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Architecture's Approximate Beauty

ABSTRACT: Contested in this study is the assumption that beauty in architecture has a simple and single definition. Not one, but three kinds of beauty are introduced and distinguished. They are not ranked, despite the long history of one or another being given superior standing. The three, the built work's beauty, that of its many and varied representations (drawings, models, simulations), and that of its motivating idea are shown to both complement and conflict with one another in judgments about quality. Both spatial and temporal dimensions of architectural order come into the question, as do the composition and operation of a building's parts or elements—what appears and what occurs in a work of architecture. Against the tendency to link concepts of beauty with notions of order and permanence, attention is given to the concrete conditions of projects which are always imperfect and continually changing. This focus, in turn, leads to recognition of the importance of notions of disproportionality, fragmentation, and decay. Projects plus writings in and outside architecture from antiquity to the present are adduced to argue for the reality of approximation in architectural beauty.

KEYWORDS: beautifying, proportion/disproportion, fragmentation, negotiation, ingenuity

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> One is more certain of being outside Prato when he sees it at arm's length, than when ten miles distant, unable to see it at all. So, whoever is nearer the truth when he sees it, more knows himself not to be at the truth than does he who is far from it [. . .] and [he who is nearer the truth] is more unhappy in all his works.
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> Michelangelo, *The Road to Prato*.

Poets make poems, musicians music, and painters paintings. Architects, whose work is similarly creative, do not make buildings, builders do that; instead, they make representations of them that describe how they should be built and depict the way they will look. Furthermore, the beauty that we appreciate in poetry, music, and painting exists in the things that have been made, the verses, songs, or images themselves. In architecture, however, it is not *only* the built work that can be beautiful, the same can be said for the representations. The two are not the same, neither in the ways they present themselves nor in the ways they are received.

A constructed building's beauty is available to the full spectrum of perceptual experience, sight, touch, smell, and so on, thanks to its palpable concreteness, together with that of its immediate surroundings, no matter whether one appreciates its qualities all at once, from a single vantage, or in time, when passing through it, one step and glance then the next.

An architectural representation's beauty is apprehended differently. It can be appreciated visually, of course, in drawings, models, or simulations that may be two- or three-dimensional, but because they are more abstract than the built work, greatly reduced in size, and typically shown in scale (1:100, 200, 500, etc.) the corresponding sense of beauty is rather more remote. Verbal representations can also be beautiful. I have in mind the ekphrastic praise and promises offered by architects themselves, also the beautifully insightful accounts of discerning critics or historians, and the compelling narratives of residents, observers, and writers who render spaces as stories.

Despite the abbreviations of perceptual fullness and attendant remoteness of representations, they can be nevertheless judged even more beautiful than the built works to which they refer. Since the time of the Renaissance, architectural drawings that were thought to have intrinsic beauty have been collected, sold, exhibited, and archived. Considering

three moderns, Frank Lloyd Wright's drawings are commonly thought to be wonderfully elegant and expressive, those of Charles Rennie Mackintosh are often said to show great refinement and subtlety, while the sketches of Adolf Loos—sketches are mostly what we have—are generally understood to be very crude, despite their historical and disciplinary importance. Few appreciate Giovanni Battista Piranesi's built work—it is neither well-known nor much discussed—but his prints are much loved for their emotive power and pathos. Famous works aside, only a tiny percentage of people who experience the beauty of a constructed work are also given the opportunity to see and appreciate its representations. Patrons or clients are always shown them, sometimes also critics, historians, archivists, and students. The comparatively limited audience for construction's preliminaries explains the common assumption that architectural beauty is to be found in the built work.

But to the complications that arise from the existence of these two kinds of beauty in architecture must be added a third set of problems, those that arise in consideration of the beauty of the *idea* that designers, builders, or patrons have in their minds at the outset of projects. Ideas of this kind are often called *mental images*, as if something seen in the mind's eye were akin to a notion or thought. Yet, comparisons between mental images and drawings or buildings are impossible for anyone other than the person with the idea, for the former are always and only one's own, while showing and sharing require visualization or articulation. Mental images, like memories are sometimes clear and distinct, but frequently incomplete and vague, even dream-like, manifestations of desire as much as reason, design's prompt rather than its accomplishment. Terms used to describe them are often metaphoric, beautifully so. Partiality and ambiguity do not make them unattractive, just the reverse, suggestive, which is to say invitations to wonder, admiration, or longing. An architect's need to clarify and communicate mental images in the development of projects, however, prompts the work of visualization, also, after that, the fairly common sense of shortcoming or disappointment that results from imperfect realization, as Michelangelo suggests in the epigraph above.

Beautifying, not the Beautif'd

Architects, critics, and historians often assume and argue that the first beauty approximates the second, and those two the third. As such, the attractions of the three—the *built work*, the *representation*, and the *mental*

image—have been variously ranked over time. From the ancient period to the decades of the Enlightenment, the mental image or abstract idea of a work was commonly thought to exist *prior* to its realization and be *primary* in importance, for without an idea of what should be built there would be nothing to guide the hands and machines that accomplish the construction. Modern writers, by contrast, have often given greater weight to the process of visualization, allowing development, therefore incompleteness in each of its several stages, even at the end of the construction phase. In architecture, finishing and furnishing are without end. No one would think of modifying a poem or painting once it is finished, but everyone feels entitled to make changes to their house or apartment, one resident after another. Earlier in the life span of a project, before construction, an architect's sketches are beautiful in the way that they show an idea's emergence, just as it comes into being on the page, under the designer's eyes, in the spontaneous but skilled movements of a pencil-fisted-hand, not in the mind prior to that process. In the study of architectural beauty that follows the matter of ranking will be postponed so that the differences, relationships, conflicts, and mutuality among these kinds of beauty can be explained.

Although we tend to think that the many and varied aspects of a building's spatial articulation are decisive in architectural order, it will become clear in what follows that a work's temporality is no less important. The times at play in architecture are several, the periods of conceptualization, visualization, construction, inhabitation, maintenance, and ruination. Although I have listed these phases separately and in sequence, the steps of conceptualization, visualization, and construction often leap ahead and turn back on themselves, difficulties and doubts lead back to basic premises and their revision or reaffirmation, as if at various times the work could advance only by retreating. Because the clock and calendar of these phases are perforce caught up in the times of the world, its daily and seasonal cycles as well as unforeseen events, the beauty of an architectural work is always somewhat less than what was envisaged in design and approximated in its construction. As we stand before the work or make use of its rooms and furnishings, it is not as attractive as it might yet be with a little more work, or is no longer as beautiful as it once was, thanks to ill-conceived additions or accidental alterations. Yet, modifications are not always unattractive. Weathered works and ruins can be more attractive than newly finished, ostensibly complete works. Prominent architects such as Auguste Perret and Louis I. Kahn wrote in praise of

ruins, implying that a work's demise is in some ways its fulfilment.[1] Since the time of the Renaissance, fragments have had great appeal. In many modern works improbable and unresolved juxtapositions of previously unrelated elements have been understood to excite interest, even wonder. In collage, montage, and fragmentation both development and deterioration were discovered to be no less attractive than completion. But that observation had pre- 20th century antecedents. A line from an early 18th century English philosopher, the Third Earl of Shaftesbury, can be used to concisely state the importance of *approximation* in the life of buildings in time: "the Beautifying, not the Beautify'd, is the really Beautiful."[2]

Thinking of buildings changing over time runs against the grain of common conceptions, for we tend to see architectural works as permanent. An observation made by the late 19th century German theorist August Schmarsow summarizes this view nicely: "Architecture prepares a place for all that is lasting and established in the beliefs of a people and of an age; often, in a period of forceful change, when everything else threatens to sway, will the solemn language of its stones speak of support."[3] But common conceptions are commonly unconsidered. When pressed for precision, one would probably admit that buildings are mostly permanent, not exactly the same day- after-day and week-after-week, but largely so. When I return home from work tonight or after several days on holiday my house will be basically the same as it was when I left it, far less changed than the weather, the traffic, or the stock market are likely to be, especially in what Schmarsow called periods of forceful change, today's much discussed challenges of climate change, regime change, technological change, and so on.

That a building's permanence can be associated with its beauty is evident in the centrality many architecture writers have given to the concept of *completeness* or *unity*. Works are beautiful as long as their coherence, internal order, or self-sameness persists. Leon Battista Alberti, for example, famously defined beauty as follows: "Beauty is that reasoned harmony of all the parts within a body, so that nothing may be added, taken

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[1] For a study of key historical texts and images from antiquity to the present that address ruins see John Dixon Hunt and David Leatherbarrow, *Book of Ruins*, Lund Humphries, London, 2023.

[2] Shaftesbury, "The Moralists; A Philosophical Rhapsody" [1709], *Characteristics of Men, Manners, Opinions, Times*, vol. 2, Liberty Fund Indianapolis, 2001, p. 226.

