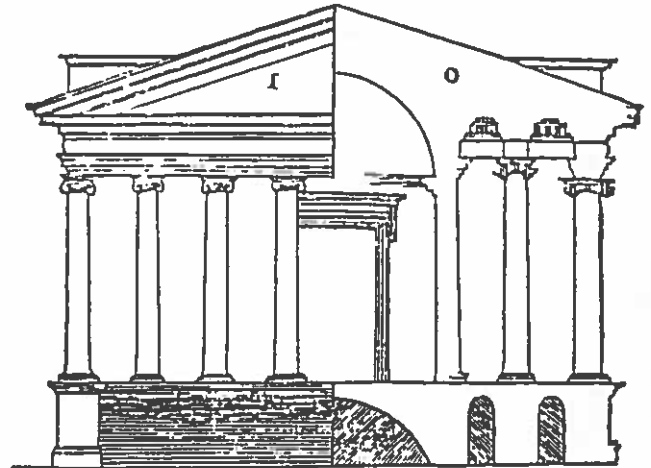


Fig. 5. Daniele Barbaro and Andrea Palladio, *orthographia* and *sciographia* (*Vitruvius, De architectura*, ed. Barbaro, 1567, p. 21).

*graphia, orthographia, and scaenographia.*<sup>29</sup> Translating the first two terms was not a problem. Barbaro renders them as *La Pianta* (plan) and *L'Elevatione* (elevation), which corresponds to the illustrations in Fra Giocondo's 1511 edition of Vitruvius (Fig. 3). The third type of architectural drawing, however, is described by Vitruvius as a kind of perspective. This translation would agree with the illustration in Fra Giocondo's edition (Fig. 4), and the term *perspective* is the generally accepted translation today. Yet Barbaro translates the word in question as *Il Profilo* (vertical section), which is in agreement with the accompanying illustration, provided by Palladio (Fig. 5). Rupprecht assumes that the term *scaenographia* was replaced by *sciographia*, as Philander suggested in 1544. It is likely, therefore, that the idea of reinterpreting Vitruvius from a radically objectivist point of view had its adherents in the Renaissance. Rupprecht cites further examples of the exclusion of perspective from architectural presentation in the Renaissance. A letter sent to Pope Leo X by members of Raphael's circle claims that perspective is merely "apparenza" and for the use only of those who are incapable of grasping the entirety of a building on the basis of the architectural methods of representation alone. In brief, while the discovery of the laws of perspective is ascribed to Renaissance painters, the attitude of Renaissance architects to perspective is still a debatable issue.

#### *Kant and the conception of space*

There is no particular reason for either subjectivists or objectivists to support the Great Theory; but if they do, they will have to accept the idea that the beauty of a building is the product of a system of geometric relationships, whether they be actual or merely perceived. The geometric relationships in

29. Vitruvius, *De architectura*, I.ii.2.

question are the *only* aesthetic layer of the building; for an advocate of the Great Theory, to distinguish this layer from nonaesthetic ones—for example, the building's cultural and historical significance, testimonies regarding the spiritual values of the builders—will be no problem at all. A subjectivist will then reduce the beautiful as a system of geometric relationships to the immediate visual experience, that is, the design of the façade and some elements of interior decoration—an approach shared today not only by laypersons in general, but by a large number of practicing architects as well. An objectivist, on the other hand, will be expected to view a building as the overall effect of the disposal of spatial elements. Unless he is willing to claim that the beauty of architectural objects cannot be experienced at all, he will have to assume the existence of a specific level of thinking that relates to objects in space and that is not directly sensual/visual. This cannot imply visual imagination, for that always takes place in a single projection, which is insufficient to present the object as a whole. (This is why Palladio, as we have seen, used to combine several projections in a single drawing.) As it is obviously impossible to think about objects in space without either seeing them or imagining them spatially, an objectivist must needs found the aesthetic experience on the interrelated experience of several imagined projections; an objectivist must, therefore, demonstrate that there is a segment of the mind thanks to which different aspects of the process of imagining an object in space can be organized into a coherent idea of the object. Otherwise our thinking about objects in space would allow a great deal of arbitrariness. We would, for instance, think of any ground plan as corresponding to any vertical section, which is certainly never the case. It turns out, then, that the objectivist's initial assumption is unavoidably that all methods used to represent objects in space define them coherently as unities. The coherence of the representation of spatial relationships in a building presupposes and implies the existence of an idea of the building. Depending on its aesthetic characteristics, this idea would, or would not, give rise to an aesthetic experience.

