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On the Ruins of Babel

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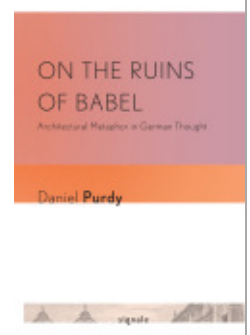
Published by Cornell University Press

Purdy, Daniel.

On the Ruins of Babel: Architectural Metaphor in German Thought.

Ithaca: Cornell University Press, 2011.

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Science or Art? Architecture's Place within the Disciplines

By the second half of the eighteenth century the decline of Vitruvian convention had become an urgent topic. The extravagant ornamentation on the facades of princely buildings, styles we would today call baroque and rococo, were debated in aesthetic terms, but with a clear understanding that, given the monarchical state's reliance on ostentatious displays of its overwhelming power, more was at stake. To question the grandiose appearance of princely edifices was to indirectly challenge the existing political order. As architecture became a subject for the wider public sphere, the broad spectrum of people excluded from the inner life of the court, official architecture was increasingly interpreted in terms of its facade. As modest scribes and academics began to write about their rulers' residences, the public side of a building became the site of political and aesthetic contention. The new questions reflected the social standing of the eighteenth-century critics, namely, outsiders. How should one read a building? What message did a building convey through its many small symbols? How did these signs hang together? Not only did the proliferation of such questions suggest the vantage point of the pedestrian spectator; it also suggested that the old rules for how to understand a building no longer formed a consensus.¹ That palatial ornaments were no longer directly tied

1. Ulrich Schütte, *Ordnung und Verzierung: Untersuchungen zur deutschsprachigen Architekturtheorie des 18. Jahrhunderts* (Braunschweig: Vieweg, 1986), 134. Helmut Pfotenhauer, "Klassizismus und

to a single style of column but had become independent signifiers was a further indication, to critics of the rococo, that the traditional language of architecture was no longer a shared convention. Admittedly, Michelangelo and Palladio had been accused of failing to observe the proper relation between ornament and the orders, yet the Enlightenment critique of decorations raised new implications, for it was connected to the broader project of providing a rational justification for social institutions.² Perrault's suggestion that a historical epoch's understanding of beauty might merely reflect the fashionable opinions of the time became a nagging problem for the Enlightenment. The specter of fashion haunted architectural criticism. The varying "solutions" to the problem fostered more general critical reflection into the Renaissance treatises' failure to explain the philosophical status of architecture as a discipline. The debate over ornament was itself a screen that reflected and deflected from the problem of how to legitimate architecture within an Enlightenment epistemology that separated the natural sciences, metaphysics, and the arts into isolated disciplines, each requiring their own justification. As Sabine Schneider has argued, to ask the question of whether ornaments were an essential component of architecture was to already acknowledge the decline of tradition.³ While surely exaggerating more than a little, Francis Christoph de Scheyb claimed that architecture was in a crisis brought on by its obsession with the fashionably new, by which he meant the importation of French decorations. The virtues of Greek and Roman construction had been abandoned, Scheyb argued, in favor of trifling inventions, which merely showed off the architect's playfulness.⁴ A similar complaint had already arisen eleven years earlier from Friedrich August Krubsacius, who had objected to the German tendency to import architectural fashions from Paris. Both writers were expressing the anxiety that Perrault's skepticism had become the reality. For Krubsacius, Perrault's critique was no longer a matter of hypothetical speculation, but an accurate description of the architectural practice at midcentury. The classical link between buildings and bodies had been distorted and reduced to a rococo delight in *maquillage*. While a little makeup and a handful of jewels can enhance an already beautiful face, pouring on the powder and smothering a body with jewels will do nothing if that figure is inherently ugly. The same, Krubsacius thundered, applies to architecture. A few ornaments will elevate an attractive building; piling

Ornament: Die italienischen Verzierung in der deutschen Kunstdiskussion des 18. Jahrhunderts," in *"Italien in Germanien": Deutsche Italien-Rezeption von 1750–1850*, ed. Frank-Rutger Hausmann (Tübingen: Gunter Narr, 1996), 37–63; for the difference between German and French rococo debates, see Mario-Andreas Lüttichau, *Die deutsche Ornamentkritik im 18. Jahrhundert* (Hildesheim: Olms, 1983), 18–21.

2. Lüttichau, *Die deutsche Ornamentkritik*, 13.

3. Sabine M. Schneider, "Zwischen Klassizismus und Autonomieästhetik der Modern: Die Ornamentdebatte um 1800 und die Autonomisierung des Ornaments," *Zeitschrift für Kunstgeschichte* 63 (2000): 353.

4. Francis Christoph de Scheyb (Koremons), *Natur und Kunst in Gemälden, Bildhauereyen, Gebäuden und Kupferstichen*, zweyter Theil (Leipzig: Fried. Gotth. Jacobäern, 1770), 413.

them on will only degrade an already unattractive structure.⁵ Krubsacius reiterated Vitruvius's somewhat notorious complaints against "unnatural" wall decorations. The former's position implied that all buildings had a basic form that emerged when they were stripped of all decorations:

Buildings could be made much nobler if they were to have no, or as little as possible, ornamentation. For they have their essential beauty and do not require any foreign additions. And therefore one calls all ornamentation, nonessential decoration.⁶

Whereas Krubsacius advocated a general principle of refusing "unnatural" decoration as a cure for fashion in architecture, Scheyb argued that architects needed further training in mathematics. The ancients, he claimed, were far better versed in the material necessity of building, while contemporary architects left construction to the master masons. The return to Greek and Roman design required a thorough understanding of mechanics. Herein lies one of the main responses to the decline of the Renaissance orders: a turn toward applied mathematics. Although Scheyb presents engineering as a revival of the classical tradition, many Enlightenment critics understood that the Renaissance treatises had never concerned themselves much with the pragmatics of construction. Indeed, for much of the Enlightenment, the advocacy of engineering principles in architecture was more than an angry response to rococo frivolity; it constituted a broad critique of the social hierarchy implicit in the classical orders. This new position claimed that architecture, when divorced from the few ostentatious structures required by the elite, should not concern itself with beauty or any other aesthetic category but instead should respond to the utilitarian requirements of governance, fortification, commerce, manufacturing, housing, and agriculture. In these domains, the classical treatises and the example of ancient buildings provided little guidance. Thus architects should concern themselves foremostly with designs that served contemporary needs, without recourse to the orders.

From the middle of the eighteenth century onward, there appeared a wave of journals, collections, pamphlets, archives, and anthologies discussing the mechanical principles of architecture.⁷ In the last decades of the century, readers could turn to the *Allgemeines Magazin für die bürgerliche Baukunst* (General Magazine for Civil Architecture), as well as the *Sammlung nützlicher Aufsätze die Baukunst betreffen* (Collection of Useful Essays concerning Architecture). The contents of the *Allgemeines Magazin* presented an Enlightenment program that emphasized

5. Friedrich August Krubsacius, *Gedanken von dem Ursprunge, Wachstume und Verfall der Verzierungen in den schönen Künsten* (Leipzig: Bernhard Christian Breitkopf, 1759), 33–35.

6. *Ibid.*, 33.