[3] A. Schmarsow, "The Essence of Architectural Creation" [1893], cited in H. Mallgrave, E. Ikonomou (eds.), *Empathy, Form, Space: Problems in German Aesthetics, 1873–1893*, Getty Center for the History of Art and the Humanities, Santa Monica, 1994, p. 294.

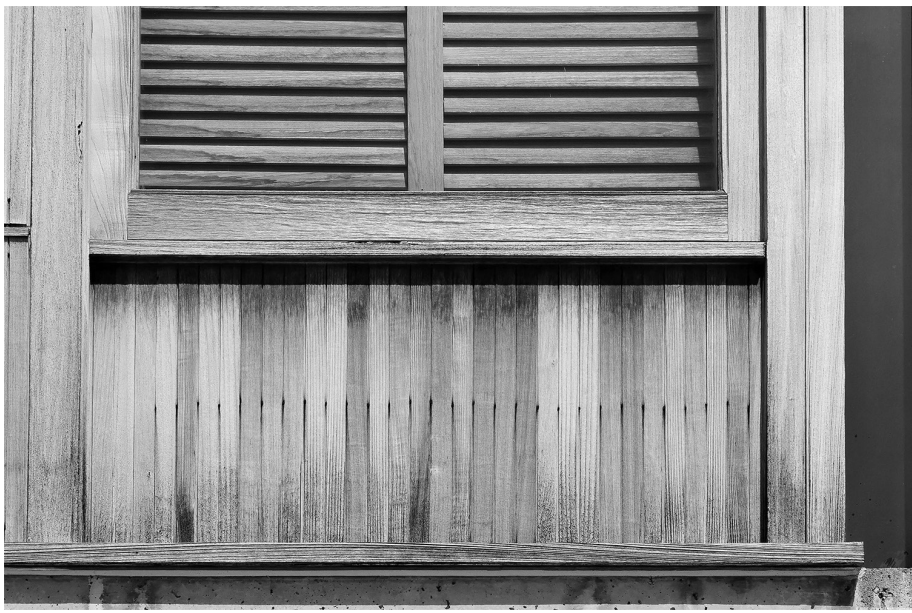

Figure 1. Louis I. Kahn, Salk Institute for Biological Studies, La Jolla California, 1963, weathered timbered cladding. Photograph by D. Leatherbarrow.

away, or altered, but for the worse."[4] As long as that harmony remains, beauty will be apparent. The conditional character of the proviso is instructive, for what seems true in principle is rarely, if ever, in fact. Once constructed, works of architecture incessantly suffer the effects of their surroundings and use, often slight and nearly imperceptible, such as surface abrasions and color changes, but at other times more dramatic and obvious, re-fenestration, added rooms, and so on. The warm color of a building's wooden surfaces—the teak cladding on the façades of Louis I. Kahn's famous Salk Institute (figure 1), for example—will lighten on the side facing the sun and darken on the sides turned away from it. Kahn anticipated this—he seems to have liked grey—but not the blackening that also occurred.[5] The stone treads that climb to the entry of an ancient monument will become cupped under the abrasive press of countless footsteps. Likewise, over time large rooms will be subdivided, balconies enclosed, and decks added to roofs. In all these cases, settings that are apparently the same, in one's house or apartment, the office building at the end of the street, or the school a few blocks away, are always only *similar* to what they had been. When positive, the changes a work of architecture undergoes can be said to result from the "beautifying" that Shaftesbury defined as the "really beautiful."

A few more words about his ideas on permanence and change can be used to pose the problem that will be central in the arguments about architectural beauty I shall develop.

Configuration and Operation

Shaftesbury, like Alberti two and a half centuries earlier, coupled beauty with completeness. Beautiful things, he observed, possess unity of design or complete concurrence among constituent parts. The unity of a beautiful painting, for example, is comprised of the setting, figures, and

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[4] L. B. Alberti, *On the Art of Building in Ten Books*, VI, 2, MIT Press, Cambridge Mass., 1988), p. 156. See also the key study of the directly pertinent but difficult notion of "*concinnitas*" also by Tavernor: R. Tavernor, *Concinnitas in the Architectural Theory and Practice of Leon Battista Alberti,* Cambridge University Press, Cambridge, 1985.

[5] On this topic and specific case see K. Moe, D. S. Friedman, "Tending Building: An Ethic of Repair in Architecture," *Places Journal*, 2024, https://doi.org/10.22269/240207. On the matter of surface transformations more broadly, see M. Mostafavi and D. Leatherbarrow, *On Weathering the Life of Buildings in Time*, MIT Press, Cambridge. Mass., 1993, and D. Leatherbarrow, *Building Time: Architecture, Event, and Experience,* Bloomsbury, London, 2021, particularly the section on "The Time of the World."

minute articulations that jointly contribute to an intelligible story, start to finish.[6] He explained that a beautiful thing "constitutes a real Whole, by a mutual and necessary Relation of its Parts."[7] In other words, beautiful things, including buildings, are "Whole, coherent and proportion'd in [themselves]." Wholeness, he stressed, is apparent in both composition and action, which is to say the make-up of a thing, or the component parts that have position, shape, number, and measure, and that thing's way of being or manner of behaving, as shown in the actions and expressions of people and objects.[8] The judgment of works, therefore, must assess both configuration and operation. Similarly, their proportions must be seen as both quantitative and qualitative. The mutuality that characterizes beautiful objects is thus evident in both the *commensurate configuration* of their parts and the *corresponding operations* of their elements.

This means another common conception about buildings must be reconsidered when thinking about their kinds of beauty. If beauty is to be seen not only in the arrangement parts but also in their behaviors, buildings must be understood to operate or perform in ways that are analogous to the movements and deeds of actors on a theatrical stage.[9] A built work's permanence must allow its parts to behave as they should, not only the parts that move, doors and windows, also those that don't, columns and beams. These operations should also be made apparent through the building's stance, bearing, and inclination, as well as its various forms of resistance and allowance—allowing fresh air when it is wanted, resisting the cold when it is not, likewise views out and in. Posture, for Shaftesbury, and many theorists before and after him, expresses

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[6] Shaftesbury, "Miscellaneous Reflections," *Characteristics of Men, Manners, Opinions, Times*, vol. 3, pp. 229, 214.

[7] *Ibid*., p. 214.

[8] He lamented the scarcity of good examples of "history" painting in England, as did his near contemporary, William Algionby. See the latter's complaint in "The Preface," *Painting Illustrated in Three Dialogues,* John Gain, London, 1685.

[9] Although he doesn't mention Aristotle in the passages I've just cited, Shaftesbury no doubt had in mind a basic principle of mimetic art, as set out in *Poetics*; in short, tragic art imitates *what people do*, particularly their highest and most despicable acts. For architecture to conform to this principle it, too, must be seen as 'performative.' Helpful in this connection are the increasing number of studies that elaborate the consequences of the "performative turn" in language. The seminal text here is J. Austin, *How to Do Things With Words*, Harvard University Press, Cambridge, Mass., 1962. The extension of the term beyond language into other forms of expression has been usefully studied in E. Fischer-Lichte, *The Transformative Power of Performance,* Routledge, London, 2008. For its pertinence to architecture, see D. Leatherbarrow, "Architecture's Unscripted Performance," *Architecture Oriented Otherwise,* Princeton Architectural Press, New York, 2009, pp. 43–68.

character. Movement, while typical for gesture, is not required for expression, only restraint or force, the force required for support of loads or resistance against the elements, for example.[10] Stance shows disposition, no matter whether the figure is engaged or distracted. The same is true for sculptural works. Each of the figures that pace across the platform of Alberto Giacometti's *Four Men and a Woman* could not care less for the others who pass by or seem to converge, given their evident concern for what they see in the distance. The concentrated concentricity of August Rodin's *Thinker*, by contrast, indicates complete indifference to his surroundings. The postural inclinations of buildings perform similarly. Seemingly at rest, they are both oriented and at work. Each is inclined one way or another, toward attractive and away from unpleasant aspects of its vicinity, while maintaining its stance, which is to say holding itself up with more or less strain and defining its boundaries—all done expressively. No actor on stage ever suffered their surroundings more than buildings do. Like most of us, they work for a living. The ways that they hold their ground give them character on the stages we call streets and squares.

As I have done in a preliminary way above, Shaftesbury distinguished *kinds of beauty*. It can be seen in "dead forms," he said, also "forms which form," and "the supreme and sovereign" formative power, basically Nature. Terms that he used in place of my word *kinds* were "degrees" or "orders" of beauty.[11] With respect to the first order, the word "dead" probably overstates the case. He had in mind physical but lifeless things, a carved statue for example. While it may express vitality, it is incapable of the growth and movements that characterize plants, animals, and people. Some dead things are, nevertheless, beautiful, others not, as a result of more or less proportionality or congruence of parts.