The above will strengthen the position of objectivists in their argument with subjectivists. One of the facts that subjectivists have failed to take into account is the nature of normal visual experience, in which we do see things in perspective but take perspective merely as the indication of the distance between objects in space, so that we automatically attempt to estimate the actual size of distant objects. If a row of columns of equal height is so placed that the relationship between the heights of the nearest and the most distant columns is *perceived* as any proportion whatsoever, an overwhelming majority of viewers will, nevertheless, say that the columns are equal in height and will pay no attention to, let alone have an aesthetic experience of, the incidental relationship of the heights as perceived from a particular viewpoint. It is quite natural for people automati-

cally to estimate the height (size) of objects they see in perspective; this necessarily implies the existence of a nonvisual mode of thinking about space.

And so we return to the eighteenth-century theoretical debates on cognition; all subjectivism, including that of Borisavljević, is largely a pre-Kantian position. The question we are here preoccupied by, namely how is it possible to have a consistent mode of thinking about objects in space which, at the same time, departs markedly from what we see, is merely a specific form of the question posed by Kant in 1772 in a letter to Herz: "How the *a priori* can yield knowledge of the independently real."<sup>30</sup>

The question can be formulated in a multitude of ways; in its most frequent form it relates to the possibility of physics or other formalized natural sciences. How is it possible that natural phenomena (being *a posteriori*) obey the laws of mathematics, which are *a priori*? How are mathematical models of natural phenomena possible? How is it possible that by solving differential equations we are able to predict planetary motion? How is it possible that the world outside the subject of cognition is not "absolutely varied" and devoid of all regularity but, on the contrary, behaves according to the cognitive subject's rules of thought? The questions here enumerated have to do with the laws of logic, no less than those of physics. How is it possible, then, that the necessary in thinking should also be the necessary in experience? To posit an absolute parallelism, that is, that the laws of thought also govern the behavior of objects, would mean to expose oneself to a series of sceptical objections, as well as to introduce unwarranted metaphysical conjectures. Sceptical argumentation is applicable both to sensory perception and, no less, to thinking about objects outside the cognitive subject (for example, deduction on the basis of the law of causality). Paradoxically, this kind of argumentation can only be avoided if it is fully accepted—that is, if it is accepted that things in themselves are unknowable, and that all regularity/necessity in the process of cognition is a matter of the internal organization of the cognitive powers of the subject. Such a radicalization of sceptical arguments will enable a reductionist step: although we cannot speak of the nature of things in themselves, we are perfectly free to speak of the world and the regular way in which objects in it behave within the limits of possible experience. The first half of Kant's *Critique of Pure Reason* is devoted to the cataloguing of the generative processes of experience, that is, the processes by which the thing in itself becomes experience. Understandably, their functioning will, for the most part, remain unknowable for the cognitive subject, which will have no more than their results at its disposal, the results being forms of order in the domain of experience, such as time, space,

30. N. Kemp Smith, *Commentary to Kant's "Critique of Pure Reason,"* London, 1919, 26.

analogies, categories, and so forth. What we do know about these processes is merely their "imprint"; it shapes our experience as a system of regularities; it is an *a priori* matrix for experience. All experimental regularity is a product of these generative processes; without them, our experience would be utterly chaotic, "reine Rhapsodie," as Kant would say.<sup>31</sup>