7. Klaus Jan Philipp, *Um 1800: Architekturtheorie und Architekturkritik in Deutschland zwischen 1790 und 1810* (Stuttgart: Axel Menges, 1997), 35.

independent observation, critical judgment, and technological innovation at the expense of classical treatises.⁸ The journal struck a modernist tone when it insisted on weeding out anything built on the crumpling ground of tradition so as to expose its errors: “to remove everything that smacks of superstition and that is built on the moldy foundations of genealogy and imitation; to stimulate explanation, independent thought, observation, judgment, and invention, to report on errors and to improve imperfections.”⁹

A second reaction to the perceived irrelevance of the orders was an entirely new architectural aesthetic, one that did not rely on the authority of tradition so much as the judgments of the tasteful individual. Here the rococo was criticized merely as inferior taste, as opposed to unstable engineering. This approach understood the building as expressing a character that elicited an emotional response within the spectator. Marc-Antoine Laugier had already cautiously proposed the method, and Nicolas Le Camus de Mézières’s *Genius of Architecture* presented detailed, sensual descriptions of the rooms distributed through a grand palace. In 1789, Gottfried Huth published a German translation of Mézières’s work in his *Allgemeines Magazin*, along with a reprint of Goethe’s “On German Architecture” and excerpts of Weinling’s letters from Rome. A few years earlier an anonymous work spelled out a similar thesis, recognizable from its title: *Untersuchungen über den Charakter der Gebäude: Über die Verbindung der Baukunst mit den schönen Künsten und über die Wirkungen, welche durch dieselben hervorgebracht werden sollen* (Investigations into the Character of Buildings: On the Connection between Architecture and the Fine Arts and the Effects Which It Should Bring Out through Them).¹⁰ As the century closed, descriptive writing about buildings became much more important than laying down general principles.¹¹ This new teaching went beyond the Renaissance notion that a building should be appropriate to its owner and its purpose.¹² Starting in the mid-1700s, and then becoming prolific around 1800, a new manner of architectural writing emerged, one that focused directly on individual buildings in order

8. *Ibid.*, 36.

9. Gottfried Huth, ed., *Allgemeines Magazin für die bürgerliche Baukunst* (Weimar: Carl Ludolph Hoffmanns Witwe und Erben, 1789), 3.

10. This striking treatise has not received a broad reception, even though most scholars who do discuss it agree on its remarkable arguments. Jens Bisky asserts that it could well be the most important architectural theory treatise of the German Enlightenment. Jens Bisky, *Poesie der Baukunst: Architekturästhetik von Winckelmann bis Boisserée* (Weimar: Hermann Böhlau Nachfolger, 2000), 101. Ulrich Schütte provides a thorough appreciation as well in “Aufklärung, Empfindsamkeit und die Krise der Architektur um 1800: Zu den ‘Untersuchungen über den Charakter der Gebäude’ von 1785,” *IDEA: Jahrbuch der Hamburger Kunsthalle* 8 (1989): 57–74.

11. Sylvia Lavin, “Re-reading the Encyclopedia: Architectural Theory and the Formation of the Public in Late Eighteenth-Century France,” *Journal of the Society of Architectural Historians* 53 (June 1994): 184–185.

12. Marc Grigona and Juliana Maxim show how the late eighteenth-century understanding of “character” developed from the earlier notion of “convenience,” namely, a building’s appropriate representation of the inhabitant’s rank. Marc Grigona and Juliana Maxim, “Convenience, Caractère, and the Public Sphere,” *Journal of Architectural Education* 49.1 (1995): 29–37.

to understand their particular rationality and beauty.¹³ The singular structure was newly valued for its distinctiveness. Writers were increasingly driven to reflect upon their own impressions, rather than test the building's adherence to an established code.¹⁴ This new criticism did not slip immediately into subjectivism, for in the first French formulations of the mid-1700s writers felt compelled to defend their taste before the general public. Jens Bisky makes the important point that aesthetic reactions to architecture were composed in order to elicit literary and scholarly discussion. Klaus Jan Philipp argues that the eighteenth century saw the first architectural debates that went beyond a narrow circle of professionals and patrons to address a general audience.¹⁵ The critical public sphere thus provided a context for personal reflections. The expectation that a building should not only display a social status but also appeal to the senses meant that architectural judgments were often articulated as matters of public concern, not just personal, biographical curiosities.¹⁶ These texts were arranged rhetorically as challenges to debate, as well as personal exercises in recollecting the site. Even now, urban architecture, when seen by everyone, can generate intense polemics. The democratization of architectural aesthetics in the eighteenth century allowed for deliberations about buildings based on judgments that were both socially representative and deeply personal. Buildings no longer required an expert to interpret the facade's icons; instead they were read more diffusely for their "character."¹⁷ The hierarchy of buildings spelled out in Renaissance treatises became less important.¹⁸ Only if a building invoked a feeling of monumentality would it be associated with the highest state authority. It was not enough to display its rank; a building had to make you feel that the architect was inspired by noble sentiments when he built it.¹⁹ The anonymous *Investigations into the Character of Buildings* interpreted the silhouettes of houses in much the same manner as Lavater's physiognomic studies.²⁰ This physiognomic approach complemented the broader Enlightenment critique of ornament and courtly

13. Philipp, *Um 1800*, 15, centers the new perceptual mode of architectural criticism in the decade before and after the turn of the nineteenth century; however, he readily acknowledges the importance of French authors from the midcentury. Rather than fixing on 1800, I would argue that the new architectural criticism emerged slowly as part of aesthetic's expansion as a serious philosophical discipline.

14. Jens Bisky, *Poesie der Baukunst*, 5, suggests a direct correlation between the decline of Vitruvianism and the emergence of subjective description.

15. Philipp, *Um 1800*, 28.

16. Bisky, *Poesie der Baukunst*, 17.

17. Schütte, "Aufklärung," 60.

18. Philipp, *Um 1800*, 16.

19. Friedrich Meinert, *Zeichenbuch für Baukünstler und Bauhandwerker* (Leipzig: Friedrich August Lev, 1801), 4: 154.

20. Hanno-Walter Kruft points out that the *Investigations* was open to many of the same mocking criticisms Lichtenberg aimed at Lavater's physiognomic interpretations; see his "Einführung" to *Untersuchungen über den Charakter der Gebäude: Über die Verbindung der Baukunst mit den schönen Künsten und über die Wirkungen, welche durch dieselben hervorgebracht werden sollen* (repr., Nördlingen: Alfons Uhl, 1986), xxi-xxii.

fashion.²¹ The ontology of the architectural profile favored the clear, single line that traced the overall shape of the building against any features that would be added later to fill in its profile.²² *Investigations* presented the architect as an autonomous thinker, who critically examined his own discipline to understand how it could most effectively generate strong emotions in spectators, while balancing the client's expectations ("der Eigensinn des Bauherrn") with the budget's constraints.²³ Architecture was defined as a plastic art that stirred the imagination. This ability to inspire onlookers to feel strongly about a building and to fantasize about its purpose depended on the building's "character."

Goethe's essay on the Strasbourg cathedral marked a first radical turn away from public convention and into an alienated, highly subjective reading of a building. *Investigations* follows suit, as it displays a familiarity with Goethe's celebration of the Strasbourg cathedral and prepares the ground for E. T. A. Hoffmann's fantastic houses. The anonymous author of *Investigations* claimed that if they read more literature, architects would better understand how art generates affections in an audience. Robin Middleton has shown that the first French treatises on architectural character coupled buildings with rhetorical convention but in short time expanded the analogy beyond oratory to include music, drama, poetry, and landscape painting.²⁴ Renaissance architecture has always accepted a comparison with the orderliness of Latin rhetoric; however, the eighteenth-century fascination with the role of imagination in literature raised the possibility of architecture as a transposition of fiction.²⁵ The difference between the two modes is brought out in the following examples. Milizia still holds to the classical analogy between a well-ordered building and the proper placement of words in oratory:

The value of architecture consists neither in piling stones up on each other in great masses nor in throwing together a multitude of decorations. The materials in

21. When Norbert Elias argues that the layout of apartments in a Parisian *hôtel particulier* characterized the marriage arrangements of the French nobility, he is providing an updated version of an Enlightenment method of interpreting architecture. Rather than finding an emotion or a virtue in the design of a house, Elias correlates architectural order with institutional power relations. His classical study of courtly architecture, with its room-by-room analysis, recapitulates Mézières's *Genius of Architecture* in sociological terms. Tellingly, he uses the same phrases as those current in the eighteenth century: "You can characterize the position of man and woman in this society no more clearly than by referring to the equal but completely separate arrangement of their private apartments." Norbert Elias, *Die höfische Gesellschaft* (Darmstadt: Luchterhand, 1969), 79.

22. Schneider, "Zwischen Klassizismus und Autonomieästhetik," 344.

23. *Untersuchungen*, 4, 7.

24. Robin Middleton, introduction to *The Genius of Architecture*, by Nicolas Le Camus de Mézières (Santa Monica: Getty Center for the History of Art and the Humanities, 1992), 25–30.

