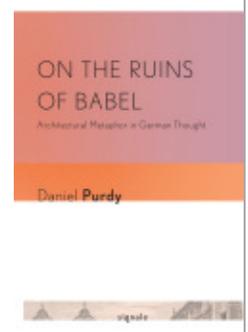# On the Ruins of Babel

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Architecture in Kant's Thought: The Metaphor's Genealogy

The Tower of Babel figures in Western philosophy as the first metaphysical interpretation of architecture. However, the legend has not always been understood as a cautionary tale, as it commonly is today. In the early modern period, the tale was not understood always in terms of punishment so much as an affirmation of the correspondence between grand architecture and monarchical authority. Ulrike Wegener argues that Pieter Bruegel's paintings (in Vienna and Rotterdam) of the Tower, for all its detailed representation of construction techniques, ultimately glorified the project as one worthy of a great ruler.[1] Indeed, this baroque adaptation of the Genesis myth motivates Enlightenment thinkers such as Immanuel Kant to reintroduce the more critical, perhaps more Protestant, reading of the story into philosophy. Babel becomes an attractive metaphor with which to critique both metaphysics and absolutist power. The eighteenth century establishes the modern correspondence between epistemological critique and the earlier Protestant understanding of the tale as a moral/political lesson about the hubris of oversized state planning.

Kant introduces Babel to the *Critique of Pure Reason* at a telling point, just as he intends to survey his entire argument, as a caution against assuming too high

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1. Ulrike Wegener, *Die Faszination des Masslosen: Der Turmbau zu Babel von Pieter Bruegel bis Athanasius Kircher* (Hildesheim: Olms Verlag, 1995).

a vantage point. These general overviews typically occur in the several opening statements, interspersed throughout the *Critique,* that precede new sections. In the preface to the last section, the "Transcendental Doctrine of Method," Kant asks: what if we saw the sum of all knowledge, derived from pure and speculative reason, as a house? In order to explore this possibility, he presents the architecture comparison explicitly as a fable of philosophy, drawing out the ways in which the work of building corresponds to thinking. Kant develops the comparison slowly, in steps. The opening sentence suggests that the architecture metaphor has an almost ornamental relation to philosophical thought: "If we look upon the sum of all knowledge of pure speculative reason as an edifice for which we have at least the idea within ourselves…" (Wenn ich den Inbegriff aller Erkenntnis der reinen und spekulativen Vernunft wie ein Gebäude ansehe, dazu wir wenigstens die Idee in uns haben…).[2] In that case, he continues, the first portion of the *Critique of Pure Reason,* the transcendental deduction of the categories and all that comes with it, have provided the tools for construction, as well as the specifications of the building's dimensions and structural integrity. The analogy between systematic knowledge and a building makes sense only because we have the Idea of a house already in mind. This Idea then corresponds to the plan of the *Critique of Pure Reason.* Over seven hundred pages into the *Critique,* the reader presumably can perceive the outline of the knowable, where the limits of reason lie, without having yet acquired specific conceptual knowledge of the world. Kant never tires of reminding readers that the analysis of pure understanding does not constitute knowledge of the physical world. The Idea of the philosophical house alludes to the plan or drawing, intellectual acts that under ideal circumstances precede construction. As he will emphasize in his discussion of the "architectonic," ideas have the very specific function of organizing knowledge without themselves being knowledge. Kant's point here remains simple: if the sum of all speculative reason is a house, this house also has a plan in the form of an Idea. If the sum of all knowledge may appear to be organized as a house, this occurs only because knowledge and buildings are defined in advance by the operation of formal understanding, in the form of either a priori categories or architectural plans.

What manner of building do Kant's plans allow? Kant explains that while it might have been desirable to build a tower that reaches to the heavens, the material means allowed by his epistemology allows only for the construction of a simple dwelling, spacious and high enough to oversee the field of human experience, but no further. Kant's phrasing, "whether we had considered a tower that would reach to the heavens…" (ob wir einen Turm im Sinne hatten, der bis an den Himmel reichen sollte…), mimics Luther's translation of the Babel story in Genesis 11:4: "Laßt uns eine Stadt und einen Turm bauen, dessen Spitze bis an den Himmel

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2. Kant, *Critique of Pure Reason,* 573 [A707/B735]; Kant, *Kritik der reinen Vernunft,* 759.

reiche, damit wir uns einen Namen machen."[3] The Tower of Babel is both an accomplishment and a sign. It does not merely represent metaphysical speculation; it seeks to literally place the human at the same level as the divine. The construction of the Tower parallels the compilation of a metaphysical system, which Kant claims to have demonstrated is untenable.