These are Kant's essential intentions, but what we are here concerned with are the conclusions to be drawn about the subjectivism-objectivism relationship on the basis of Kant's theory of space, as contained in his "transcendental aesthetics."<sup>32</sup> Generally speaking, his basic view is that space and time are not the properties of things in themselves but are necessary *a priori* conditions for any kind of sensual experience. Kant argues this view in different places<sup>33</sup> and in different ways, but his argument can, in fact, be reduced to the form of deduction described above, which Kant applies elsewhere as well: a regularity is perceived (this means, in our case, matrices of spatial and temporal relationships); and, since regularity inevitably implies necessity and necessity is *a priori*, space and time must be *a priori* too. (It is important for the reader to grasp that for Kant all necessity has to be *a priori*; otherwise there would occur the already-mentioned parallelism between the laws of thought and the laws that govern the behavior of physical objects—a philosophical position hard to defend from sceptical attacks of the how-is-such-a-coincidence-possible kind.) Kant says, however, that space and time are "Formen unserer Anschauung,"<sup>34</sup> but the exact meaning of *Anschauung* is not quite clear. The text makes it clear that sensual perception in general, not just visual perception, is meant. A translator who has chosen to render *Anschauung* as "sensation" would, however, eventually run into difficulties. The usual English translation, "intuition," also presents problems: when Kant says "alle Anschauung ist sinnlich,"<sup>35</sup> an average English reader would find it hard to accept that the term is used to denote sensory experience only; in fact, it rarely has this meaning.<sup>36</sup>

31. I. Kant, *Critique of Pure Reason*, A100.

32. *Ibid.*, A23, B38. Norman Kemp Smith's *Commentary to Kant's "Critique of Pure Reason"* offers a general survey of Kant's theory of space. For an introduction to more specific aspects of the problems, P. Strawson's *The Bounds of Sense*, London, 1978, 277–292, can be recommended.

33. Kant, *Critique of Pure Reason*, A23, 24, 25, 46, 47, 67.

34. *Ibid.*, A38.

35. *Ibid.*, B152.

36. An extensive treatment of the problem of translation would be beyond the scope of this paper; yet it might be useful to consult a commentary. Norman Kemp Smith starts from Kant's definition of intuition as knowledge that is in immediate relation to the objects ("sich auf Gegenstände unmittelbar bezieht"; Kant, *Critique of Pure Reason*, A109) and goes on to say: "*Anschauung* etymologically applies only to visual sensation. Kant extends it to cover sensations of all the senses. The current term was *Empfindung*. Kant's reason for introducing the latter term in place of 'sensation' was evidently the fact that the latter could not be made to cover space and time. We can speak of pure

For Kant, *Anschauung* was a technical term. Its use had to be specific in any case, for what is meant is not the perception of things in themselves but their conversion into a possible form of cognition. The conversion into the cognizable occurs through the activities of the senses, and the two matrices of the process are space and time. *Anschauung* thus denotes the process that generates spatial/temporal regularity, that is, organizes our sensory experiences into temporally and spatially ordered ones.

As far as space is concerned, *Anschauung* is often wrongly identified with the orthogonal projection; it is in this shape that we imagine "the true state of affairs," as opposed to a visual image in perspective, which is what we actually see. The orthogonal projection is the basis of all our ideas about objects in space even though, strictly speaking, no one has ever seen an object in the orthogonal projection; we see everything in a kind of perspective and then convert that to the more abstract orthogonal projection. The fact that we talk of objective distances between objects in our everyday experience shows that the orthogonal projection is the spatial model on which the intersubjective mediation of space is grounded.

Let us now take a look at the modes of the intersubjective mediation of space. Obviously, these have to be at the same time the modes of any possible kind of thinking about objects in space:

1. The analytical approach, that is, purely numerical, as the ordered triple of a point's coordinates, a set of triples for a set of points, or a general rule—either an equation in analytical geometry or any other formulation within a formalized system.
2. The combination of a graphic representation and numerically determined levels (for example, the representation of mountaintops in geographic maps).
3. The orthogonal projection.
4. Various kinds of oblique projections (axonometric, isometric).
5. Perspective.