25. A German translation of Vignola compares the arrangement of words in oratory with the orderly placement of elements in a building: "The structures (*Glieder*) are in architecture what the letters are in writing and rhetoric. In the same manner, the many variations produce countless words in different languages." J. Bar. de Vignola, *Ausführliche Anleitung zu der ganzen civil Baukunst*, trans. Sr. A. C. C. Daviler, commented upon by L. C. Sturm (Amsterdam: Huguëtan, 1699), 5.

architecture (*Baukunst*) are like the words in a speech, which on their own make very little or no impression, and can be poorly organized; if they are set together artfully and delivered with emphasis, then they inspire and sweep up with a limitless force. Even with an unexceptional speech, a great poet can inspire in a pleasant and lively manner and say common things with dignity and respect. Just so can an architect use clever instructions to give the cheapest material prestige, whereas the ignorant can irritate with the most expensive.²⁶

Investigations, on the other hand, has already shifted beyond the question of order to concentrate on the aesthetic effect produced by the building and the poem:

The architect will acquire no small advantage from reading the poets. For poetry (*Dichtkunst*) has the advantage of firing the imagination, and the following essay will show its importance for the architect. Guided by certain taste, he will transform a country house into an idyll, a palace into an epic, and a temple into a hymn.²⁷

The widened analogy between fiction's pull on the reader and a building's ability to inspire passion raised the problem of how to regulate the uncontrolled, subjective freedom of the imagination.²⁸ By the end of the eighteenth century it was clear that the impassioned reader would readily project his or her private feelings onto external objects. This narcissistic loop was not fixed onto dark forests and rough mountains alone but applied to buildings as well.²⁹ This new intimate criticism placed the building in an emotional circuit with the viewer, so that the structure became both a screen onto which feelings were directed and a source for the viewer's poetic inspiration. In this second instance, the building appeared as an alien other, a cipher that compelled the viewer to search for an idea that made the structure intelligible.

Not surprisingly, professional architects distanced themselves from imaginary interpretations of buildings, thereby reinforcing the division between aesthetic and technical definitions of the field. An early German review of Mézières's *Genius of Architecture* provided an ironic listing of all the rooms in a building that might not give off a pleasing impression. The reviewer made clear that he could not adopt the sentimental tone that coursed through the book's metaphysical approach to architecture.³⁰ Similarly, Friedrich Christian Schmidt questioned how useful emotional

26. Francesco Milizia, *Grundsätze der bürgerlichen Baukunst* (Leipzig: Schwickertschen Verlag, 1784), 4.

27. *Untersuchungen*, 14.

28. *Ibid.*, 17–18.

29. Carsten Lange, *Architekturen der Psyche: Raumdarstellung in der Literatur der Romantik* (Würzburg: Königshausen & Neumann, 2007), 39.

30. *Göttingische Anzeigen von gelehrten Sachen*, 1783, 782 (<http://gdz.sub.uni-goettingen.de/>); Philipp, *Um 1800*, 38.

responses to a building's character were for the design process.³¹ Sounding like a character from Hoffmann, he directly addresses the romantic view that architecture shares poetry's capacity to generate illusion. Architecture can become a poetic art that occupies the imagination, Schmidt acknowledges, yet these pictures disappear when one is awoken from the sweet dream. As soon as one tries to draw the images seen during the hallucination, difficulties emerge. Add economic calculation, and it becomes clear that idealized buildings are a luxury beyond the income of the regular citizen. When it comes time to design a plan, Schmidt finds the advice given by *Investigations into the Character of Buildings* far too general. The three volumes of his massive *Der bürgerliche Baumeister* (Bourgeois Builder) provided detailed plans for housing a professional urban class that often needed to place a warehouse or workshop near its living quarters but could also often afford a summer home. Schmidt had little room for reverie.

Treatises that focused on technique and economics in architecture reinforced the aim of property owners and the state to increase agricultural productivity and to more effectively exploit natural resources while protecting the terrain from incursion.³² They gave precedence to the engineer and the artillery officer, whereas writings that explored emotional reactions to buildings treated the architect as a reflective and historically conscious artist. The difference between these two positions manifested itself in the eighteenth century as a debate over whether architecture was a fine art or a practical science. The early modern literature on architecture worried constantly about this question. No author could presume to speak about architecture without taking a position, however vague, on this central obsession. The debate concerned the education of architects, their employment with the state, and their standing within the court and the military. With the first emergence of industrial technology, architects in the eighteenth century were being given new responsibilities that had not been foreseen by earlier writers.³³ Architecture began to separate its own professional standards from allied fields, such as painting and sculpture. This required securing a distinct professional identity, even as the terms of the discipline were in flux.³⁴

31. Friedrich Schmidt, *Der bürgerliche Baumeister, oder Versuch eines Unterrichtes für Baulustige* (Gotha, 1797), 85 (<http://digi.ub.uni-heidelberg.de/diglit/schmidt1797>); Schütte, "Aufklärung," 57.

32. Horst Ossenberg, *Haus + Hof im Sprach- und Kulturraum Alemanni und Schwaben von der Stein- bis zur Neuzeit* (Norderstedt: Books on Demand, 2004), 147–152.

33. Marlies Lammert provides a distinctly Marxist interpretation of the crisis in architecture as arising first at the turn of the nineteenth century with the emergence of a capitalist economy. Setting aside the question of economic causation, Lammert provides a compelling description of the changes in architectural discourse. Marlies Lammert, "Zu Problemen der klassizistischen Architektorentwicklung," in *Studien zur deutschen Kunst und Architektur um 1800* (Dresden: Verlag der Kunst, 1981), 53–78.

34. Rand Carter, "Die Ausbildung der jungen Architektengeneration in den 30er Jahren des 19. Jahrhunderts in Europa," in *Mythos Bauakademie: Die Schinkelsche Bauakademie und ihre Bedeutung für die Mitte Berlins*, ed. Frank Augustin (Berlin: Verlag für Bauwesen, 1997), 38.

The uncertainty over architecture's definition, however, also stretched back to the first treatise in the field. How were Vitruvius's three terms—*firmitas*, *utilitas*, *venustas*—to be understood? Did they constitute a scale of importance? Did solidity matter more than beauty? Could a building even be considered architecture without beauty? Did the three terms mark the elevation of construction from practical necessity to art? Architectural treatises from Vitruvius on have struggled against the insinuation that architecture is a profession that does not require higher intellectual or artistic skills. The anxiety that architects are no more than elevated masons runs through many of the most important treatises in the field, well into the present.³⁵ Werner Oechslin cites Adolf Loos's quip that "an architect is a bricklayer who has learned Latin" to illustrate the worry that has beset architects since Alberti.³⁶ Vitruvius's vaunting insistence that the architect be educated in diverse fields responds to this concern. Within architectural writing, this debate did not attempt to define art or engineering. Most critics simply presumed that all art was mimetic, raising the obvious question: how could architecture be said to represent the world? The arguments against including architecture among the fine arts included a deliberate denial of beauty as the first concern in building. Whatever the uncertainty concerning buildings' artistic standing might have been, the matter was worse for gardeners, for landscape architects saw themselves in an even less professionalized state than their structure-building brothers.³⁷

The eighteenth-century commentators usually did not formulate theories of their respective disciplines; instead they simply stated their allegiance to one side of the question or the other. The lack of any definitive attempt to address the question let the debate run on unresolved. Marc-Antoine Laugier, who had a wide reception in Germany, sought to introduce aesthetic terms to the debate. He equated the architect with genius and the Enlightenment; however, he also sought ultimately to bind both into a system of rules for building. Goethe's writing about the architect radicalized Laugier's formulation of him as an inspired genius. Laugier adapts Vitruvius's characterization of the architect's education by insisting that architecture be understood as a liberal, rather than a mechanical, art. Whereas medieval and early modern writers elevated architecture into the intellectual arts by emphasizing the importance of mathematics in design, Laugier predicates the artistic character of architecture not on geometry but upon judgments of taste, for which the elusive "genius" serves as the definitive term. Hence he insists right off: "It needs perhaps as much genius, *esprit* and taste to become a great architect as is needed for a first-rate painter or poet." Laugier's defense of architecture is nevertheless

35. Even in the 1920s, German treatises revisited the debate; see Hermann Sörgel, *Architektur-Ästhetik* (Munich: Piloty & Loehle, 1921), 124.