The manner in which Kant puts forward the proposition, "If I look at the sum of all speculative knowledge as if it were a house," implies that this comparison has until this point in the text not been made explicit. Are we supposed to be surprised by this comparison? Perhaps now that Kant has drawn our attention to the analogy, we ought to turn back to find it in his earlier writing, as well as in the first and, by general opinion, most important section of the *Critique of Pure Reason.* As it turns out, the comparison between architecture and metaphysics permeates Kant's early writing, as well as the writing of his forebears. By positing the comparison here in the *Critique,* Kant is refuting his own earlier use of the metaphor. Indeed, when Kant suggests that we might have had a tower in mind when we began, he acknowledges that in fact for most of his academic career he himself sought very deliberately to build a system that would demonstrate the existence of God. Most notably, in a 1762 essay Kant compares gathering scientific data proving God's existence to the construction of a massive building: "What I am hereby delivering is the evidentiary foundation for a demonstration, exhaustively collected building materials…whose useful pieces will serve…to complete the building." (Was ich hier liefere, ist auch nur der Beweisgrund zu einer Demonstration, ein mühsam gesammeltes Baugeräte…um aus dessen brauchbaren Stücken…das Gebäude zu vollfuhren.)[4] Already he refers to the need for a foundation and the process of thinking as a collecting of materials. Ultimately, he promises "a building of not insignificant excellence" (ein Gebäude von nicht geringer Vortrefflichkeit).[5] In this early essay we find many of the architectural terms that are later redeployed in the first *Critique,* where the bourgeois house replaces the tower. The later retelling of the Babel legend includes an autobiographical reference to Kant's own turn away from metaphysical speculation to epistemological analysis. This later self-conscious fable ends nevertheless with Kant having laid the groundwork for a more modest house. By drawing attention to the importance of architectural terms for his thinking Kant introduces a new technical term, the "architectonic" of reason. If one can posit an analogy between philosophy and architecture, then why not elaborate the metaphor so that it becomes its own distinct theoretical term. The "architectonic" is more than a metaphor, yet Kant's retelling of the Babel story shows that the very intelligibility of an "architectonic" depends upon this simple comparison.

3. Kant, *Kritik der reinen Vernunft,* 759 [A707/B735]; the English translation is my own.

4. Immanuel Kant, "Der einzig mögliche Beweisgrund zu einer Demonstration des Dasein Gottes," in *Gesammelte Schriften,* 2: 622.

5. Kant, "Der einzig mögliche Beweisgrund," 2: 623.

According to Kant's version of the Babel legend, the Tower remains unfinished for three reasons. First, not enough building material exists in order to raise a tower to the heavens, which amounts to an allegory of Kant's claim that conceptual knowledge requires the confirmation of empirical experience. The material of sense perception does not reach to the heavens; we do not have sensory intuitions of a divine being. Second, the confusion of languages results in every worker devising his own plan for a tower and building it in his own style. The confusion of tongues corresponds to the many competing metaphysical systems, each aspiring to outbuild the other, with the result that the project of reaching the heavens never progresses.

Finally, Kant states that his venture at construction follows a plan, as opposed to the blind project of an endless undertaking that will exhaust our capacities (*Vermögen*). Here he draws an analogy between the unfinished tower of metaphysics and princely ambitions for great palaces and country manors.[6] The difference between the drawn-out princely tower and the practical bourgeois house corresponds to Kant's important general distinction between accumulated and articulated knowledge, which we will examine in the next chapter.

In addition to his epistemological distinction, Kant also enters into the Enlightenment critique of baroque architecture. Leibniz established the parallel between cosmology and princely architecture when he described the harmonious universe that the divine architect created as a "beau palais." Leibniz's optimism led him to use many superlative adjectives to describe life in the divine palace of God's creation as far exceeding the minimal requirements of basic existence. Courtly splendor provides Leibniz with symbols of divine goodness.[7] On the other hand, Kant's preference for small structures that fulfill specific needs reiterates the argument many eighteenth-century German architectural manuals had made against traditional treatises, namely, that they focused only on representational buildings while making no effort to give architectural form to the economic needs of the urban bourgeoisie or the large-scale farmer. Kant characterizes his philosophy as following a plan that will not exceed the capital available for construction and that proceeds within the existing constraints to satisfy practical needs. When Kant stresses the modest building expenses of his philosophical undertaking he is writing as an eighteenth-century bourgeois participating in a market economy, just as Adorno describes.[8] Georg Lukács once claimed Kant's critical philosophy reflected capitalist rationality; hence it should come as no surprise that when discussing budgets and building,

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6. Ludwig Martin Träger refers in his 1770 *Metaphysik* to "Planmacher" who "gleich politischen Projectendenkern, Entwürfe ersannen, welche weder sie noch andere auszuführen vermogten" (17–18).

7. Vanessa Albus, *Weltbild und Metapher: Untersuchungen zur Philosophie im 18. Jahrhundert* (Würzburg: Königshausen & Neumann, 2001), 150.

8. Theodor Adorno, *Kants 'Kritik der reinen Vernunft'* (1959), ed. Rolf Tiedemann (Frankfurt: Suhrkamp, 1995), 45–47.

Kant applies accounting metaphors.[9] However, his allusions to bookkeeping are also in keeping with the advice Palladio gives in the opening of his *Four Books of Architecture* to draw up a plan and to take account of expenses before proceeding with construction.[10] As Vitruvius and later Renaissance theorists note, major construction projects require that the architect have expertise in accounting and "resource management." Of course, Palladio and his contemporaries were themselves closely allied with the urban nobility's expansion into rural agriculture. The importance of market reasoning for architectural planning is already apparent in Palladio's own work.[11] Yet we ought not read Kant's discussion of planning and budgeting solely in terms of the later development of industrial capitalism, for these qualities were also taken as indications of rational perfection more generally. Leibniz, for example, ascribes similar attributes to God as the architect of the universe.

> One is able to say, therefore, that he who acts perfectly is like an excellent Geometer who knows how to find the best construction for a problem; like a good architect who utilizes his location and the funds destined for the building in the most advantageous manner, leaving nothing which shocks or which does not display that beauty of which it is capable; like a good householder who employs his property in such a way that there shall be nothing uncultivated or sterile; like a clever machinist who makes his production in the least difficult way possible; and like an intelligent author who encloses the most of reality in the least possible compass.[12]

Even as he praises economy, Leibniz piles on the illustrations, thereby creating a correspondence between divergent disciplines, all of which are guided by rational calculation. Leibniz's parallels do not reinforce an ideological history as much as they point to the finite limitations of material relations. Kant's and Leibniz's insertion of economic calculation within their building metaphors is not merely an indication of nascent capitalism; rather it calls attention to a tension architects face in almost all societies as soon as they wish to build: how to maneuver between

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9. Georg Lukács, "History and Class Consciousness," in *History and Class Consciousness,* trans. Rodney Livingstone (Cambridge, MA: MIT Press, 1986), 110 ff.