The above modes reflect the visual experience with different degrees of accuracy. While perspective comes closest to it, oblique projections do not represent it as faithfully, and the orthogonal projection implies a high degree of idealization. Briefly, as we move down in the above list, the methods enumerated grow increasingly faithful to the visual experience.

If we use a method with a low level of visual reliability to describe an object in space and then translate this description to a higher level, we call such a process *construction*. If, on the contrary, we move from a higher level to a lower one (for instance, when we try to determine the actual size of an object

intuitions, but not of pure sensations." N. Kemp Smith, *Commentary*, 79.

on the basis of a photograph), that is *restitution*. The process whereby we move between levels without considering their level of visual reliability is *translation*.

The following rules are important to note:

*Completeness*: If the object described can be the object of a possible experience in space, translation between any two modes of description will always be possible. Conversely, if the object in question cannot be the object of a possible spatial experience, translation into at least one of the five modes will be impossible. (Some of Escher's drawings, for instance, are very convincing in perspective, but there can be no question of their translation into the orthogonal projection.)

*Consistency*: Translation is uncontradictory. If we can prove a quality of a given object on the basis of one description, the same quality will be valid for all other descriptions and for actual experience.

If we have defined the orthogonal projection as "fundamental," that was only in the sense that the orthogonal projection is the best means of demonstrating the "defectiveness" of the description of objects in space. This defectiveness can be noticed in perspective, too, but this is not always easy; besides, to locate the error, one must often have a very highly developed and cultivated sense of space. In the case of the equations of analytical geometry, the situation is very similar: if, say, a circle is defined as the intersection of a sphere and a plane, both of them represented by equations, it is necessary first to solve the system of equations (that is, to find out that a solution is possible) before we can be sure that such a circle exists. In the orthogonal projection, all this becomes more obvious.

It is, therefore, only in this sense that we can, within the framework of the "transcendental aesthetics," talk of the primacy of the orthogonal projection. Of course, if things in themselves were cognizable, it would be possible to claim that they are exactly the way they are represented in the orthogonal projection; in Kant's view, however, they are not, which is why the only acceptable idea is that the five modes are of equal worth, mutually uncontradictory, and mutually translatable by means of the *a priori* methods of construction and restitution.

It is now clear that *Anschauung* cannot pretend to be any one of the five modes of spatial representation; it is rather a generative process that enables us to understand spatial relations (either in a directly sensual way or as visually imagined objects) within the bounds of possible experience. *Anschauung* thus accounts for the translatability of the different modes of representation and ensures that this process is unarbitrary, so that the object in space has the same shape regardless of the method used to represent it. This is why the above-mentioned kind of arbitrariness, with any vertical section matching any ground plan, is impossible.

The question of Kant's possible attitude to the Great Theory would require special consideration. On the basis of what has

been said so far, we can conclude that there is room for an objectivist approach within the "transcendental aesthetics," an approach built on foundations well protected from subjectivist and sceptical objections. This would enable an "idealistic" architecture, "idealistic" in the sense that its aim would be the production of aesthetic experience on the basis not of actual buildings but of ideal architectural forms, of which actual buildings are a possible method of representation.

#### Conclusion

While it is true that Nicolai Hartmann did not use the expression "idealistic architecture," he did produce a formulation similar to the subject under discussion. Having granted, in his *Aesthetics*, that only one of the façades of a building or its interior is visible at any particular time, he goes on to say that the observer is, nevertheless, intuitively conscious of the building as a whole; aesthetic observation can thus consist in abstracting an objective structure from variable visual aspects.<sup>37</sup>

To prove, from the point of view of cognitive theory, the possibility of an idealistic architecture still does not mean to accept the Great Theory, though it does provide the Great Theory with an objectivist basis. This basis enables us to speak of the idea of the building; the aesthetic experience will thus be an experiencing of this idea provided it satisfies the necessary formal conditions (proportions, symmetry, and so forth). An adherent of the Great Theory would reduce these formal conditions (partially or completely) to a theory of proportions.