36. Werner Oechslin, "...even if Architecture is dependent on Mathematics..." *Daidalos* 18 (15 December 1985): 31.

37. Chandra Mukerji, *Territorial Ambitions and the Gardens of Versailles* (Cambridge: Cambridge University Press, 1997), 41.

divided between the technical and the aesthetic. Having coupled the architect with the established arts, he points to the real figure of concern for the architect—the mechanical laborer. The architect may be almost as inspired as a painter, but one thing he certainly is not—a mechanical laborer: “It would be a great mistake to believe that in architecture only mechanics are involved, that it is confined to digging out foundations and raising walls, all according to rules which, becoming routine, only require eyes accustomed to judge a plumb line and hands fit to handle a trowel.”³⁸ The differences between the mechanical and the liberal, or free, arts parallel other oppositions. In distinguishing between construction and design, Laugier emphasizes the chaos of a construction site and contrasts it with the precision and proportion of the completed building. Hulking piles of bricks stand in contrast to the abstraction of design. Matter is shapeless and somewhat threatening without the architect. To make matters worse, the disorder of building is further associated with popular opinion. Ordinary people think noise and dust are all that make a building, whereas only a few notice the bold genius involved. Construction chaos is but the outer appearance of the profession; one must penetrate the field in order to understand its principles. With his emphasis on chaos, noise, shapeless matter, and fearful machinery and the contrasting penetration that brings light to the few, Laugier presents a secretive language of architecture that led Joseph Rykwert to link him with the Freemasons.³⁹ Yet ultimately, Laugier intends to explain architecture according to terms recognizable to anyone who understands its basic principles. Laugier’s architect bears order and light, thereby repeating the Creation in Genesis. His correspondence between architect and the divine creator carries with it the tone of older cosmological accounts of architecture as a second-order creation that follows the harmonious order of the universe.

Antoine Picon warns against overestimating the opposition between architects and engineers, and indeed architects in the eighteenth century had little opportunity to specialize; they were obliged to build a variety of structures, and thus to practice the mathematical, mechanical, and sometimes aesthetic judgments that went into building bridges, fortifications, villas, public offices, palaces, urban houses, and agricultural facilities.⁴⁰ The distinction between a great house and a fortress was blurry through much of the early modern period.⁴¹ French architects in the seventeenth century were still designing *chateaux* according to military principles; and this tendency was even stronger in Germany, where the memory of the Thirty Years’ War was omnipresent. Yet the terms of the debate were not

38. Marc-Antoine Laugier, *An Essay on Architecture*, trans. Wolfgang Herrmann and Anni Herrmann (Los Angeles: Hennessey & Ingalls, 1977), 7.

39. Joseph Rykwert, *The First Moderns: The Architects of the Eighteenth Century* (Cambridge, MA: MIT Press, 1980).

40. Antoine Picon, *French Architects and Engineers in the Age of Enlightenment*, trans. Martin Thom (Cambridge: Cambridge University Press, 1992), 2.

41. Mukerji, *Territorial Ambitions*, 41.

mutually exclusive; it seemed plausible for many writers to insist on the importance of practical, nonornamental architecture, while also asking critically how a new standard for judging architectural beauty could be found. Huth's *Allgemeines Magazin* covered "the manual crafts, physical materials, and economics, as well as philosophy and the aesthetics of architecture, or the rational and beautiful modes of building."⁴² Christian Stieglitz, in his widely read encyclopedia of architecture, includes nuanced discussions of the aesthetic impact of beautiful buildings even as he maintains that the discipline is at heart a practical science.⁴³

The argument in favor of science was always in the same breath a critique of the orders and of baroque notions of beauty. Even those who, such as Stieglitz, did not consider mimesis the only basis for aesthetics, begrudgingly conceded that architecture was less well loved because of its inability to represent human action or nature. Although Stieglitz insists that architecture belongs to the mechanical arts, he acknowledges that it aspires to the fine arts through the emotions great structures call forth. Buildings, he allows, can represent human conditions. A temple thus becomes a picture of the sacred, a palace shows greatness and wealth, an urban house shows sociability and domestic bliss, a rural one suggests calm and freedom, while a peasant hut represents poverty.⁴⁴ Architecture signifies conditions rather than fluid relationships. Stieglitz associates these static conditions with the ancient tendency to compare architecture with rhetorical styles—the manner of speaking must be appropriate to the occasion—which he interprets as reflecting a building's character. This psychological signified brings architecture into the eighteenth-century interest in physiognomy. Buildings, like faces, can be interpreted to understand the hidden private interior. This physiognomic mode of interpreting facades still has the restrictive function that rules of decorum, or appropriateness, would have had for the Renaissance. The relationship between character and form obliges the architect to design a building so as to preserve a correspondence between the social standing of the inhabitants and the facade.⁴⁵ Physiognomy functions here as a guideline for the architect, because the pedestrian will presumably interpret the building as if it were a face that reveals an interior state of mind. This physiognomic approach preserves the ancient link between rhetoric and architecture, between body and building, within a bourgeois concern for discerning the moral character of contemporary buildings, and an aesthetic desire to interpret the past.

42. Huth, *Allgemeines Magazin*, 13.

43. Christian Ludwig Stieglitz, *Encyklopedie der bürgerlichen Baukunst*, 5 vols. (Leipzig: Caspar Fritsch, 1792–1794).

44. *Ibid.*, 1: 167.

45. *Ibid.*, 2: 395: "The architect, as a man of taste, will consequently know how to give purposiveness as well as all possible beauty to his work of art. He will know exactly the limits he has to observe when planning or decorating a building, so as not to exceed them. He will understand the building's mission and will never lose sight of its character."

The presumed correspondence between facade and character enables the traveler to grasp the quiet nobility of Greek temples. Thus Stieglitz applies Winckelmann's famous characterization of Greek sculpture to argue that the uniformity of a temple reflects the simplicity of its innermost idea: "The quiet grandeur of a building will be brought out by its uniformity. A building should have only a few large and important projections, and its profile must remain simple."⁴⁶ Architecture, Stieglitz argues, can bear more uniformity than other art forms, which depend on alterations in shape, tone, and color to produce their effects. The aesthetic character of a building lies not in the expressiveness of its details but in the way in which its form distinguishes it from other buildings. A style does not correspond to a specific content, rather it makes distinctions. Thus Stieglitz can argue that he prefers the sublime masses of Greek temples over the decorative beauty of Roman edifices. Like other neoclassicists of the late eighteenth century, he adapts the tradition's general standards, such as harmony and symmetry, while leaving behind many small details, in order to posit an architectonic correspondence between the form of the building's design and the content of the architect's spirit.⁴⁷ If a concern for mimetic correspondence remains in Stieglitz's argument, then it can be found again in the relationship between the architect's thought and the building's appearance.

* * *

The classical orders had long belonged to the repertoire of symbolic forms legitimating monarchical and feudal domination, so that when the Enlightenment questioned the philosophical justification for the orders, it opened the door to economic and semiotic critiques of the established order. Both engineers and aesthetes agreed that the classical Renaissance treatises from Alberti onward presented designs intended primarily for the aristocracy. Architecture had long been the interest of the ruling elite, and thus artists and publishers alike appealed to princely clients. In the eighteenth century, bourgeois critics pointed out that the vast majority of construction projects were never mentioned in the great pattern books. Enlightenment writers challenged the classical tradition in its broadest sense. Eighteenth-century writers called attention to the type of building that had not been deemed worthy of attention. Like Sigfried Giedion, who claimed that modern industrial architecture had an unseen history in the nineteenth century, Enlightenment critics wrote about the lineage of bourgeois construction that existed outside the text of classical treatises.⁴⁸ Both modernists and Enlightenment critics mobilized a mode of building that had been denigrated by official classicism as ugly, low-class, and practical. Both eighteenth- and early

46. Stieglitz, *Encyclopedie der bürgerlichen Baukunst*, 2: 472.

47. *Ibid.*, 2: 470.