10. "When those several particulars have been duly examined upon the model or draught, then an exact calculation ought to be made of the whole expence, and a timely provision made of the money, and of those materials that shall seem most necessary, to the end that nothing may be wanting, or prevent the compleating of the work." Andrea Palladio, *The Four Books of Architecture,* trans. Isaac Ware (London: Isaac Ware, 1738; repr., New York: Dover, 1965), 1.

11. For an analysis of sixteenth-century Italian villas that draws explicitly on Adorno, see Reinhard Bentmann and Michael Müller, *Die Villa als Herrschaftsarchitektur: Versuch einer kunst- und sozialgeschichtlichen Analyse,* 2nd ed. (Hamburg: Europaische Europäische Verlagsanstalt, 1992). Denis Cosgrove, *The Palladian Landscape* (University Park, PA: Penn State University Press, 1993), 46–48, and James S. Ackermann, *The Villa: Form and Ideology of Country Houses* (Princeton, NJ: Princeton University Press, 1990), have provided economic accounts of classical villa architecture.

12. Gottfried Wilhelm Leibniz, *Discourse on Metaphysics,* trans. George Montgomery (LaSalle, IL: Open Court Publishing, 1902), 8–9.

design and cost. The question exists for Leibniz as a rational problem to be solved elegantly, one that even God considered as he designed the universe. Budgetary constraints hardly applied to God, Leibniz concedes: "It is true that nothing costs God anything."[13] Nevertheless, God is a perfectly rational entity, Leibniz argues, and therefore he created the universe in the simplest manner possible.

Epistemological critique, architectural planning, and bourgeois bookkeeping converge when Kant ascribes imperial baroque qualities to speculative thought. He describes metaphysics as a grand palace, or better still as an elaborate costume to be worn at court. Taking stock of his own critical efforts, he states that only when speculative philosophy is allowed to make empirical assertions does it display "the full splendor" (die ganze Pracht) and "the proud pretensions of reason, when it strives to extend its domain beyond all limits of experience" (die glänzenden Anmaßungen der ihr Gebiete über alle Grenzen der Erfahrung erweiternden Vernunft).[14] Kant claims to have exposed (*entkleidet*) the weakness of speculation by presenting only its most basic formulations with a deliberately dry writing style. The Tower of Babel, and speculative metaphysics by implication, fail to achieve their ends because they did not first develop a plan that detailed what was possible and what could not be completed.

The foundations of metaphysics crack because they are not laid out according to a plan. Far from wanting to reestablish philosophy on first principles, Kant wanted to demonstrate the futility of laying foundations for a new metaphysics.[15] His notebook, written around the time he composed the *Critique,* calls into question the entire enterprise of laying a foundation for philosophy. Once the metaphor has been turned on its head, once the foundation has been shown to lie on a swamp, then the entire method of establishing a secure ground from which one can rationally derive the structure of the universe is thrown into doubt:

The foundation has not been examined. What was taken to be the foundation were really just the first stones that had been laid and that had slowly sunk into the marshy ground. This meant that the method had to be treated as suspect and therefore the source had to be sought in the subject.

Der Grund ist nicht untersucht. Was man für den Grund hielte, waren die ersten Steine, die man legte und die in einem sumpfigten Grund langsam versunken. Dieses nöthigt, die Methoden in Verdacht zu ziehen und die Quellen im Subject zu untersuchen.[16]

13. Ibid., 9.

14. Kant, *Critique of Pure Reason,* 422; Kant, *Kritik der reinen Vernunft,* 565 [A463/B491].

15. Manfred Riedel, *Urteilskraft und Vernunft: Kants ursprüngliche Fragestellung* (Frankfurt: Suhrkamp, 1989), 16–17: "Das System der a priori begründenden Vernunft ist die Umgestaltung der Transzendentalphilosophie der 'Alten', d.i. der überlieferten 'ersten' Philosophie, zum Lehrgebäude einer *metaphysica generalis,* die da Apriori mit dem Begründungsprinzipien des Wissens verwechselt."

16. Immanuel Kant, "Handschriftlicher Nachlaß," in *Gesammelte Schriften,* 18: 79 (no. 5072).

Yet the *Critique of Pure Reason* concerns itself foremostly with the plan for affirmative knowledge, rather than "just" critiquing other systems of thought. If Kant accepts the impossibility of a rationalist metaphysics, does he consider the Tower as the defining figure of philosophical architecture? Even as he regards the futility of metaphysics, he recommends a more modest, more modern proposal, an architecture on a more modest scale. If we return to Kant's analogy between the sum of all speculative knowledge and architecture, then the *Critique* lays out a plan for a stable dwelling that meets the needs of its inhabitants, instead of presenting a blindly conceived project based on speculative whim and headed toward bankruptcy:

> At present, however, we are concerned not so much with the materials as with the plan; and inasmuch as we have been warned not to venture at random upon a blind project which may be altogether beyond our capacities, and yet cannot well abstain from building a secure home for ourselves, we must plan our building in conformity with the material which is given to us, and which is also at the same time appropriate to our needs.