There is another sense in which this kind of objectivism is a prop of the Great Theory. An argument often raised against the possibility of a theory of proportions is that the actual construction of a building often involves considerable deviation from the original design and that the proportions of the final product are, consequently, significantly different from the architect's initial idea. Subjectivist supporters of the Great Theory will experience this argument as a serious blow, for they reduce the aesthetic experience to an opticophysiological experience within the eye, derived directly from the perception of the actual building. The objectivist-idealistic position just described will be much less vulnerable: its advocates will have no reason to consider the design for a building, as a set of drawings, in any way inferior to the building itself; they see both the drawings and the building as *equally important expressions of the architectural idea*. It is a well-known fact in music that a person with sufficient

37. "Direkt sichtbar ist zur Zeit nur eine Seite des Bauwerks, eine Fassade oder nur wenig mehr als das. Ebenso ist es, wenn man im Inneren, sei es des Hauses oder des Kirchenraumes, steht. Das Ganze der Komposition ist von keinem Punkte aus gegeben—wenigstens nicht sinnlich. Doch hat der Betrachter ein intuitives Bewusstsein dieses Ganzen; und es wechselt sich sehr schnell und selbstverständlich aus, wenn man die verschiedenen Teilräume des Bauwerks entlangwandert. . . ." N. Hartmann, *Ästhetik*, Berlin, 1953, 125.

experience in score reading can have an aesthetic experience based solely on the reading of a score, without having to hear the actual composition; similarly, in architecture, a person with a well-developed sense of space can have an aesthetic experience on the basis of the design alone.

Yet the possibility of an objectivist foundation of the Great Theory is no more than a first step; we are still very far from demonstrating that the aesthetic experience is a product of the formal (or even proportional!) qualities of a building. If we take a look at the ways similar theories have been founded in the past, that is, the metaphysical principles underlying them, we cannot help feeling that a new theory of that kind is hardly likely to emerge. Indeed, who would be prepared today to explain the beauty of a numerical relationship by analogy with musical intervals, quoting Pythagorean and Platonist mystico-astrological speculations in support of such a theory? Neither can the analogy with nature arouse the same kind of enthusiastic response that it commanded only fifty years ago among the supporters of the golden section. The fact that a regularity appears in nature does not mean that it is worth imitating. Two centuries ago, there was still a lot of talk about the purposeful structure of living beings; only Darwin's theory of evolution managed to put an end to the way of thinking which held that, say, since a bird's tail was perfectly suited to flying, that necessarily demonstrated the existence of a Mind which had foreseen this particular use of the tail. The same is true of those regularities in the living world that the theory of evolution has been unable to explain (for example, the identical shape of all the leaves on a tree or the appearance of the golden section and symmetry in living beings), and which we tend to consider as

the peculiarities of the genetic code rather than the aesthetic intentions of a Creator. Even when our actual knowledge does not allow us to explain a phenomenon entirely, we assume, nevertheless, that it is reducible to material causes; indeed, what is more natural than to ascribe symmetry in living organisms to the simplicity of duplication in the system of genetic codes? Only fifty years ago, this kind of reductionism was by no means widespread; therefore, the sense of surprise that present-day readers of Le Corbusier's writings experience when they encounter, in a discussion of technical matters, insulation, fittings, traffic, and communications, a few pages containing obscurely mystical statements on the significance of the golden section.

The mysticometafysical argumentation of the theory of proportions can hardly expect to find serious supporters nowadays. There is, however, another, empirical approach, which consists in the study of the formal properties of the great architectural works of the past. The nearly three thousand years of architectural development have provided us with an impressive basis for further research. A study of this huge amount of material can yield a new, empirical theory of proportions, and we must first learn to view it in a purely architectural way, outside the immediate historical context or any other system of reference. Only this kind of formalism may be able to give birth to an *empirical* theory of proportions. A metaphysical approach today simply will not do. This is why the Kantian position is so very important for the foundation of a nonmetaphysical theory of proportions and, consequently, the new classical architecture.

Translated from the Serbo-Croat by Ivana Djordjević