48. See chapter 10 for a discussion of Giedion.

twentieth-century revisionists insisted on the existence of a secret, subterranean history of building. Functional building did not need to be invented; it was already happening throughout society. Without drawing art historical distinctions between styles of epochs, these deliberately simpleminded, or commonsensical, critics insisted that academic architects needed to write about housing for the urban classes who were engaged in manufacturing, trade, or administration. Johann David Steingruber notes in 1765 that although many books have been written on architecture, “most are about the houses of great men. . . . No one has written about bourgeois buildings and their special requirements, always nothing but the designs of French masters.”⁴⁹ Johann Georg Leopold in his *Oeconomischen Civilbaukunst* (Economical Civil Architecture) of 1759 asked planners for economical, inexpensive rural buildings that were comfortable, long lasting, and a bargain. As a rule, Leopold argued, most architects had no knowledge of such things, for they were considered too poor and lowly for the eyes of the great.⁵⁰ Johann Georg Sulzer writes in his *General Theory of the Beautiful Arts* of 1792: “Those who write about architecture fail to instruct on the construction of good living quarters, because they are focused mainly on the palaces and public buildings.”⁵¹ Christian Ludwig Stieglitz explains in the same year that his *Encyklopedie der bürgerlichen Baukunst* (Encyclopedia of Civil Architecture) addresses a need ignored by previous treatises.⁵² Stieglitz, like other Enlightenment writers, associates architectural theory, particularly any discussion of aesthetics, with the canonical orders. He places his encyclopedia somewhere between these treatises and technical manuals on carpentry, mining, hydraulics, road building, and windmill construction. Stieglitz promises to mediate between the ancient, elite rules of beauty and the technical skills of economical buildings. Anthony Vidler notes that the French encyclopedists had similarly concluded that “‘High Architecture’ with its orders and attributes” had ignored utilitarian buildings. However, because the encyclopedists did not elaborate a bourgeois mode of architecture, Vidler shifts his analyses to prints in the *Encyklopedie* that depict machines and manufacturing techniques. These prints have an implicit architecture, he argues; however, he does not mention the more explicit Enlightenment criticisms of High Architecture’s lack of concern with manufacturing. Vidler’s reliance on close interpretations of the *Encyklopedie* prints does not bring out just how directly Enlightenment architects questioned the classical treatises. Vidler’s point had indeed already been made within the Enlightenment.⁵³

49. Quoted in Schütte, *Ordnung und Verzierung*, 19.

50. Ossenberg, *Haus + Hof*, 152.

51. Quoted in Schütte, *Ordnung und Verzierung*, 20.

52. Stieglitz, *Encyklopedie der bürgerlichen Baukunst*, 1: iii.

53. Anthony Vidler, *The Writing of the Walls: Architectural Theory in the Late Enlightenment* (Princeton, NJ: Princeton Architectural Press, 1987), 24.

The criticism that architects took an excessive interest in aristocratic structures belongs to the larger Enlightenment critique of courtly culture.⁵⁴ The complaints against elite architecture use many of the same tropes as eighteenth-century criticisms of luxury consumption, fashion, and aristocratic culture: that it was wasteful, dependent on foreign examples, unoriginal, ostentatious, ugly in its overornamentation, distortive of true harmonic relations, and excessively feminine. Carl Freiherr von Bothmer took an ironically stalwart tone when he complained that German builders tended to imitate more than those in most any other nation in Europe.⁵⁵ German builders, he argued, were so eager to demonstrate their good taste that they imitated Italian and French designs without considering whether they addressed the practical needs of those who lived within. The complaint that Germans imitated rather than thought about their own needs was a common gesture in Enlightenment polemics. Already in 1687, the popular Enlightenment philosopher Thomasius had written a pamphlet entitled *Von der Nachahmung der Franzosen*. The complaint against foreign models was less concerned with asserting a nationalist identity than with disputing the status of architectural authority. Bothmer, for example, does not adopt the young Goethe's position of celebrating the Gothic as a distinctly German style. More practically minded, Bothmer simply ridicules the desire to build Italianate buildings that cannot withstand a German winter. His ironic voice puts him outside the serious, tradition-bound tone of most architectural treatises. Given his advocacy of buildings never much included in serious treatises, Bothmer can only write as someone who does not belong to the architectural profession. Thus he characterizes the established tradition as simply obsessed or as having a mania, rather than engaging in specific arguments. He diagnoses "Symmetromanie" as the embarrassing tendency to make everything appear symmetrical on paper. When he invokes an architectural forebear, it is Uncle Toby in *Tristram Shandy*. Ever the ironist, Bothmer acknowledges that his own plans for bourgeois apartment houses may wind up as useful to the reading public as Uncle Toby's fortification. Yet Bothmer's ironic disavowals of a highly complex tradition are not simply the sign of its diminishing status among architectural theorists. Bothmer does not engage the tradition even to the degree that Perrault does in his critiques, for he is addressing a different, wider audience than Perrault, who was still writing for an elite cognoscenti in Paris. Bothmer is writing instead for an ever-increasing German reading public that has just begun to develop an interest

54. Curiously, Marxist histories can underrate the critical dimension of Enlightenment architectural theory. The argument runs as follows: because Germany did not have a capitalist bourgeoisie in the eighteenth century, architects were loyal to the feudal class. While architects are always beholden to the ruling class, the eighteenth century was far more critical of the elite building culture than such excellent scholars as Marlies Lammert have acknowledged. See her otherwise richly sourced *David Gilly, Ein Baumeister des deutschen Klassizismus* (Berlin: Akademie Verlag, 1964).

55. Carl Freiherr von Bothmer, *Betrachtungen und Einfälle über die Bauart der Privatgebäude in Teutschland* (Augsburg: Conrad Heinrich Stage, 1779), 5.

in architectural matters. For educated, yet provincially dispersed members of the German *Bildungsbürgertum*, the rules of proportion inherited from Palladio and Vignola came across as increasingly irrelevant and of course a bit intimidating. Bothmer has something of the know-nothingism of the healthy bourgeois, albeit in the context of the Enlightenment drive to eliminate prejudice and to encourage independent thought. His book was meant to serve as a “refutation of certain prejudices and false regulations in our manner of building.”⁵⁶ Dismissing prejudice, according to Bothmer, meant devaluing the Renaissance tradition, and its esteem for antiquity. Bothmer and others were writing for an educated, nonaristocratic class that had never made the grand tour but had encountered instead only regional examples of classical buildings.

Friedrich Christian Schmidt argues that concentration on aristocratic structures demonstrates that the discipline of architecture had not yet developed, at least in Germany, into a full-fledged autonomous discipline.⁵⁷ For centuries, ecclesiastical buildings were the only places where *Baukunst* was practiced. Only occasionally did a nobleman rebuild his *festе Burg* into an elegant *Schloß*. Even when the nobility did construct elegant palaces, there was little need for an architect; most historical sources refer to a master mason as the director of construction.⁵⁸ Even in Italy, architecture was not a distinct field of knowledge, Schmidt argues. The great geniuses began their careers as painters and sculptors. Masons and carpenters had little hope of raising themselves. In other words, architecture was not a field one could study in order to then enter into the practice of building design. Ordinary civil architecture was thoroughly ignored as a result of this separation between artistic geniuses who received their patronage from above and craftsmen with only a guild education.⁵⁹ Schmidt wrote his treatise in the hope that it could be actualized by a new class of city planners, who were interested in restructuring the tight spaces of northern cities. He understood bourgeois architecture, with its concentration on utility and the efficient use of space, as belonging to the long-standing urban regulation of space practiced since the Middle Ages by town councils. Thus he directly addresses the dangers of narrow construction in cities. Fires, he acknowledges, can have the unintended effect of clearing space, so that they might be more rationally organized, yet they are also a threat that urban architects need to consider

56. *Ibid.*

57. Schmidt, *Der bürgerliche Baumeister*, 4.

58. Modern architectural historians in Germany concur: “With the exception of extraordinarily large building projects, the regular construction trade operated as it always had, according to convention, guided by tradition, and without critical reflection. The planning and execution of a construction project followed general conventions, rules of thumb, and common experience. This can be read—in the few cases that were set in writing—in the exemplar books of the individual trades that were composed without any scientific aspirations.” Reinhart Strecke, *Anfänge und Innovation der preußischen Bauverwaltung, von David Gilly zu Karl Friedrich Schinkel* (Cologne: Böhlau Verlag, 2000), 9.