> Jetzt ist es und nicht sowohl um die Materialien, als vielmehr um den Plan zu tun, un indem wir gewarnt sind, es nicht auf einen beliebigen blinden Entwurf, der vielleicht unser ganzes Vermögen übersteigen könnte, zu wagen, gleichwohl doch von der Errichtung eines festen Wohnsitzes nicht wohl abstehen können, den Anschlag zu einem Gebäude in Verhältnis auf den Vorrat, der uns gegeben und zugleich unserem Bedürfnis angemessen ist, zu machen.[17]

As much as one might relate Kant's imagery to Heidegger's account of dwelling, his rejection of grandiose construction in favor of a modest residence reflects the critical positions of architectural discourse in the Enlightenment. Kant would on occasion tease out the political implications of his philosophical metaphors: for example, when he compared dogmatic reasoning to tyrannical government. Here too the house metaphor presages Kant's hidden scorn for palaces in the *Critique of Judgment*,[18] even as it presents a more rationalist version of Goethe's *Hütte* in "Prometheus." The rejection of the divine comes through in Kant's refusal to undertake the construction of yet another Tower of Babel. Rather than concern himself with the heavens, the enlightened philosopher tends his needs on earth, based on experience rather than speculative philosophy. This does not mean a return to the primitive hut of Rousseau and Laugier, but it does entail a calculated, planned construction.

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17. Kant, *Critique of Pure Reason,* 573; Kant, *Kritik der reinen Vernunft,* 759 [A707/B736].

18. Immanuel Kant, *Critique of Judgment,* trans. J. H. Bernard (New York: Hafner Press, 1951), §2, p. 38.

Architecture as Epistemology

If we can say that Kant sought to establish boundaries between different forms of judgment so as to distinguish scientific knowledge, morality, and beauty from one another while also excluding metaphysical speculation, then the many architectural terms in the *Critique of Pure Reason* reinforce, buttress, and support this undertaking. From the very beginning of his critique, when he compares speculative metaphysics to a house that collapses upon itself because the upper stories have been built beyond the weight its foundation could bear, Kant intertwines epistemology with architecture. When he presents an architectural model and an engineering demonstration for why it is necessary to define the limits of judgment, he imports the language and methods of architecture into philosophical reasoning, a move that continues to define Kant scholarship.[19] According to Kant's usage in the *Critique of Pure Reason,* the collapse of a house is comparable to the effect of criticism on a flawed thesis. The weight of a system compares to gravity's pull on a building, which sometimes is given an extra shove by an outsider who lobs a cannonball (or sarcastic essay) at the structure. By defining the limits of judgment, Kant presumes that his construction will be less likely to be knocked over. It has less exposure and is not as tall as its predecessors. This is the first principle of fortification in the baroque era: to show less of a target to the attacking enemy. Instead of raising high walls around a city, one builds sloping barriers that allow artillery fire to ricochet over the fortress rather than smashing directly against a perpendicular wall.[20] The language of fortification was readily translated into the debates between and against philosophical systems. The rapid advances that military architecture had undergone in the seventeenth century made the engineer who builds according to mechanical and mathematical principles an exemplar of critical thought. As a young professor, Kant enjoyed lecturing on fortification and spent years teaching Russian officers mathematics. He would certainly have understood the lessons of urban defense in the era of artillery. Chandra Mukerji has shown that the geometrical reasoning of artillery warfare pervaded the material culture of the French court.[21] When Louis XIV's greatest general, Sebastien de Vauban, laid out the newest, most successful rules of siege craft and defense, an entire century felt compelled

19. The interdependence of epistemology and spatial metaphors persists in John Zammito's characterization of the Kantian project: "What Kant feared above all was the intrusion of aesthetic criteria into the domain of rigorous inquiry, the collapse of *cognitio philosophica* not merely into *cognitio historica* but into 'beautiful science,' a mannerism without warrant or worth." John Zammito, *Kant, Herder, and the Birth of Anthropology* (Chicago: University of Chicago Press, 2002), 262.

20. Christopher Duffy, *The Fortress in the Age of Vauban and Frederick the Great, 1660–1789* (London: Routledge, 1985), 1.

21. Chandra Mukerji argues that the formality of French gardens represented not only an application of Cartesian logic to land but also the application of military principles of fortification. Geometry was important in both cases—leading back to Descartes. The predominance of mathematics manifested itself in practical, engineering terms. The interlocking systems and fortifications, the triangulation of artillery fire, and the cartographic arrangement of political boundaries were all techniques deployed in

to follow his example.[22] The success of Vauban's campaigns, his restructuring of the French military, and the creation of an engineering corps with the first school specifically for this branch of the military made the mathematical and architectural techniques of fortification more than a specialized science.[23] In Vauban's simple definition of a fortress we can detect not only a model for philosophical critique, but also the basic design for the integrated system, whose parts all relate to an organic whole.[24] Long after his wars had been fought, Vauban's reputation as having defined a new art of siege warfare was well known in Germany.[25]

Even in its civilian version, the architectural metaphor acquires its sense of urgency (how to avoid collapse) by borrowing from the logic of necessity specific to engineering. The analogy between houses and systems transfers the tectonic dynamic of construction into epistemology. Gravity, which engineers need always factor into their calculations as dead weight, operates as the hidden force within Kant's building metaphor. Architectural design provided Kant with an example of abstract thinking that was grounded in empirical reality. The architect, unlike the speculative metaphysician, could not indulge in sweeping abstract formulations that literally would not stand. Kant, and Descartes before him, understood architectural design as an engagement between artistry and functionality. Their sense of design was not at all palatial; instead they centered on mathematically complex military fortifications. When civilian building was included in their analogies, they preferred the ordinary bourgeois house, with its concern for family and business, over the expansive projects of absolutist rulers. The architect, as philosophers liked to think of him, was obligated by the design and construction process to mediate between the abstract and the actual. Tellingly, it was exactly this coherence

royal gardens, as a celebration of French prowess in those military fields. Chandra Mukerji, *Territorial Ambitions and the Gardens of Versailles* (Cambridge: Cambridge University Press, 1997).