The second kind of beauty is a little harder to grasp because it is neither artifactual nor directly perceptible, though traces of its effects can sometimes be seen. He had in mind the beauty of human minds, the "forms that form," even form themselves, through self-discipline,

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[10] Within the long history and ample literature on gesture and inclination, recent studies that are pertinent here include two texts by G. Agamben, *Karman: A Brief Treatise on Action, Guilt, and Gesture,* Stanford University Press, Stanford, 2018, and *Means Without End,* University of Minnesota Press, Minneapolis, 2000, and a marvelous study on the communicative sense of posture, A. Cavarero, *Inclinations: A Critique of Rectitude,* Stanford University Press, Stanford, 2016.

[11] Shaftesbury, "The Moralists," p. 228.

self-converse, self-education, and so on. Shaftesbury repeatedly stressed the intellectual capacity at work in form-making of this kind, the cognitive power that beautifies things. When referring to architecture, he generally used the word design for this intelligence. Earlier I included an artist's eyes and hands in design work, embodied intelligence. He did not. Yet, in 17th century English usage and still today design can mean either (a) drawing, including the process of drawing and the outcome of that process, or it can indicate a conception, scheme, plan, or plot.[12]

The third and last of Shaftesbury's beauties, ranked highest, was that of still another kind of mind, the Deity's. His honorific titles for this form-making power included "Empowering Creatress" and "Sovereign Genius." It was the power that endowed a location with its beauty, the "genius of a place," as well as that of the rhapsodic genius or master artist whose words, paintings, or buildings show that same well-proportioned completeness, especially in their behaviors.[13] These orders or degrees of beauty were then coupled with corresponding dimensions of a thing, artifact, or person's character, its physical, moral, and divine qualities. There was, I've noted, a clear hierarchy among these forms and the beauties they possess, lowest to highest as I've listed them. Just as proportionality or harmony comes in degrees, so do mind, reason, and design.

The Abject State

The surprising aspect of Shaftesbury's account on which I would like to focus is what he had to say about the beauty of *disproportionate* figures, things that are incompletely formed or in decay. In his philosophical rhapsody he explained that things that lack completeness and congruence among their parts nevertheless enable understanding the formative power of the higher kinds of order, despite their "abject state." For the penetrating mind, waste lands and decayed figures are not without beauty. Incomplete things please and instruct when they are seen to play their part in the workings of a more comprehensive order, that of the natural world, over time.

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[12] See M. Baxandall, "English *Disegno*," in *Words for Pictures: Seven Papers on Renaissance Art and Criticism,* Yale University Press, New Haven, 2003, pp. 83–97.

[13] The differences between natural figures, forms, and forces in Shaftesbury's thinking and landscape design is set out in D. Leatherbarrow, "Character, Geometry, and Perspective, or How Topography Conceals Itself," *Topographical Stories: Studies in Landscape and Architecture,* University of Pennsylvania Press, Philadelphia, 2004, pp. 131–168.

> New Forms arise: and when the old dissolve, the Matter whence they were compos'd is not left useless but wrought with equal Management and Art, even in *Corruption*, Nature's seeming Waste and vile Abhorrence. The abject State appears merely as the Way or Passage to some better [...] even *the Way it-self* [is] equal to the *End*.[14]

The thought is remarkable insofar as it gives equal value to things that change and those that remain the same, meaning, as he says, *the end* is equal to *the way*. The thesis restates his beautifying principle: the beautifying (a process, passage, or movement) not the beautified (the completed, finished, or finalized) is what is really beautiful. Shaftesbury's accent here is on the movement toward or retreat from the harmonious state, a path that is not only inevitable for concretely existing things but indicative of the malformed part's role in the order of the whole. Each part participates in something greater than itself, a system, whose workings unfold over time according to laws of growth and decline, "incessant & Eternal Chang & Conversion of things one into another."[15] There is, then, beauty in growth and ruin insofar as they reveal the operations of the widely comprehensive "Divine Economy." For both living things and artifacts—my concern is with architecture—form is both condemned to the time of the whole and saved by it, redeemed, so to speak, by the diurnal and seasonal cycles that follow one another in years, decades, and centuries, as well as the sequences of (re)birth, growth, decay, and death. The beauty that is apparent in things beautified by human or divine power is always only apparent for a while and to a limited degree. But beauty of this kind, fugitive and fragmentary though it must be, is beauty nonetheless.

Adjusting Standards

Although Shaftesbury had a very large personal library, he possessed only a few texts devoted specifically to architecture. As one would expect of a 17th-18th century thinker who addressed architecture in his writings, he had a copy of the oldest treatise we have on the subject, Vitruvius' *On Architecture*. In fact, he had two.[16] He would have studied other writers

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[14] Shaftesbury, "The Moralist," pp. 205–206.

[15] B. Rand (ed.), "Self," in *The Life, Unpublished Letters, and Philosophical Regimen of Anthony, Earl of Shaftesbury,* Swan and Sonnenschein, London, 1900, p. 122.

[16] He had two copies in Latin: Vitruvius, *De architectura libri decem*, ed. J. de Laet, Amsterdam, 1649, and Vitruvius, *De architectura libri decem*, ed. G. Philander, Lyon, 1586.

on the concepts of order, proportion, symmetry, and harmony, of course, but I will focus on the Vitruvian account because it is sufficient for grasping the implications of his appreciation of decay, fragmentation, and disproportionality, as they relate to the beauty of approximations.

The key concepts of architectural order in Vitruvius' text are set out in Book 1, chapter 2, which Frank Granger, the translator of the standard bi-lingual translation titled "Of What Things Architecture Consists."[17] Two are directly pertinent here, *symmetry* and *eurhythmy*. Shelves of commentaries on these terms exist, mainly because the Vitruvian text shifts between Latin and Greek and is both repetitive and indefinite. I will be as brief as possible.

Concerning symmetry, the clearest and simplest definition is *commensurability of parts*. Today's most common conception of symmetry, one side of a body mirroring the other, is not central in the Vitruvian account. That idea began to play an outsized role in architectural theory in late 17th and 18th century French writings.[18] The Latin rendering of the Greek term was *proportio* (proportion), a term that in the ancient period and now indicates a regular relationship among the parts that make up a whole, portions as they are due, like servings that are shared in a meal among friends. Measure is indicated by Greek term symmetry (*symmetros*: *syn* + *metron*). It can be rendered as 'of like measure.' A third term that has been used just as often in both ancient and subsequent writings on architecture and other arts, especially music, is harmony. Shaftesbury, for example, used the terms symmetry, proportionality, and harmony synonymously. Vitruvius wrote: "symmetry also is the appropriate harmony arising out of the details of the work itself; the correspondence of each given detail among the separate details to the form of the design as a whole."[19] He explained that commensurability, correspondence, or harmony can be seen in relationships among the parts of the human body (fingers, palms, arms, etc.) and among the notes and phrases heard in a musical composition. Concordance also exists among the celestial bodies, later called the harmony of the spheres. More abstractly, proportionality

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Thanks to the conscientious efforts of John Locke, who had put in charge of his education, he was able to read both Latin and Greek from his early years.

17 Vitruvius, *On Architecture*, vol. 1, Loeb Classical Library, Harvard University Press, Cambridge, Mass., 1970, pp. 25*ff*. Another English language translator, Morris Hickey Morgan, titles this chapter "The Fundamental Principles of Architecture."

18 One historian described the concern as obsessive; see Robin Middleton, "Symmetry: A French Obsession," *Daidalos*, 15, 1985, pp. 71– 81.

19 Vitruvius, *On Architecture*, I, 2, 4, p. 27.

can exist in geometric figures and among numbers. These would often be implicit or latent in architecture, neither seen nor directly apprehended, but *formative* in the design. Further, but more concretely, such correspondence could be discovered at different scales in architectural elements and their relationships to one another, the parts and spacings of columns, temples, building sites, and towns. And finally, the parts that correspond can be both physical objects and functions. We have seen that this thesis was repeated in Shaftesbury. Vitruvius acknowledged his dependence on earlier sources, writers on architecture, art, and philosophy, for example, among whom were many that had drawn upon authors who addressed health and disease. In ancient medicine, good health resulted from the right balance or proportionality of a body's constituent elements, typically the four humors. Ill-health, by contrast, resulted from an imbalance of elements. Sickness could be seen is a person's demeanor just as clearly as good health. Adjustments to diet for the sake of a cure were determined on a case-by-case basis.[20] In each of these arts, medicine, music, and architecture, the purpose of symmetrical ordering was to achieve outcomes that are healthy, good, and beautiful in their kind.