59. Schmidt, *Der bürgerliche Baumeister*, 4.

explicitly.⁶⁰ Restrictions should thus be set on the design of individual houses. Schmidt clearly understands architecture as operating within the regulation of city planning. Buildings should not too closely reflect the identity of their occupants through the use of allegorical figures on the facade, because in every city houses are bought and sold as property, rather than kept as dynastic seats. Within fifty years, the correspondence between facade and inhabitants is thus lost.⁶¹ Schmidt implies that the various ornaments provided by the five orders become a confusing system of signs when used on urban, civilian houses. Schmidt places himself within the train of Perrault's critique of absolute classical beauty. Because beauty is so thoroughly subjective, restrictions should be placed on how property owners decorate their houses. City planners should consider the appearance of an entire street, rather than allow arbitrary variations between houses. For Schmidt, the absence of an absolute standard of beauty required cities to consider the practical purposes of houses rather than their conformity to a universal standard.⁶²

The political implications of fostering bourgeois construction in opposition to the classical tradition become most evident in the writing of the Hamburg mathematics professor Johann Georg Büsch. Büsch begins his *Praktische Darstellung der Bauwissenschaft* (Practical Presentation of the Building Science) by distinguishing bourgeois architecture from those monuments built by despots to celebrate their own names.⁶³ By despots he means those ancient rulers, presumably Roman emperors, who built great palaces, but the slippage, the presumed misunderstanding that he means rulers of his own age, who of course seek to build in emulation of antiquity, would not have been far from the minds of his readers. To make his political critique of architecture more explicit, Büsch delivers an analysis of Dresden's most famous baroque structures as overladen with ostentatious ornament that serves no practical end: "The magnificent August built in and around Dresden at an unspeakable expense. It is true that the ignorant stare in amazement at these buildings, for on the whole their layout was far more regular than one had been used to seeing in a princely German palace. However, nothing is as useless as their many bright decorations. The molding goes on forever. Almost no front is completed, and no one thought is ever followed through."⁶⁴ Büsch approves of Krubsacius's

60. *Ibid.*, 5.

61. *Ibid.*, 137.

62. *Ibid.*, 138. The anonymous reviewer of Schmidt's book repeated the terms of the French debate by pointing to certain Berlin buildings that everyone could agree were beautiful, thus confirming the existence of a universal, though undefined, standard of architecture. Huth, *Allgemeines Magazin*, vol. 1, pt. 2, 318.

63. "No work of art, such as despots of antiquity built to give themselves an immortal name, belongs to what we understand as civil architecture." Johann Georg Büsch, *Praktische Darstellung der Bauwissenschaft, erster band welcher die bürgerliche Baukunst enthält* (Hamburg: Benjamin Gottlob Hoffmann, 1793), 1. The series title is *Versuch einer Mathematik zum nutzen und Vergnügen des bürgerlichen Lebens, dritten Teils, erster Band*.

64. Büsch, *Praktische Darstellung der Bauwissenschaft*, 33.

critical pamphlets about Dresden architecture. About August the Strong's palace, "Der Zwinger," Büsch writes that the facade looks more like a stage decoration for the theater than a building that has some stated purpose. An ordinary pedestrian would certainly be impressed by its symmetrical organization, yet it is the many colorful decorations that are most offensive, precisely because they fail the test of bourgeois architecture, namely, they have no serious purpose ("ernsthafte Zwecke"). The building does not sustain a serious thought; rather, the many swirling decorations imply a skittish mind that moves from one distraction to the next: "Good taste pauses upon seeing the Zwinger and is inclined to accept the buildings as theater decorations, and as such to enjoy them. However, when one realizes that they are supposed to have a serious purpose, then the least critical judgment one can make is that they are built in a tolerable neo-neo-Gothic style."⁶⁵ Büsch does not confine his criticisms of the baroque to Germany; he is equally hard on Blenheim and the many country houses displayed in Colen Campbell's *Vitruvius Britannicus*.⁶⁶

Büsch discusses beauty in architecture only at the end of his work, because, he argues, other writers have devoted too much attention to aesthetics. Many books promise to give practical guides to building, and instead all one finds are lectures about beauty and even then only in terms of the five orders.⁶⁷ In a sense, Büsch is adapting the Vitruvian standard of architectural concerns—solidity, commodity and beauty—by emphasizing the first two qualities over the last. Aesthetic debates, he implies, have overrun more fundamental concerns. François Blondel dealt almost exclusively with beauty in his *Cours d'architecture*, never addressing in detail the first two categories. Similarly, the French mathematician Sebastian Le Clerc moves directly to the orders, because, he states, enough other writers have discussed the mechanics and materials of construction.⁶⁸ In part this lack of theoretical commentary on the practice of building reflects the slow rate of technological change in premodern construction, as well as the professional distinction between architects and masons, who built according to their traditional practices, independent of architects' plans. Le Clerc sums up seventeenth-century architectural thinking by somewhat contradictorily stating that a description of proper construction technique does not belong to his professional concerns and that any reader concerned about these questions can consult Vitruvius, Palladio, Vignola, and any number of other treatises.⁶⁹ Francis de Scheyb warned that this architectural disregard of building technique results in buildings collapsing and killing their inhabitants. Architects instead need to be trained so as to supervise and instruct their workers in the most scientific techniques, rather than allowing them to carry on local traditions

65. *Ibid.*

66. *Ibid.*, 37.

67. *Ibid.*, 304.

68. Le Clerc's work appears in German as *Abhandlung der Bau-Kunst mit nützlichen Anmerkungen und Betrachtungen* (Nuremberg: Christoph Weigel, 1759).

69. Le Clerc, *Abhandlung der Bau-Kunst*, preface.

that have no mathematical rationale.⁷⁰ When specific types of construction were forced to respond to technological innovation, such as in fortifications, which underwent a tremendous change during the seventeenth century, these were broken off from the central architectural discourse. Huth makes a point of stating that his journal will not examine mining, fortifications, or shipbuilding, thereby making clear that these fields once might have been part of the architect's training.⁷¹ By way of contrast, a century earlier, the *Baumeister* Johann Gregor Memhardt had diverse obligations in his service to the Great Elector, Friedrich Wilhelm. Memhardt was responsible for designing and overseeing the construction of all the ruler's public structures, ranging from military defenses (on every kind of terrain) to the entire Berlin suburb of Friedrichswerder, where Memhardt also eventually served as mayor.⁷² However, by the end of the eighteenth century these fields were well understood as distinct specializations:

On account of the multiplicity and differing nature of objects onto which architecture extends itself, it came to pass that this art with all its branches could not be the concern of a single mind; rather, one had to confine oneself to the study and exercise of individual parts, which were broad enough already to sufficiently occupy the genius and industry of any artist.⁷³

The Enlightenment manuals invoked the Vitruvian standard of building in order to deemphasize the importance of decorative beauty. Vitruvius is of course the first textual source for the canonization of the architectural orders, yet his statement that all construction must have the qualities of *firmitas* (durability), *utilitas* (comfort), and *venustas* (beauty) was interpreted as a hierarchy of value. *Firmitas* was both literally and morally the foundation for the other two values. While the Latin terms received a variety of translations into German, *firmitas* was consistently associated with solidity, firmness, and secure ground: features that were of course important to a building's foundation, but that also had moral and epistemological connotations. When coupled with *utilitas*, Vitruvius's first two terms were set apart from the last. Beauty (*venustas*) was always listed last, as if it were to be found only after the first two qualities had been satisfied.⁷⁴ Aesthetic effect was reserved for

70. Scheyb, *Natur und Kunst*, 425.

71. Huth, *Allgemeines Magazin*, 12.

72. Strecke, *Anfänge und Innovation*, 7.

73. Christian Gottlieb Hirt, *Anfangsgründe der schönen Baukunst* (Breslau: Hamberger, 1804), 10–11.

74. Schütte notes in *Ordnung und Verzierung*, 25: "In the second half of the century the first two categories are increasingly mentioned as essential, whereas the last is not. Already in 1751 Succov speaks of 'comfort and strength as essential to completion and which can be augmented through the addition of beauty.' Mönlich names the first two as 'essential qualities of a good building.' By 1800 these thoughts have led to the definition of a particular architectonic beauty that is severed from the fine arts in the strict sense."