22. Duffy, *Fortress,* 13–16, provides a quick overview of the many German treatises on military engineering written in the decades around 1700 in response to French victories in the Low Countries.

23. One example of the intellectual repercussions of fortifications science was the treatise *Architectura hydraulica* written by Bernard Forest de Belidor (1697–1761), an instructor at the school for military engineers. The work was translated in 1743 into German with a preface by Christian Wolff, who emphasized the work's theoretical importance. Andreas Kahlow, "Von Belidor bis Gilly: Ingenieure zwischen Theorie und Praxis," in *Vom Schönen und Nützlichen: David Gilly (1748–1808)* (Potsdam: Fachhochschule; Brandenburg: Stiftung Preussische Schlösser und Gärten Berlin, 1998), 29.

24. "Military fortresses are enclosed by ramparts and built according to certain rules, which result in all their separate parts covering one another. These parts are large masses, the virtue of which lies in their solidarity and disposition. Their strength varies with the quality of their construction and the number and quality of the troops defending them. It is this art and the way it is used that decides the worth of fortifications: if you ignore one or the other of these factors the majority of the fortresses upon which the security of the kingdom depends will not offer a quarter of the resistance that you might expect from them if you understood defense better. Without this small measure of science brought to bear upon the problem it is impossible that they not succumb whether through defects or other causes." Sebastien LePrestre de Vauban, *A Manual of Siegecraft and Fortification,* trans. George A. Rothrock (Ann Arbor: University of Michigan Press, 1968), 138.

25. Max Jähns, *Geschichte der Kriegswissenschaften vornehmlich in Deutschland* (Munich: Oldenbourg, 1889; repr., New York: Johnson, 1965), 1403.

between engineering and design that was coming apart in the eighteenth century. As outside observers, philosophers would borrow concepts that were just beginning to be criticized from within the profession; thus the conflicts within eighteenth-century architectural discourse reappear within Kant's work. Kant was no different from other eighteenth-century Germans who understood the Vitruvian categories *firmitas, utilitas,* and *venustas* as a hierarchical sequence in which solidity preceded practicality and beauty. By a remarkable, unconscious logic that closely follows Vitruvius's dictate, Kant's three *Critiques* stand in much the same relation to another: epistemology, ethics, aesthetics.

If we are to take Kant's figurative language seriously, then we ought to heed Tassilo Eichberger's insistence that we read Kant in relation to the history of architectural theory.[26] Architectural metaphors were not merely reflections or illustrations of abstract thought; they provided the sense of urgency that guides critical reflection.[27] Just how closely the history of modern criticism follows the contours of architectural developments becomes obvious when we compare Kant with Galileo Galilei. Already in the sixteenth century, Galileo deployed the image of the over-built palace to describe the Aristotelian account of the cosmos. In his "Dialogue concerning Two Chief World Systems," an opponent to Copernicus's astronomical model is dismissed as having built a magnificent palace on weak foundations, a turn of phrase Kant would reuse often in the *Critique of Pure Reason.* Galileo's spokesperson remarks of his enemies:

> I pity him no less than I would a fine gentleman who, having built a magnificent palace at great trouble and expense, employed hundreds and hundreds of artisans, and then beholding it threatened with ruin because of poor foundations, should attempt in order to avoid the grief of seeing the walls destroyed, adorned as they are with so many lovely murals; or the columns fall, which sustain the superb galleries, or the gilded beams, or the doors spoiled, or the pediments and the marble cornices, brought in at so much expense—should attempt, I say, to prevent the collapse with chains, props, iron buttresses and shores.[28]

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26. Tassilo Eichberger, *Kants Architektur der Vernunft: Zur methodenleitenden Metaphorik der Kritik der reinen Vernunft* (Freiburg [Breisgau]: Alber, 1999), 43.

27. Recent works that pursue the architectural in Kant include Claudia Brodsky, "Architecture and Architectonics: The Art of Reason in Kant's *Critique," The Princeton Review,* 1988, 103–117; Susan Bernstein, "Goethe's Architectonic *Bildung* and Buildings in Classical Weimar," *MLN* 114.5 (1999): 1014–1036; Teruaki Takahashi, " 'Bau' und 'Gerüst' als Metaphern bei Lessing, Kant und Hamann," in *Johann Georg Hamann und die Krise der Aufklärung,* ed. Bernhard Gajek and Albert Meier (Frankfurt: Peter Lang, 1990), 461–489; Willi Goetschel, "Architektur und Wohnlichkeit: Das alternative Moment in Kants Vernunftbegriff," in *Randfiguren: Spinoza-Inspirationen; Festgabe für Manfred Walther,* ed. Felicitas Englisch, Manfred Lauermann, and Maria-Brigitta Schröder (Hannover: Wehrhahn Verlag, 2005), 40–53.

28. Quoted in Susan Rosa, "Seventeenth-Century Catholic Polemic and the Rise of Cultural Rationalism: An Example from the Empire," *Journal of the History of Ideas* 57 (1996): 87.

Galileo's metaphor draws a direct analogy between Christian metaphysics and a richly decorated mansion, a comparison that the Prussian Enlightenment would turn against baroque courtly architecture and the state that sponsored it. Kant would have appreciated Galileo's image, as it shows how even the most monumental structures are prone to collapse, and he would have developed his own antimetaphysical arguments within its tectonic logic. Architecture, with its methodical concern to solve a building's engineering flaws, provided a compelling discourse to describe the structure of an argument, as well as its temporal dimension, namely, a theory's ability to survive critique and forgetfulness. Kant's profound allegiance to physics, as the progressive science that brought about the most obvious advances in human understanding of the world, would have led him to appreciate the moral narrative implicit in Galileo's analogy.