The perfection of a symmetrical composition, however, is most vivid in design, much more so than in concrete fact, given the compromises that all projects suffer. But even when apparent in a built work, the beauty that results from the completeness of composition and finality of construction will exist for a limited time only. Changes in neighboring conditions will alter and eventually eclipse it, as will changes that may seem less dramatic but are no less important, variations in perceptual vantage. Hence the corresponding concept of *eurhythmy*, whose two-part Greek stem means roughly *good rhythm*. One critic has suggested that no term in ancient art criticism has received more discussion than this one.[21] The Greek term *rhythmos* is especially difficult. For our purposes, however, the Vitruvian explanation is largely sufficient. This quality of a work results from "a suitable display of details in their context."[22] Though one might assume that such a display would result from the symmetries of a design,

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[20] For a recent elaboration of the Hippocratic understanding of medical treatment (diagnosis and therapy) that stresses the particularly of cases, as opposed to general norms of good health, see H.-G. Gadamer, *The Enigma of Health,* Stanford University Press, Stanford, 1996.

[21] This claim was made by a very reliable source: J. J. Pollitt, *An Ancient View of Greek Art,* Yale University Press, New Haven, 1974, p. 173.

[22] Vitruvius, *On Architecture*, I, 2, 3, p. 27.

Figure 2. Parthenon, Athens. Photograph by S. Mavrommatis. Optical refinements shown in the upwardly curving base platform, *crepidoma*, at all three levels.

typically that was not the case. A "graceful semblance" was achieved by adjustment, alteration, or variation of well-balanced measures. Because the idea is decisive for what follows, Vitruvius can be quoted at length:

> The architect's greatest care must be that his buildings should have the design determined by the proportions of a fixed unit. When therefore account has been taken of the symmetries of the design and the dimensions have been worked out by calculation, it is then the business of his skill to have regard to the nature of the site, either for use or beauty, to produce a proper balance by adjustment, adding or subtracting from the symmetry of the design, so that it may seem to be rightly planned and the elevation may lack nothing.[23]

Following this passage, Vitruvius explained how appearances change when vantages change, as when the approach and resulting view happen to be downward or upward, or oblique rather than frontal. His recommendation for alteration was compensatory. The designer was to adjust the symmetries in lieu the work's particular location, its levels, intrusions, vacancies, shadow casting, and so on. Eurhythmy rendered abstract symmetry concrete, concretely perceptible. For the sake of a symmetrical appearance, what might be called *optical symmetry*, the work's parts had to be made disproportionate, for only then would the whole composition *seem* to be well-proportioned. Ingenuity was required for this, not reliance on established norms.

Numbers alone were ineffective because "what is real [symmetrical order] seems false," and what is false [eurythmic adjustments] seems true. A work's perceptible beauty, on this account, is both contingent and approximate, incomplete in its proportionality, less than ideal, only an approximation, or, rendered positively, *an ideal in those circumstances*. The prejudice in favor of appearance over essence was hardly new during the years of Vitruvius' authorship. Early examples of curvature in the base of temples (figure 2) occur in the mid-sixth century BCE, five centuries before the lines on eurythmy I've cited were written.

Roughly a century after Vitruvius, Heron of Alexandria argued similarly. Usefully, he named the instruments of approximation: "the final goal of an architect is to make the work well-proportioned for the perception and, as far as possible, to find counter-devices, *alexemata*, against the

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[23] Vitruvius, *On Architecture*, VI, 2, 1, p. 2.

deceptions of the eye, aiming at equal dimensions and harmonic interrelations not in truth but for the appearance to the eye."[24] Among these counter-devices were the thickening of columns near the middle so that they wouldn't appear to be too narrow, or, as Vitruvius recommended, adding an upward curve to the base platform so that it wouldn't appear to dip downward. An early 20th century scholar referred to these adjustments as "temperamental refinements."[25] The aim of the swellings and contractions was to breathe life[26] into the work by dispelling conceptual rigidity. These adjustments would give it the "pulsation of a living organism."[27] Here beauty is at once non-metric and animated, which is to say both disproportionate and seemingly endowed with life.

Fragments Given and Designed

Alberti, we have seen, gave a particularly clear and forceful definition of architectural beauty resulting from the congruence of a work's component parts. In his attempt to overcome the ambiguities of Vitruvius' Latin-Greek terminology, he avoided discussion of symmetry and focused on proportionality.[28] Proportionate relationships among parts could be seen in elements of construction, the dimensions of rooms, the geometrical configuration of types, and the programmatic organization of urban areas, even entire cities. When a column is to be fifteen feet tall, the diameter at the base must be divided into sixths, five of which give the diameter at the top. The length of an atrium must never be more than twice its width. The width of drawing rooms should be no less than two thirds their length. At a larger scale, each of the arches that support a long bridge should take up no more than one fifteenth of the total opening. As with ancient writers, harmony should also be seen in operation, by analogy with health in the human body: "What is good health but

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[24] Heron of Alexandria, *Definitiones* (135.13), cited in L. Haselberger (ed.), *Appearance and Essence Refinements of Classical Architecture: Curvature,* University of Pennsylvania, Philadelphia, 1999, pp. 58–59.

[25] W. H. Goodyear, *Greek Refinements: Studies in Temperamental Architecture,* Yale University Press, New Haven, 1912.

[26] Here Goodyear, p. 87, is citing F. Kugler, *Geschichte der Baukunst*, vol. 1, Ebner & Seubert, Stuttgart, 1867, p. 199.

[27] This term, cited by Goodyear, p. 87, is from C. Schnaase, *Geschichte der bildenden Künste,* Julius Buddaeus, Düsseldorf ,1866, pp. 51–52.

[28] The word symmetry, in its Latin form, does not appear in the lemmatized concordance of his treatise. See *Leon Battista Alberti, De re aedificatoria: A Lemmatized Concordance*, compiler J. Fresnillo Núñez, Olms/Weidmann, Hildesheim, 1966.

a moderation composed of a fabric of different extremes? The mean is always pleasing."[29] Although lapidary, his statement of principle in his book on painting posits the premise clearly: "Bodies ought to harmonize together in the *istoria* in both size and function."[30] Compositions, thus, were to be copious and coherent in arrangement and animation. Beauty results not from the perfection of symmetry or vitality but their combination, conflictual though that combination will be.

Alberti was under no illusions about an architect's ability to achieve the unity envisaged in conception with what could be accomplished in built fact. With respect to the desired outline of a town, for example, he acknowledged that "it is understandable that the outline of a town and the distribution of its parts will need to vary according to location: in the mountains, for example, it is clearly impossible to lay out the walls in a circle, rectangle, or whatever shape you choose, as you might on a level and open plain."[31] And what was true for natural terrain was also true for urban areas in which new projects were to be located, for buildings that pre-dated a fresh design also prevented the full realization of its ideal beauty, as envisaged in a mental image or rendered apparent in a drawing or model. Like so many of his time, in architecture and other fields, Alberti's preoccupation with the ancient world, his longing for its rebirth, led to unending work with fragments, for that is all that survived from antiquity. Wholeness may have been imagined in the past and desired for the future, but partiality was what was given. A line from three centuries later, Friedrich Schlegel's famous observation on fragments in *Athenaeum Fragments* (1798) seems to have been anticipated by Renaissance designers and authors: "many works of the ancients have become fragments," and are known only in the form of ruins, and "many works of the moderns are fragments at the time of their origin."[32] Alberti's projects make the inevitability of approximation perfectly clear, also its particular kind of beauty.

Like most of his built works, Alberti's project for the Tempio Malatestiano in Rimini (figure 3) involved working with a pre-existing building.[33]

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[29] L.B. Alberti, *On the Art of Building*, V, 8, p. 130.

[30] L. B. Alberti, *On Painting*, Yale University Press, New Haven, 1956, p. 75.

[31] L. B. Alberti, *On the Art of Building*, IV, 3, p. 100.

[32] F. Schlegel, "Athenaeum Fragments," in *Dialogue on Poetry and Literary Aphorisms*, Pennsylvania State University Press, University Park, 1968, p. 134.

[33] Among the many accounts of Alberti's built work, the text I've found to be most useful is R. Tavernor, *On Alberti and the Art of Building,* Yale University Press, New Haven, 1998.

Figure 3. Leon Battista Alberti, Tempio Malatestiano, Rimini, c. 1450, side elevation arches. Photograph by D. eatherbarrow.

In this case it was the Church of San Francesco, which had already been modified by a series of additions, starting from early years of the 14th century. His work began in the 1440's. It, too, was phased. Remodeling the inside came first. This was followed by the construction of an external shell, rather like a new building encasing an old one.