only a handful of buildings. The debate increasingly led to a discussion wherein one of the three categories would be treated as forming a discipline distinct from the other two. The division was played out from both directions. In his review of Sulzer's *General Theory of the Beautiful Arts* Krubsacius concedes that there are scientific concerns, such as the mathematic calculation of pressure, strength, and building costs or the application of lime to bricks, which do not belong in an aesthetic treatise; nevertheless he objects to Sulzer's treatment of architecture as primarily a matter of taste formation.⁷⁵ The slipperiness of invoking Vitruvius was made manifest when Friedrich Meinert argued that both *firmitas* and *utilitas* were essential qualities, and only beauty was inessential to a building.⁷⁶ Meinert was careful not to set the terms in opposition to one another. Convenience amounted to satisfying the inhabitant's needs without undermining the building's solidity. Addressing the wants of the client fell, accordingly, well within the Vitruvian terms. Beauty was likewise compatible with *firmitas*, because an orderly structure was necessary for a solid foundation, and *firmitas* was likewise the most basic form of beauty in architecture. Meinert treated the Vitruvian categories quite literally as blocks that could be built upon one another. Stieglitz argued for a hierarchical relation between the Vitruvian three, because without *firmitas* the other two qualities would be meaningless: "Solidity is the essential part of a building, without which it can provide no utility, without which beauty and comfort would be meaningless."⁷⁷ The general tendency for German critics was to refuse Perrault's suggestion that beauty could arbitrarily be based on whim or fashion. When a building was beautiful, it fulfilled essential and universal terms.⁷⁸ That it also appealed to personal taste was secondary to its universally recognizable beauty. Perrault had also distinguished between objective and contingent forms of beauty; however, his inclination had been to explain stylistic differences in beauty as a product of shifting social conventions. German critics allowed for subjective inclinations but were slow to postulate an anthropology of architectural beauty.

As Philipp points out, by the end of the century, the Enlightenment criticism of grand building by baroque princes was invoked by advocates of the new Prussian Bauakademie. Johann Albrecht Eytelwein argued in 1799 that students were too often trained with the assumption that architecture was a fine art, which led them to neglect the practical mechanics of construction: "The architect often received his education in such a manner that he viewed architecture as an object of the beautiful

75. F. A. Krubsacius, review of *Allgemeine Theorie der schönen Künste*, vol. 1, by J. G. Sulzer, *Allgemeine deutsche Bibliothek* 22.1 (1774): 36.

76. Meinert, *Zeichenbuch für Baukünstler und Bauhandwerker*; 152: "Every building has essential and contingent qualities. Essential qualities are those without which the building could not exist as a building, and these are solidity and comfort; contingent qualities are those without which a building could exist, which however contribute to the completion of its purpose, and these are order and beauty."

77. Stieglitz, *Encyklopedie der bürgerlichen Baukunst*, 1: 23.

78. Schütte, "Aufklärung," 31.

arts, and without concern for the mechanical. He held it beneath his dignity if he had to enter into the details of a building's execution, without which it is of course impossible to plan and construct a purposeful building."⁷⁹ Heinrich August Riedel distinguished the Prussian academy from older schools that were known only for teaching students to sketch and lending them a taste for ostentatious buildings.⁸⁰ Eytelwein's arguments for the academy in Berlin were multifaceted. Not only did he note that practical *Baumeister* neglected aesthetics; he also warned that a third group, namely, scholars and theorists, applied mathematical principles without concern for the site. The tensions between these three groups remained unresolved and contributed little to construction projects, leading each group instead to hold the others in contempt.⁸¹

Büsch had already claimed that nine out of ten buildings did not require or inspire any discussion of beauty. If they were built cleanly and comfortably, then they fulfilled their task.⁸² The Prussian architect David Gilly began his manual on agricultural construction by alluding to the Vitruvian categories but then concluded flatly that beauty was not relevant in this context: "Beauty in the actual sense of the word belongs however only to buildings of the higher class, and it is enough to lend country and business buildings a pleasant appearance."⁸³ The bourgeois Enlightenment understanding of *firmitas*, *utilitas*, and *venustas* devalued aesthetics as a distraction from fulfilling the first two categories. Krubsacius criticized Sulzer for discussing architecture only in terms of beauty, and not treating the other two Vitruvian terms: "He explains architecture only insofar as good taste has a role in it; and he excludes the scientific knowledge, which the architect must draw from mathematics, along with mechanics. I would wish that he had written as much about proportion and solidity as he had about beauty."⁸⁴ For Krubsacius the scientific aspects of architecture were derived from mathematics and mechanics. Practical concerns such as the calculation of force and weight, and accounting and budgeting for materials, as well as the techniques used by masons, were inevitably of little concern for theorists of architectural beauty.

Many eighteenth-century manuals take a pragmatic approach to explaining the orders. Rather than sort through the discrepancies between the orders as presented by Vitruvius, the Renaissance masters, and the remaining ruins from antiquity, these authors state quite simply that they are following the rules set down by one particular predecessor. Leonard Sturm notes the many differences between Italian

79. Johann Albrecht Eytelwein, "Nachricht von der Errichtung der Königlichen Bauakademie zu Berlin," in *Sammlung nützlicher Aufsätze und Nachrichten, die Baukunst betreffend* 2 (1799): 28.

80. Philipp, *Um 1800*, 50.

81. *Ibid.*

82. Büsch, *Praktische Darstellung der Bauwissenschaft*, 304.

83. David Gilly, *Handbuch der Land-Bau-Kunst* (Braunschweig: Friedrich Vieweg, 1805), pt. 1, 7.

84. Krubsacius, review of *Allgemeine Theorie*, by Sulzer, *Allgemeine deutsche Bibliothek* 22.1 (1774): 35.

and Roman texts, as well as the difficulty of deciding between them and correcting their mathematical errors. As a solution he presents Nicolaus Goldmann as the writer who most clearly works through the many differences.⁸⁵ Christian Gottlieb Hirt simply reiterates Vignola's justifications for the columns without acknowledgment. Those aspects of Vignola's argument that no longer sound plausible, such as the importance of understanding musical harmonies in constructing columns, are dropped, and the remainder of the classical text is carried on. Other writers justify their reiteration of canonical texts on more practical grounds. Franz Ludwig von Cancrin, who wrote a manual at the end of a long career as a practicing architect, admits that he has always used the proportions found in Suckow's books for all his building.⁸⁶ The lack of integration between the orders and the design of buildings is reflected in the pragmatic approach taken by German authors in the eighteenth century. The more abstract questions of a building's overall proportions and how the sections of the building held together were not considered as part of the classical tradition. Nor were the orders evaluated critically as a historical tradition. For German authors it was enough to follow one consistent set of proportions, handed down by a renowned predecessor; it was not necessary to compare the different accounts of the orders in order to find the single most harmonic arrangement. Eighteenth-century German writers sought to convey knowledge of the columns as a system, a code for which the elements need to be recognized and distinguished from one another. For them the orders do not embody a correspondence between building and universe, as they did for Renaissance designers. Rather than criticize the orders, many manuals take a textbook approach to conveying them as nothing more than a set of conventions—Doric, Ionic, Corinthian—to be recognized by the architecturally literate observer. Understanding the proportions of columns is no longer seen as a committed intellectual endeavor to recreating the ideal beautiful buildings of antiquity. Palladio's treatise demonstrates a profound interest in learning the proportions of ancient buildings. Eighteenth-century manuals present the orders almost as grammatical rules to be learned by rote. The eighteenth-century call for aesthetic criticism sought to engage builders in a debate about the shape and design of buildings. Rather than repeat established patterns, Sulzer and others sought a more abstract reflection on how to design. Of course the pressures to continue in the established norms were great. Both construction guilds and elite clients were invested in replicating the various local adaptations of the canonical tradition, a point Krubsacius makes in his 1774 review of Sulzer's book for the *Allgemeinen deutschen Bibliothek*. He points out that the progressive social reforms of Enlightenment architecture are stymied by local tradition: "He [Sulzer] would

85. Leonard Christoph Sturm, *Vollständige Anweisung, alle Arten von regulären Pracht-Gebäuden nach gewissen Regeln zu erfinden, auszuteilen und auszuführen* (Augsburg: Wolffens, 1754), preface.