This book will examine several key intersections where philosophy borrowed from and commented upon architectural debates. While Rudolf Wittkower's famous examination of villas built by Andrea Palladio demonstrated that Renaissance humanism relied upon Platonic cosmologies, few studies trace the importance Italian architectural treatises had for later philosophy. The tendency to this day is for architects to borrow from philosophers, whether Plato or Deleuze. The flow in the opposite direction is largely unexamined, though plainly visible for those who seek to trace the connections. Far from repressing his debt to architecture, Kant openly declares his reliance on its terminology. Like the natural sciences, and physics in particular, architecture has long provided philosophers with a method for constructing complex arguments. This is particularly the case for preindustrial society, in which civilian architectural practices had changed little. Eighteenth-century manuals still referred their readers to Vitruvius for the basics in bricklaying and road building. The major architectural innovations were to be found in nautical engineering and fortification construction, two fields Vitruvius still includes under the responsibilities of the architect, but which by the sixteenth century were becoming specializations. Enlightenment readers followed the advances in military architecture as avidly as they did developments in the natural sciences. A careful reading of the architectural references in Kant's *Critique of Pure Reason* makes clear that construction procedures were a model for the organization of his epistemology.

Given the importance of these figures, various questions arise: What manner of architecture does Kant have in mind? What does his conception say about the organization of knowledge? How can architecture or perhaps the figure of the architect, as it is defined by the Enlightenment, express a unity that philosophy cannot? Does architecture of knowledge replace some other image of unity? Is there a connection between architectonics and God, the architect of the world? Are we reentering the competition between human creator and divine that is so explicit in Goethe's Sturm-und-Drang celebration of the Strasbourg cathedral? Does the materiality of the metaphor, its invocation of bricks and mortar, plans and work crews, work against metaphysical speculation?

We can isolate three modes in which architecture appears in Kant's philosophical writing.[29] The most diffuse and perhaps most complex references to architecture are the passages in his writing where Kant deploys architectural metaphors.[30] These involve allusions to ruins, foundations, edifices, ornamentation, the labor of construction, and the collapse of buildings, among others. These references are far too important and too carefully thought through, both in the history of philosophy and in Kant's writing, particularly in the *Critique of Pure Reason,* to be considered unself-conscious.[31] Indeed by tracing the shifting connotations of the building metaphors, we can map the changes in Kant's metaphysics. They are not mere reflections of systematic thinking; rather, through their own internal logic these metaphors help define his method. Derrida's warning against reading metaphors as modes of expression for philosophical ideas is well worth heeding.[32] To take metaphors in Kant seriously requires us to look past his own aversion to the use of illustrations and examples in philosophical writing. Architectural images in Kant's writing serve both functions: they appear as rhetorical flourishes outside the frame of systematic argumentation (as clever indulgences, as winks within the profession), yet their force extends beyond this limitation. Architectural metaphors defy the boundaries of systematic writing even as they justify the need for well-defined limits. They provide a compelling reason for Kant to define the boundaries of knowledge. While the harms of metaphysical meandering may not seem urgent, the architect's practical need to keep the roof from falling down is readily understood. Through their own practical necessity, the metaphors present an argument for introducing limits to philosophical speculation. Because these metaphors serve as justifications, they most frequently appear in the prefaces of Kant's work. They are placed outside, at the threshold of, serious philosophical discourse, but they aid in defining the inside and outside of the main argument. They lend their own apparently undeniable urgency to epistemology.

This book will thus argue against Hegel's claim that there is no serious philosophy in introductions, only mythology.[33] As Kant returns repeatedly to the same

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29. Diane Morgan provides the most extensive English-language analysis of Kant's architectural terminology in *Kant Trouble: The Obscurities of the Enlightened* (London: Routledge, 2000). My study shares many of the same interests as Morgan's excellent reading of Kant.

30. Metaphors in Kant have received some limited attention over the last century; see David Tarbel, "The Fabric of Metaphor in Kant's *Critique of Pure Reason," Journal of the History of Philosophy* 6 (1968): 257–270; Stephen Palmquist, *Kant's System of Perspective: An Architectonic Interpretation of the Critical Philosophy* (Lanham, MD: University Press of America, 1993), 17–21; Willi Goetschel, *Kant als Schriftsteller* (Vienna: Passagen, 1990); Arnold Kawalewski, "Die verschiedenen Arbeitsformen der Philosophie und ihre Bewertung bei Kant," in *Immanuel Kant: Festschrift zur zweiten Jahrhundertfeier seines Geburtstages,* ed. Albertus University, Königsberg (Leipzig: Dieterische Verlag, 1924); H. Ernst Fischer, *Kants Stil in der Kritik der reinen Vernunft* (Berlin: Reuther & Reichard, 1907); Gottlieb Söhngen, *Analogie und Metapher: Kleine Philosophie und Theologie der Sprache* (Munich: Karl Alber, 1962), 64–70.

31. For works specifically dedicated to architectural metaphors in Kant, see Eichberger, *Kants Architektur.*

32. Jacques Derrida, "White Mythology: Metaphor in the Text of Philosophy," in *Margins of Philosophy,* trans. Alan Bass (Chicago: Chicago University Press, 1982), 223.