Within the interior there is much ornamentation that resulted from his specifications, largely classical in character. The most significant alterations, however, occurred in the structuring of the bays that flank the central nave on both sides. Alberti rebuilt the groin vaults and pointed-arch windows. They were not patterned after the geometries he preferred (ancient Roman), but regional forms, both Lombardic and Venetian. His aim, one can reasonably infer, was to give the interior space unity of style, incomplete though that unity had to be. Complete coherence was also sought but only approximated in the shell he added. Here, again, there were precedents for the new elements, but in this part of the project they were ancient and Roman not recent and regional. The side walls are less articulated than the façade, but more indicative of his double-wall solution: regularly spaced arches rested on a high base that surrounded the entire building. Because daylight was obviously necessary for the interior, the arches gave the 'gothic' windows ample wall space where possible. Still, they were often misaligned with the arches and set back within the rather deeply recessed plane of the older fabric, hidden in shadow from most angles, given the depth of the arches.

Where possible he used classical elements and spacings to reform the existing building, bringing it closer to the order and coherence of an ancient temple, as expressed in both the elements and the proportional relationships that were apparent in their dimensions and geometries, as well as the intervals between the elements. Approximations on the inside were largely surficial, on the outside far more substantial and more regular, but far from ideal. The same is true for his work on Santa Maria Novella in Florence (figures 4 and 5). But in that case the two approximations were compressed into one layered or thickened surface.

The main body of the church dates from the late 13th century. During these same years the lower part of the main façade was under construction, notably the tombs that were installed at the base of the façade and the long wall on the right side. Each tomb was set into a pointed arch niche that was clad with marble in two colors, white and green, the same colors and material that were used in the some of the city's major monuments, the Baptistry of San Giovanni and the Duomo at the city center,

Figure 4. Leon Battista Alberti, Santa Maria Novella, Florence, 1470, entry portal. Photograph by D. Leatherbarrow.

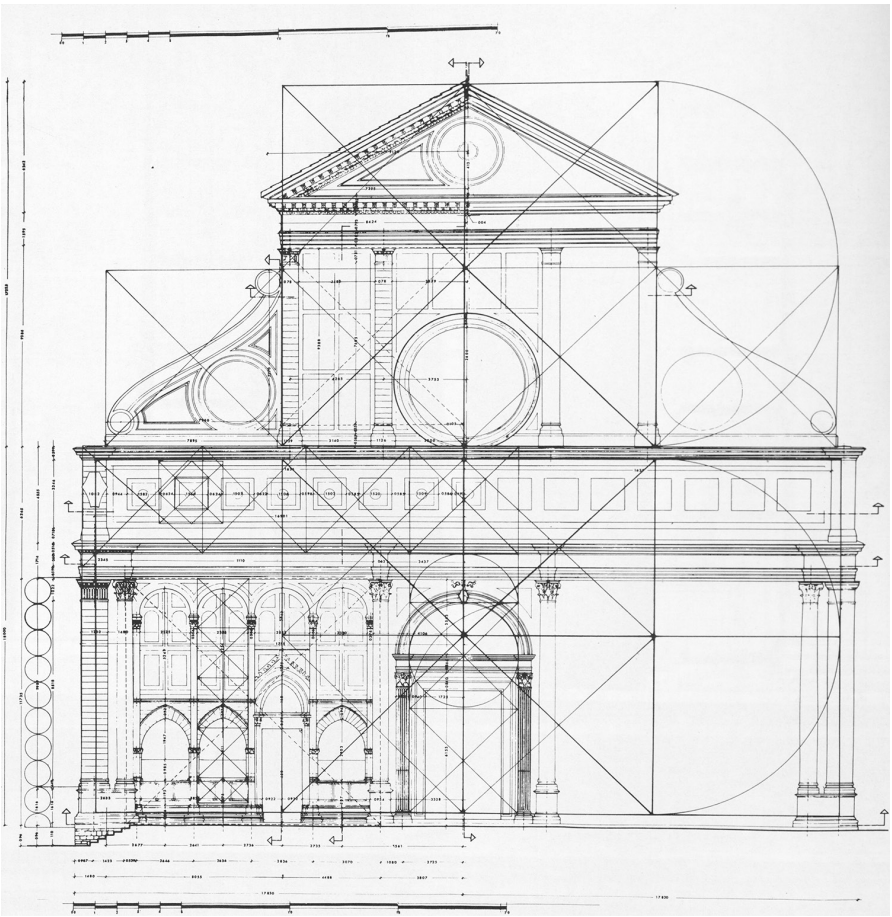

Figure 5. Leon Battista Alberti, Santa Maria Novella, Florence, 1470, proportional scheme drawn over pre-existing conditions. Courtesy of Robert Tavernor.

for example, and San Miniato al Monte (12th century) on a hill nearby. Thanks to the wealth and power of his client, the task of completing the façade was taken from the architect who had started the work and given to Alberti, though the work that had been partially completed was to be preserved, as was the placement, geometry, and dimension of the second level circular window. In short, Alberti had no choice but to reckon with an inheritance, torn fabric and rags once again. His task was to beautify what he was given as much as possible, despite the disproportionate character of the medieval elements. This meant altering and adapting the size, position, and relationships of his forms, resulting in a double incompleteness. Norms could not be followed throughout, nor could he abandon them. Because perfect unity, the defining characteristic of architectural beauty that can be envisaged and represented in drawings and models, was impossible in these circumstances he approximated it.

In Florence, as in Rimini, simple geometric forms and whole number lengths set the outer limits or definition of the composition, a square and its regular subdivisions in the first case, sixty Florentine feet in the second. To achieve the desired width, the new marble surface had to extend slightly beyond the outer edges of the existing brick building. That same dimension set the overall height, rendered visible by the apex of the pediment, limiting the entire composition to the shape of a perfect square. Next, he used that square's half-height line as the upper limit of the tall side-to-side string course. Its height seems excessively high but was determined by the line I have just mentioned and the upper edge of the entablature above the ground level pilasters. Four smaller, equally sized and commensurate squares were then formed by subdividing the initial larger one. The width of the raised temple front, beneath its pediment, was then given the same dimension as the smaller half squares. This process of subdivision, guaranteeing congruency, was then followed further, setting limits and finding places for smaller and smaller parts.

Yet, some odd placements and details resulted from the inevitable negotiation between preferred and pre-existing forms and relationships. The large central window, for example, could not be moved but was too low in the upper "temple's" arrangement of elements. A slightly higher, more central position would have been much better. From a normal vantage point along the route toward the front door the lower part of its frame disappears behind the protruding edge of the high string course. Less of it is seen the closer one gets to the front door. Similarly conflicted are the proportions of the lower-level pilasters and engaged columns at the far

left and right. They are much too slender for their height. The columns are about half the width of the pilasters to their sides, despite the fact that they are just as tall. The disproportionality is obvious. The pilasters look flat and wide, the columns too tall. Further, the lower-level arches do not reach their points of support and surrounding frames are incomplete.

If this façade can be said to have beauty, it would not be that of a temple one could envisage in the mind's eye, nor even one that could be drawn or represented in a scale model. Rather it would have to be a beauty that resulted from the getting good results in unpropitious circumstances. His sense of the fallibility of mental images was beautifully expressed in a somewhat confessional line in the part of his treatise that addressed faults and failures: "I have often conceived of projects in the mind that seemed quite commendable at the time; but when I translated them into drawings, I found several errors in the very parts that pleased me the most, and quite serious ones"[34]

Disproportionate Proportions

Alberti was not the only Renaissance architect whose work demonstrates the victory of actual over envisaged beauties. Andrea Palladio's Basilica in Vicenza (figures 6, 8, and 9) is another instructive case in point. Like Alberti's church in Rimini, the task was to design and build a new shell for an entire building, though only three of its four sides were exposed. The core of the existing construction had to remain more or less untouched, despite the fact that part of it had recently collapsed. But its geometries were far from regular and the dimensions of the bays that formed the outer perimeter were unequal. In response, Palladio developed a fascinating strategy for coupling the old and new, not by covering one with the other, as in the Tempio Malatestiano, nor by changing the dimension and shape of properly proportioned elements, as in Santa Maria Novella, but by adjusting the spacing between the parts that differed in kind, basically columns and arches. The disproportions of what pre-dated his project were thus creatively incorporated into the correct proportions of his new façades (figure 7). The result could be called a work of architecture that is *disproportionately proportionate*.

In his treatise, Palladio set out the preferred proportions of a town hall. He argued that the modern type should be modeled on an ancient

[34] L. B. Alberti, *On the Art of Building*, IX, 10, p. 317.