86. Franz Ludwig von Cancrin, *Grundlehren der bürgerlichen Baukunst* (Gotha: Ettinger, 1792), preface.

like for an architect to use this fundamental knowledge to guide inhabitants to a better condition for their houses and to an improved and more rational lifestyle. If only an architect had such authority and did not have to follow the expectations of the client and the local statutes. Anyone anywhere in the German Reich, or even just in Lower Saxony, who wants to build a new house outside the usual conventions will not make any progress."⁸⁷

Enlightenment manuals argued that architectural students, and by implication, the general public, needed to be educated not only in the five orders of columns, but in the practical necessities that comprised the first two Vitruvian categories. The suspicion of aesthetic considerations was reinforced by the architectural claim that a building's beauty was primarily an effect of ornamentation that was added to a building's facade as a final gesture. Ornaments were in a sense sprinkled onto an already standing structure in order to lend it a more pleasing appearance. The danger was that too much ornamentation, as it was commonly argued against the baroque and rococo, distracted and even undermined a building's solidity and practicality. At the very least, classically derived ornamentation hid a building's practical character from the general public. The general question of whether architecture belonged to the mechanical or the fine arts was often answered by invoking the first two Vitruvian qualities. Johann Gottfried Grohmann writes: "The first and highest purpose of architecture, however, is the satisfaction of necessities, namely, providing protection against weather and criminals, and to provide a comfortable abode." This leads him to conclude: "Architecture is thus not to be counted among the beautiful arts but among the mechanical."⁸⁸

German bourgeois architectural manuals sought to revive the first two Vitruvian categories as the long-neglected basis for the last. In general the requirement to integrate the three elements had become less important to architectural theory. In his account of Jacques-François Blondel's theory, Emil Kaufmann notes the dogmatic slumber into which the Vitruvian phrase had fallen among French theorists.⁸⁹ In the German Enlightenment, however, the terms are so pervasive that they mediate between distinct discourses. Kant's three critiques form a Vitruvian sequence, Stieglitz notes; for example, *firmitas* (translated into German as *Festigkeit*) is the essential quality of any building, without which it can have no useful purpose, nor provide beauty or comfort. The second category, which he translates as *Bequemlichkeit*, Stieglitz compares to the moral virtue of a person.⁹⁰ Beauty stands as the last quality in the sequence; a building might be secure and comfortable without making any impression on the imagination or the senses. Enlightenment critics of

87. Philipp, *Um 1800*, 224 n. 307.

88. Johann Gottfried Grohmann, *Handwörterbuch über die bürgerliche Baukunst und schöne Gartenkunst* (Leipzig: Adam Friedrich Böhme, 1804), 137.

89. Emil Kaufmann, *Architecture in the Age of Reason: Baroque and Post-Baroque in England, Italy, and France* (Cambridge, MA: Harvard University Press, 1955), 132.

90. Stieglitz, *Encyklopedie der bürgerlichen Baukunst*, 1: 83.

the orders presented the Vitruvian qualities as a hierarchy that left beauty as the least common and most dependent quality. Stieglitz shares with other writers the presumption that only certain buildings “rise” to the level of art, that the vast majority of buildings need simply not fall over and serve their inhabitants. Ultimately, though, architecture must remain among the mechanical arts, because its inherent purpose is not to delight the viewer with lovely shapes but to satisfy the needs for shelter and protection.⁹¹

Claude Perrault’s distinction between essential and arbitrary beauty reemerges as a general argument against decoration. Perrault’s understanding of essential beauty was grounded in a building’s material qualities—he gives the example of high-quality marble as an essential beauty. Stieglitz adopts Perrault’s distinction, though with different contents. Like so many other eighteenth-century theorists, he readily accepts the abstract formulations that require a building to be symmetrical, to be appropriate to its purpose, to be well formed, for the parts to compose a whole consisting of simple elements that alternate. To this dense summary of the classical qualities he adds the orders as essential to the beauty of a building. He is far less radical than Perrault, who suggested that almost all beauty was fashion-driven. Stieglitz, reiterating well-versed Enlightenment arguments, leaves only ornamentation as a secondary form of beauty.⁹² Stieglitz certainly did not use Perrault’s distinction as a strong lever against the classical orders. He reduced the importance of beauty in architecture through a sequence of distinctions that resulted in a more pragmatic classicism. Perrault argued that the orders should be deployed either for temples, palaces, and public buildings or as backdrops for theatrical performances. This is the reverse of the bourgeois critique, yet it reinforces the later Enlightenment argument, for Perrault was highly critical of any effort to make universal claims for the orders.

This reinterpretation of Vitruvius amounted to a decisive and at times unobvious rejection of the Renaissance understanding of proportion and symmetry. The danger, according to the critique of ornamentation, was that beauty would counter a building’s practical purpose. Milizia, whose work was translated from Italian into German in 1784, remarked: “Because architecture is the daughter of necessity, its beauty cannot defy this character. Everything must appear to be necessary. It would be a mistake if the desire to please exposed itself. Art is embarrassed when she is uncovered; thus everything that is mere ornament is a mistake.”⁹³ Ornamentation within this pragmatic position was to have a semiotic function. Scheyb observed: “Ornaments usually have the function of showing a building’s use as well as the class and dignity of its owner.”⁹⁴ Vitruvius had himself argued against unnatural

91. *Ibid.*, 5: 69.

92. *Ibid.*, 1: 84.

93. Milizia, *Grundsätze der bürgerlichen Baukunst*, 29.

94. Scheyb, *Natur und Kunst*, 457.

decorations, and the most radical eighteenth-century critics extended his arguments. Writing against the baroque splendor of Dresden, Krubsacius maintained that buildings ought not have ornaments on their facades that did not exist in nature.⁹⁵ Bourgeois architecture argues that general principles of construction need to be formulated in place of an education in the five orders. The first usual recommendation was more instruction in mathematics, less in drawing columns.⁹⁶ Rather than leaving construction techniques to the master masons, architects should study mechanics so that they can oversee the work site.⁹⁷

The question of how to define the discipline persists despite the thoroughly technological orientation of modern architecture. With the first revolutionary assaults against nineteenth-century historicism the debate between engineers and artists reemerged. The German philosophical adaptation of architectural theory always worked in response to the debates among architects.

Kant's understanding of architecture arises from the Enlightenment claim that the field should be understood as a practical science, one that required knowledge of mechanics and mathematics. He learned architecture via military fortifications, a field that was changing especially rapidly as a result of advances in technology. Defensive structures had been an interest of philosophers since at least Descartes, who used examples from military architecture. Picon has argued that engineering emerged as a distinct mode of knowledge and training as the absolute state more thoroughly asserted its control over the landscape. Bridges and roads were the engineers' concerns out of military necessity. The ease with which Kant switched from architectural to geographic metaphors reveals an engineer's concern to master the structuring of space, dispersed across an extended territory.⁹⁸

Goethe on the other hand was interested in architecture for its aesthetic impression on the viewer. Both Goethe and Kant were responding to the traditions that arose as the Renaissance order declined. Goethe argues against Laugier only because his aesthetic is more subjective and thus more removed from all considerations of construction and engineering. Even after he has read the major treatises and has been involved in Weimar building projects, Goethe holds to the view that architecture should be understood as an experience upon which one reflects, and out of which one develops an understanding of art and the past.

Benjamin read the high modernist celebration of industrial engineers by Sigfried Giedion and the Bauhaus masters as proof that architecture had liberated itself from aesthetics. The following chapters will show how German theorists studied architecture in order to adapt the discipline's practices to their own epistemological projects.

95. Krubsacius, *Gedanken*, 40.

96. Scheyb, *Natur und Kunst*, 425.

97. *Ibid.*

98. Picon, *French Architects and Engineers*, 105.