33. Paraphrased by Jacques Derrida, "Chora," in *Chora L Works,* trans. Ian McCloud, ed. Jeffrey Kipnis and Thomas Leeger (New York: Monacelli Press, 1997), 23.

metaphors over the course of his long writing career, he deploys them differently. With each new application of the building trope, Kant's altered philosophical priorities become apparent. He often deploys architectural figures in ways that undermine their twenty-first-century meanings. For example, while buildings are commonly understood as symbols of stability, Kant stresses that large houses are continually threatened with collapse.[34] Every upward construction strains against downward pressures, and Kant, from his first essays on, reiterates that criticism is a constant challenge to any house philosophy raises. He was far too enamored of Newtonian physics not to understand that forces press against each other in every construction. The metaphors of elevation and collapse in the early writings bring out a quality that persists into the late, canonical Kant, namely, that of arguments pressing critically against each other. Alluding to the same quality, Heidegger also used a force-filled image to describe Kant as a thinker, still wrestling with his arguments.[35] Architecture allowed Kant to provide a spatial image for the temporal process of intellectual development. The house in Kant is not static; it withstands pressures even as it seems to stand still. Collapse and reconstruction are the temporal aspects of any construction. Kant incorporates just this process of change into the supposedly stable image of philosophy as a foundation and an edifice. The classical analogy between buildings and bodies only reinforced the awareness of architecture's precariousness. If bodies could decay and die, so, too, could buildings. Filarette, the fifteenth-century architect, was surely not alone when he compared the death of buildings to the demise of the human body.[36]

Architectural metaphors have the Janus face Reinhart Koselleck used to describe the double reference of long-lived historical terms. They point backward in time to meanings that today are not readily recognized and require elucidation in order to even be understood, and they refer forward in the sense that their meanings are readily grasped and in many cases so widely accepted that they are orientation markers of future meanings.[37] The architecture metaphor has this double quality. On the one hand, any references to the design of the world were

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34. Willi Goetschel argues that Kant's use of spatial and geographical metaphors refers to a synthetic unity of knowledge that is not easily described: "Metaphor produces a synthesis that anticipates, on the level of imagery, the synthesis of reflection.... Their importance derives from their functions as a unity." Goetschel, *Kant als Schriftsteller,* 132–133. The architectural metaphor is used exactly in Kant's discussion about the unity of knowledge to represent a coherent whole. Architecture presents an image of wholeness, order that lends meaning to the discourse of philosophy. I wish to augment Goetschel's thesis to show that building metaphors also raise the possibility of a system's collapse, the failure of knowledge to adequately account for itself and its object.

35. Martin Heidegger, *Kant und das Problem der Metaphysik* (Bonn: Friedrich Cohen, 1929), 64.

36. After reviewing the many Roman palaces that have disappeared, Filarette states simply: "It is clear that by being killed or by not eating, one dies; so do buildings. You can say, one eats and even so one dies. The building also must decline through time just as one dies sooner than another or has better or poorer health.... The building also declines more or less rapidly according to the goodness of the material and also according to the sign or planet under which it was built." Filarette, *Treatise on Architecture,* trans. John R. Spencer (New Haven, CT: Yale University Press, 1965), 14.

37. Reinhart Koselleck, "Einleitung," in *Geschichtliche Grundbegriffe* (Stuttgart: Ernst Klett, 1972), xv.

understood as an allusion to a cosmology organized by a divine creator, and on the other, architectural references gave modern philosophy a material, technological tone that was deliberately antimetaphysical. In Kant's writing we can see how these two meanings compete with each other. Allusions to philosophy's house refer to the divine architect as well as the mechanical engineer. Metaphysical allusions to God are the most common form in which architecture appears in philosophy, but even the young, still quite cosmological Kant follows Galileo in deploying architecture as a critical term intended to deride speculative philosophy. The construction of a grand palace signifies an open-ended process with many risks. Kant characterizes his sometimes cautious epistemology as providing merely a first sketch of a larger plan; other times he claims to have merely delivered the tools for further construction. From his first essay to the end of the third *Critique,* we can trace a complex development in which Kant is constantly rewriting these figures.

The second important mode of deploying architecture is certainly metaphorical as well; however, it functions as a technical philosophical term: the architectonic of knowledge. Unlike the other metaphorical references to architecture, the architectonic is supposed to represent secure knowledge. If buildings are signs of instability, the architectonic posits the ideal of mastering all knowledge. With this term, Kant is no longer alluding directly to the building of a house; rather, he invokes concepts from classical architectural theory to describe the systematic integration of all sciences toward the highest end of humanity. The architectonic arrangement of knowledge articulates individual fields of knowledge into a coherent whole. This arrangement is strictly an ideal; it entails no statement about the nature of the world. Instead it involves the rational reorganization of disparate sciences into a single higher unity. Generally, in the *Critique of Pure Reason,* the architectural metaphor implies a rounded-off conclusion, an end to speculation, a warning against its excesses, a physical limit, a boundary that also serves to focus thought. Kant does not claim that knowledge of the world is organized into a single system that reflects the ontological order of the universe. Nevertheless, the term "architectonic" sounds like a cosmological statement about the unity of all things within the mind of God; hence one might suspect that Kant's use of the term in the first and third *Critiques* revives an earlier manner of thinking. To the extent that the architectonic of the first and third *Critiques* is a thorough rewriting of earlier cosmological claims, this suspicion is warranted. Certainly, his contemporaries could be well inclined toward cosmological thinking. Johann Gottfried Herder, Kant's student from his precritical period, explicitly organizes the cosmos under God the architect in his late work, *Adrastea.* However, the important point lies in how the architectonic belongs to Kant's transcendental philosophy. Rather than preserving cosmology, it hearkens back to an early Greek understanding of philosophical wisdom. Kant posits his architectonic as a return to Socratic reflection in an age of specialized knowledge. The architectonic entails the claim that no individual science should be organized without reference to the whole of human existence. By insisting on an architectonic

arrangement of knowledge, Kant intends to link modern scientific rationality with the oldest philosophical questions, about what it means to be human. Classical architectural theory, most importantly, Vitruvius, provides Kant with a model for describing the integration of knowledge toward human ends. Contrary to the fable Derrida retells, wherein metaphors are likened to old coins whose imprint has been worn away, I would argue that metaphors are often reminted as they are set in a new context.[38] Rather than rubbing away the specifics of architectural theory so that its details are no longer visible, Kant rewrites architectural terminology. Far from arranging metaphysics as a house, Kant applies categories such as synthesis, harmony, integration, and symmetry to describe the possible organization of rational information, an index of an encyclopedia.[39]