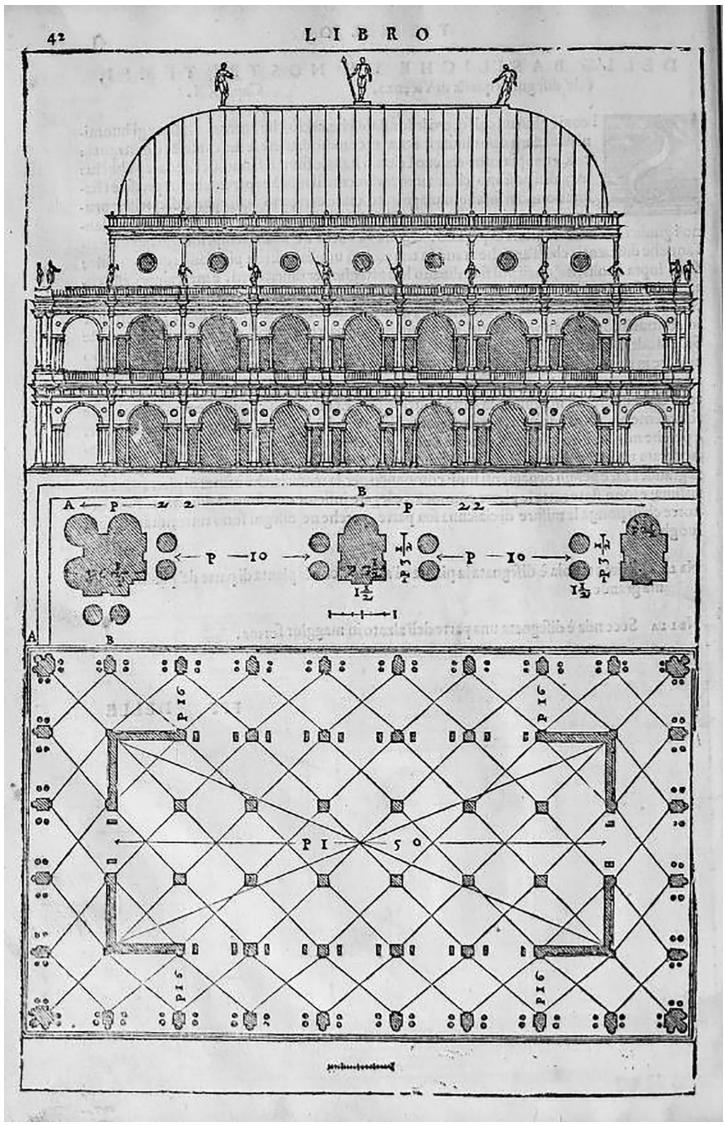

Figure 6. Andrea Palladio, Basilica, Vicenza, published in his treatise, 1570. Asian Architectural Archive Center.

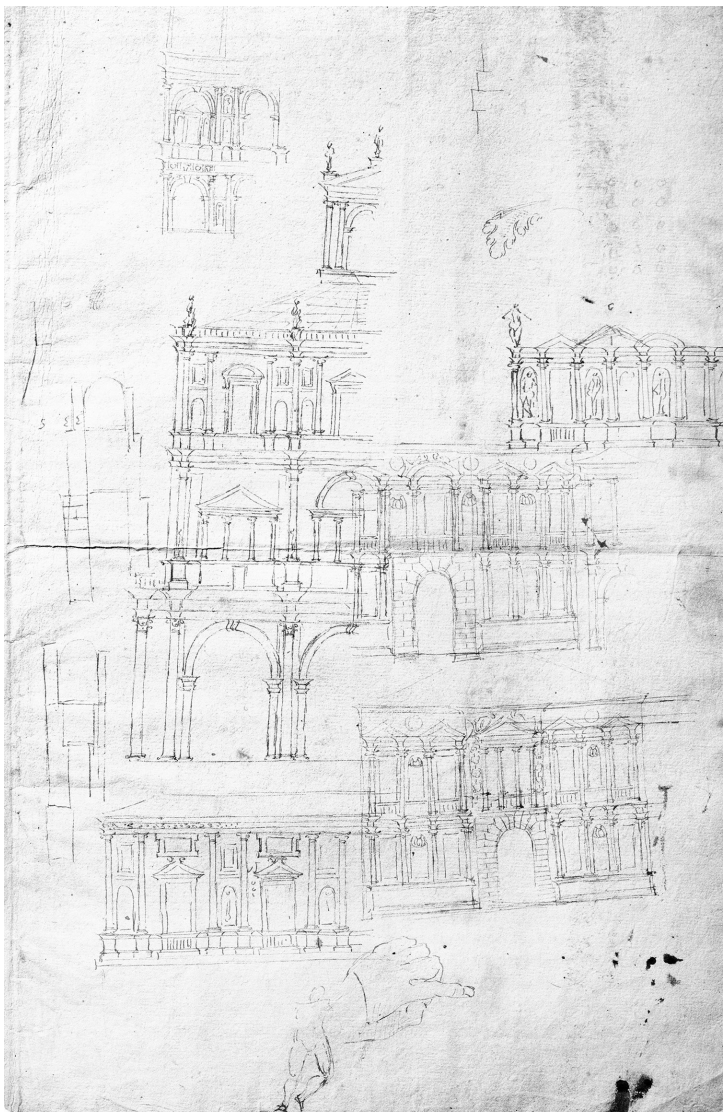

Figure 7. Andrea Palladio, sketches for façades and porticos, 1554. RIBA Library.

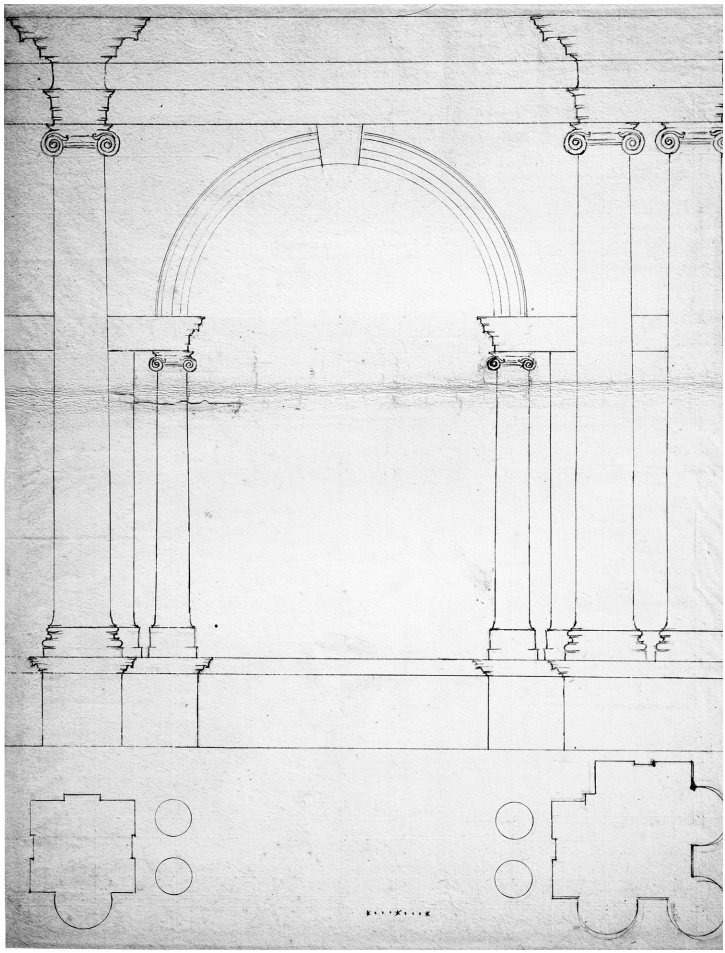

Figure 8. Andrea Palladio, Basilica, Vicenza, preliminary drawing, 1546. RIBA Library.

Figure 9. Andrea Palladio, Basilica, Vicenza, 1549, columns, arches, and spacing on front façade. Photograph by D. Leatherbarrow.

Roman precedent, the basilica, because of comparable functions and similar standing in the ancient and modern cultures. On his account, guided by Vitruvius, he observed that the ancient model typically had a width that was no less than a third its length, nor more than a half, provided the site did not force a change to these preferred relationships.[35] There were, however, differences between the old and new types: the ancient ones had "their feet firmly on the ground" (the main space at ground level), and the modern ones raised the main room up a level, making room for commercial shops below. The porticoes he designed gave access to these shops and enclosed a long balcony outside the council room above.

The architecture of the enclosing shell is composite, trabeated configuration above arcuated below. With respect to the first, the pre-existing piers were encased in a framework of half columns attached to piers and entablatures. At both levels these elements were designed and built according to defined rules for proportioning the orders, Doric columns below, Ionic above. As for the second composition, he designed an arrangement of arches and smaller columns that would span between the piers. In this case, too, the elements were correctly proportioned.

The key issue is the variation—disproportionality—of the spaces between the column-arch arrangement and the half-column-pier framework. Bay-by-bay he altered the distances between the two arrangements as a way of compensating for the irregular spacing of the pre-existing piers. In some cases, the gap on one side is only a third of the width of the gap on the other side, resulting in intercolumniation that was clearly disproportionate. Yet, from a distance the whole composition looks regular because of the repetition and proportionality of the major elements. Against their prominent unity, the discordant spacings recede into the background. The building seems to be beautifully congruent but is not. Neither the old core nor the new shell is complete and well-proportioned in its entirety, but the work is magnificent nonetheless—maybe because of its coupling of desired and given kinds of order, abstract *and* concrete, invariant *and* timely.

Two examples from more recent times (17th and 20th centuries) can be used to show the continuity of this understanding of architectural beauty into the modern period, an understanding that manifests itself in different ways and suggests, I think, that the complementarity of architecture's kinds of beauty is more important than their rank.

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[35] A. Palladio, *The Four Books on Architecture*, MIT Press, Cambridge, Mass., 1997, III, 19, p. 200.

Design as Negotiation

The 17th century case I have in mind was built just before Shaftesbury developed his arguments about the three orders or degrees of beauty, Antoine Le Pautre's Hôtel de Beauvias in Paris.[36] Here, the adjustments of prescribed norms and approximations to what one can imagine was Le Pautre's mental image appear in plan, not elevation, and the irregularities generated by pre-existing conditions are located at the edges of the layout, not its core (figure 10). The nearly perfect regularities that were built are found in the geometry of the central court, a geometry that is rather complex when compared to the designs and recommendations for similar spaces by Palladio, Alberti, and Vitruvius, closer to the plan arrangements of Baroque architects like Cortona or Bernini, Neumann or Santini.

The plan of Hôtel de Beauvias has been described as an "ingenious adaptation to the irregularities and constraints of the difficult site [. . .] [a] brilliant adjustment of rooms to the site."[37] Le Pautre's treatise[38] shows a number of projects that did not have to contend with these kinds of constraints, projects that expressed desired proportionality throughout, designs that were wonderfully "beautified" is Shaftesbury's terminology. Yet, if one has in mind ancient arguments about the lifeless and somewhat mechanical character of normative solutions, one might find the "beautifying" character of Le Pautre's constrained project the one that is "really beautiful."

When the pre-existing buildings on the Hôtel de Beauvias site had been cleared and digging for the foundation walls begun still deeper remnants of earlier buildings were discovered. Faced with the choice of further excavations for their removal, surely time consuming and costly work, Le Pautre decided to incorporate what remained into the substructure of his new building, not only for support, as if it were bedrock, but also for the outline of a few of the key elements in the plan's geometry: the depth of the front set of rooms, the circular configuration of the entry vestibule, the overall width of the central court, the angle of the mid-block passage to a neighboring street, and the semi-circular shape of the court's end wall,

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[36] An excellent study of Le Pautre's built work, including this project is R. W. Berger, *Antoine Le Pautre: A French Architect of the Era of Louis XIV,* New York University Press, New York, 1969.

[37] *Ibid*., p. 45.

[38] A. Le Pautre*, Les oeuvres d'architecture d'Antoine Le Pautre,* Paris, 1652.

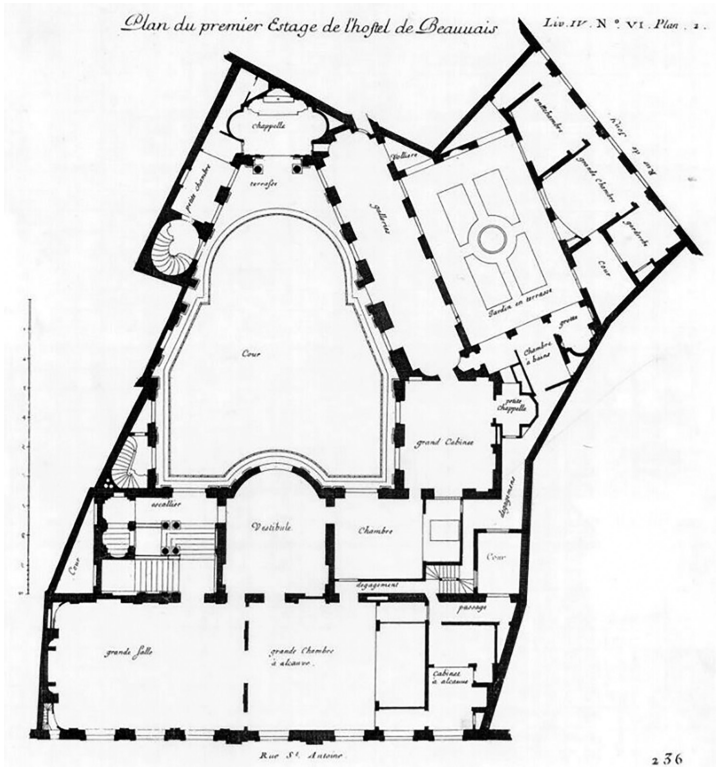

Figure 10. Antoine Le Pautre, Hôtel de Beauvias, Paris, 1657, ground plan. Asian Architectural Archive Center.

Figure 11. Antoine Le Pautre, Hôtel de Beauvias, Paris, 1657, central court. Photograph by J. Bitard.

which supports the façade of a small chapel on the second floor. Although a desire for multi-scenic, theatrical visibility of elements within the court played an important role in Le Pautre's design of this part of the plan, there can be no doubt that he was similarly committed to configurations and (dis)proportions that obeyed other rules, less visual than functional, designed not for show but support. The challenge, of course, was that the outlines of the subsurface supports were fragmentary and irregular.

The reasoning at work here is at once economic and aesthetic. Le Pautre was just as concerned with making use of pre-existing conditions, despite their irregularity, as he was with the proportions, harmonies, and complexities of the elements he would compose. Thus far, I have stressed his concern with the central court. The front façade occupied his attention no less, its elements, the spacings between them, and overall congruence of the composition. The wide rusticated pilasters that frame the entry, for example, give proper emphasis to the entry point and axis of passage, but also coordinate the three levels through changes in their size and proportions (base, cap, and blocks) as they rise through the four levels. In point of fact, the street's narrowness prevents a view that could appreciate the façade's compositional beauty.

Because of the way Le Pautre interpreted the site, there is no similar obstruction to one's view of the central court (figure 11). Its coherence becomes increasingly apparent as one passes from the façade threshold toward the vestibule and stair, which is to say its beauty is obvious before one reaches the court itself—the first steps initiate what I referred to as multi-scenic and theatrical configuration. The court is a four-part arrangement that consists of the protruding back arc of the vestibule, a double-square rectangular space that gives the outdoor room its wide amplitude, the symmetrical diagonal walls that narrow that space and accelerate the view toward a half-circle drum at the rear that both fronts the stables and supports the little chapel above, itself surmounted by a covered balcony (no longer visible today, once it was fully enclosed).

Negotiation with pre-existing conditions was part of the process of both design and construction. Its result is, I think, a design that is more animated, lively, and articulate than those in the treatise, whose ideal beauty did not face the challenges of dense urban conditions and historically structured and sedimented sites. Beautifying can be said to be the process whereby desires and constraints jointly contribute to works that discover the possibilities of beauty within the conflicted worlds that design is often given.

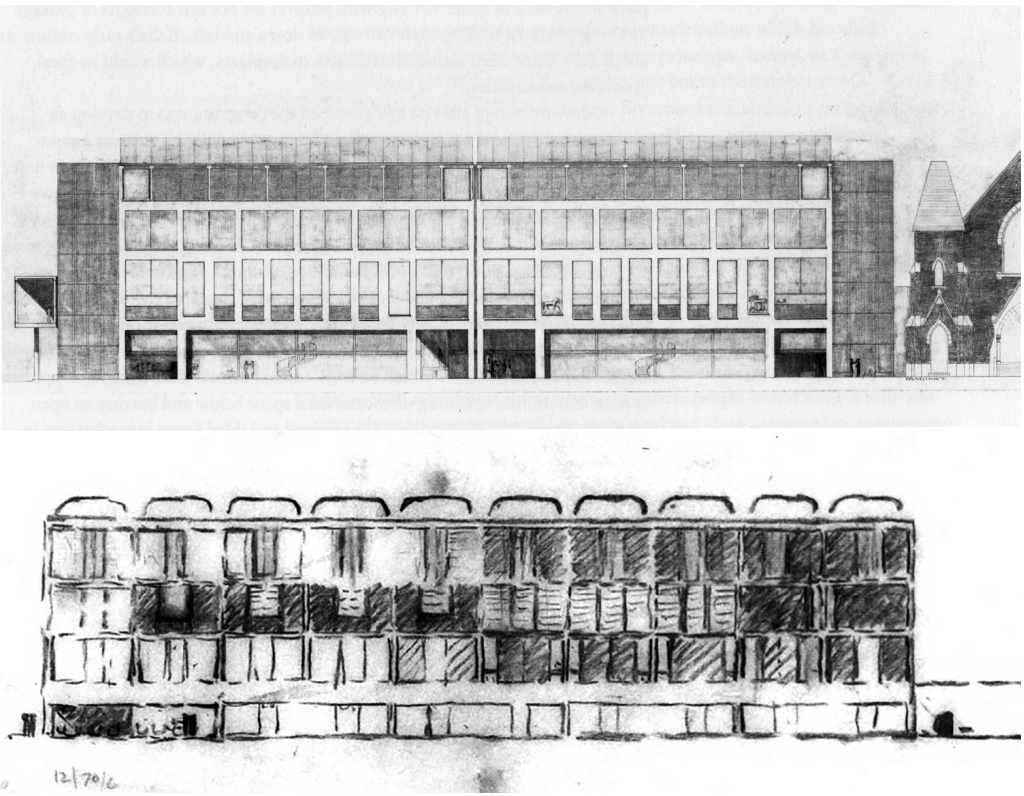

Figure 12 (above). Louis I. Kahn, Yale Center for British Art, New Haven, 1974, preliminary façade design. Architectural Archives, University of Pennsylvania. Figure 13 (below). Louis I. Kahn, Yale Center for British Art, New Haven, 1974, later stage façade design. Architectural Archives, University of Pennsylvania.

Order Is and Is Not

Louis Kahn's initial design for the Yale Center for British Art was doubly symmetrical in both plan and elevation; that is to say symmetrical in both the modern, bi-lateral sense of the term, and in the ancient sense of congruent elements and intervals forming a complete configuration. The regularity of the composition partly resulted from Kahn's choice of a reinforced concrete frame as the structural system. The distribution of spaces followed the distribution of structural elements. Enclosed within the bays of the framework were commercial shops at street level—one-bay-one-shop—with a large open court behind, together with an auditorium, museum workshops, and main stair. The early plans show a struggle to preserve this regularity, given the many and varied elements of the program.

Also adding to the struggle was the fact that the building was sited on a street corner within the regular grid of this part of New Haven. The early elevation and plans show that Kahn first proposed entrances on both streets, with the main one occupying the center of the long façade (figure 12). The bi-lateral and axial configuration thus seems rather indifferent to the asymmetrical character of the site, a building on one side, sidewalk and street on the other, the second obviously more public than the first. For several reasons, this initial design was rejected and a number of alternatives followed (see figure 13). The approximations on which I will focus made their appearance when he negotiated with the site more directly.

In the final project the structural system and the intervals it defined largely remained, but the corner bay was left unenclosed, creating an ample, if unexpectedly open entry forecourt. The relocation of the entry from the center to the corner seems to have come as a result of a suggestion by the Center's director. He thought it would serve as a wide and encouraging invitation to university students.

Another consequence of the reconfiguration was that the otherwise orthogonal composition of walls and voids, parallel and perpendicular to the streets and grid, was interrupted by an implied diagonal, passing from the corner column (figure 14), standing on its own where the sidewalks meet, to another free-standing support at the forecourt's center (figure 15), and terminating to the right of the entry doors that are cut into the forecourt's back wall. Light from the interior court attracts passage through an otherwise rather dark space. The prevailing orthogonality of the plan reorients passage once the threshold has been passed,

bay-by-bay, open court to open court, with cylindrical stair volumes placed along the central axis.

Apart from its suitability in an urban project, the corner entry and void, framed and figured most vividly by the stand-alone column, interrupts the plan's primary order. That interruption, together with the marginalized corner support can be understood as either a shortcoming of the solution, an incomplete realization of thorough-going congruence, or it can be understood as a beautiful coordination of incongruities: a repetitive order of structure and bays mated to an asymmetrical urban location, a perimeter of planar surfaces harboring a shadowed void, and a largely orthogonal configuration that welcomes a diagonal, off-the-grid approach (figure 16). Other parts of the final design show a similar willingness to coordinate the order of the building with that of its surroundings, particularly at the other end of the long façade, where the sidewalk level gives way to steps that lead down to another open forecourt. Kahn's sense of "order" is thus not of a mental image, beautifully commensurate though it may be, nor of an initial design, doubly symmetrical as this one was, but of an approximation to those two, limited by but coordinated with the sizes, geometries, and operations of an arrangement that predated and would include anything inserted into them.

Vitruvius' recognition of the insufficiency of symmetry, like Shaftesbury's critique of "the beautified," suggests there is something inadequate about objects and figures that are perfectly and finally composed and constructed, they are likely to lack purpose, pertinence, and vitality, making them too good to be good enough when the structures, involvements, and freedoms of concrete existence are allowed to serve as their proper framework of judgment, less-than-ideal though they always are. The "order" about which Kahn spoke is not, I think, so much *in the work*, but *in and of the world* in which the building plays its part. In architecture, inflexible allegiance to norms leads to lifelessness. Almost always, perfect unity is a dream dreamt out in the course of project realization, despite the fact that it may have been needed to 'push the boat off the dock.' Another kind of beauty strikes me as more sensible, not because its realization is within the reach of design and construction, but because it is more fully integrative, which is to say it results in the coordination of works and worlds, the imagined permanence of the first in tension with the incessant change of the second.

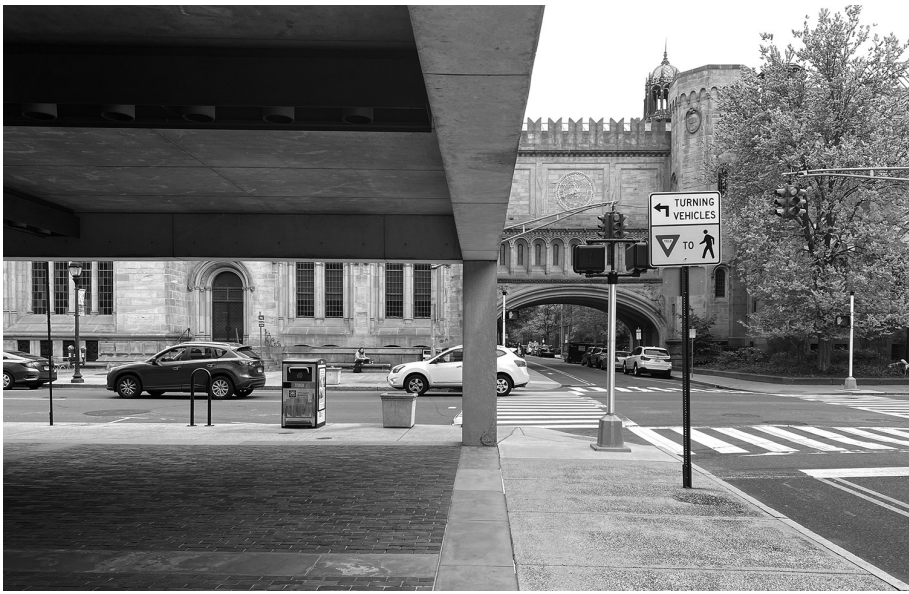

Figure 14. Louis I. Kahn, Yale Center for British Art, New Haven, 1974, free standing corner column. Photograph by D. Leatherbarrow.

Figure 15. Louis I. Kahn, Yale Center for British Art, New Haven, 1974, entry column. Photograph by D. Leatherbarrow.

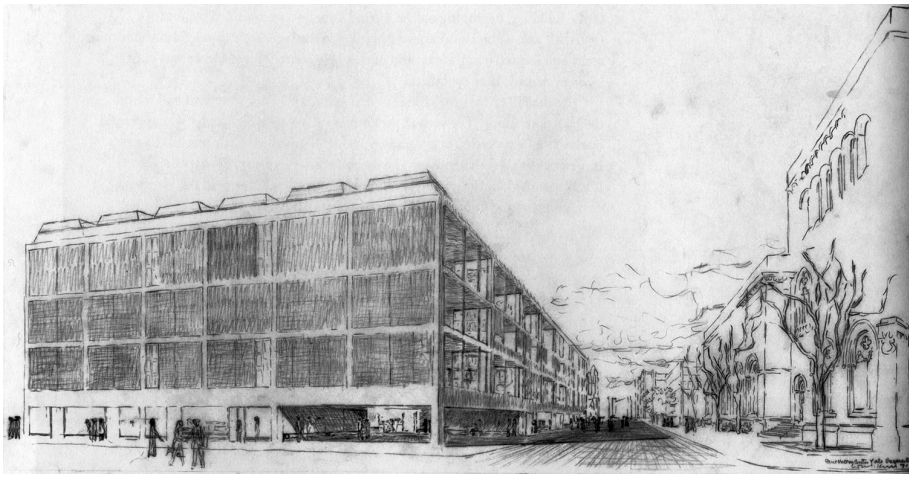

Figure 16. Louis I. Kahn, Yale Center for British Art, New Haven, 1974, perspective of entry corner. Architectural Archives, University of Pennsylvania.

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