The Critique of Judgment is Kant's third arena for treating architecture. Here buildings become the object of aesthetic and utilitarian judgment, rather than serving as a trope within philosophical discourse. Kant writes briefly about actual buildings, but in such a manner that connoisseurs have felt that he does not do them justice. Most importantly, he raises the question of whether buildings or gardens could be considered beautiful according to disinterested judgment. The role of architecture in defining aesthetics becomes clear when Kant begins a crucial stage of the *Critique of Judgment* by asking whether one would judge a building to be a work of art at all. This critical stance toward the discipline has vexed more than a few. In *The Architecture of Deconstruction* Mark Wigley expressed a long-standing objection to Kant's treatment of architecture in his aesthetics.[40] For Wigley, as well as for Heinz Quitzsch, Kant underrates the artistic value of architecture.[41] This objection began circulating almost immediately after the *Critique of Judgment*'s publication. In a 1798 essay, Karl Heydenreich alluded to certain architects' displeasure with Kant's formulations. He noted that architects might well have taken offense at Kant's questions concerning the aesthetic status of their discipline, but then explains how buildings can be the objects of aesthetic judgment.[42] Heydenreich went on to argue that architecture had much the same status as the arabesque within the Kantian schema.

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38. Derrida, "White Mythology," 210–213.

39. The fable comparing the circulation of old metaphors turned into philosophical concepts to old coins that have had all distinguishing features rubbed off does not account for the operation of concepts in their new context. As Derrida points out, the fable presumes that coins circulate from one economy to another without any fundamental change in their use. Refunctionalization, itself a well-worn metaphor, would better describe the deliberate application of one discourse to another. Architectural terms in epistemology have a very different reference than they do in Renaissance building manuals.

40. "The *Critique* [*of Judgment*] attempts to subordinate architecture precisely because it is so indebted to it." Mark Wigley, *The Architecture of Deconstruction: Derrida's Haunt* (Cambridge, MA: MIT Press, 1993), 14.

41. Heinz Quitzsch, "Tektonik und Bekleidungstheorie: Zu einer architekturtheoretischen Fragestellung in der ersten Hälfte des 19. Jahrhunderts," in *Mythos Bauakademie: Die Schinkelsche Bauakademie und ihre Bedeutung für die Mitte Berlins,* ed. Frank Augustin (Berlin: Verlag für Bauwesen, 1997), 65.

42. K. H. Heydenreich, "Neuer Begrif der Baukunst als schönen Kunst," *Deutsches Museum,* 1798: 160.

Central to the deconstructive uncovering of architecture in Kant is the claim that epistemology has a particular interest in refusing to recognize its own indebtedness. Wigley accuses philosophers of disparaging architecture. This charge helps him then read Kant and the rest of philosophy (as if this were a mere functional operation) to find moments in those philosophers' works where architecture is, after all, treated as a valued discourse.[43] The claim that Kant hides his debt to architecture centers precisely on those passages in the *Critique of Judgment* in which he asks whether a building fits the definition of autonomous beauty. Rather than resenting Kant's investigation into the aesthetic character of architecture, one might turn to the architectural discourse, in the twentieth century and before, to see how hotly contested the discipline's self-understanding was. Whether architects were artists or engineers was a problem not only for high modernist critics such as Sigfried Giedion; it was an issue also for Alberti and most anyone who read him after the fifteenth century. Was the architect a glorified bricklayer or a visionary? Did he solve complex mechanical problems with mathematical insight, or did he decorate the homes of the powerful? Was the architect a master of many sciences or a dilettante? Quite frankly, architecture has itself never been secure in its aesthetic standing. If philosophers waver in their use of architectural terms, they do so not only because of their own epistemological concerns, but also because architects themselves have often proudly refused the aesthetic label. If Kant hesitates to include architecture with poetry, painting, and music, his indecision, for it really is nothing more, reflects the uncertain definition architects have given themselves.

The real philosophical issue, however, does not concern Kant's personal opinions about architecture. When Kant raises the question of architecture's status within aesthetics, he implicitly addresses age-old questions about how to constitute the field of architecture and its position within the arts. The third *Critique* stands in the middle of this long debate. Kant is neither its source nor its conclusion; nevertheless, the third *Critique* is an important articulation of autonomy aesthetics that sought to explain how Vitruvius's three categories relate to each other. To what extent can utility, comfort, and beauty be integrated? For Kant the extent to which architecture belongs to the arts is answered by determining just how autonomous beauty in architecture is distinct from the other two Vitruvian categories.[44]

Kant's references in the *Critique of Judgment* to specific art forms are admittedly idiosyncratic. That he addresses architecture at all is surprising given how unsystematically he discusses the various genres. The *Critique* is intended, after all, as an epistemology of aesthetic judgments: Are they subjective or universal? Do

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43. Diane Morgan, on the other hand, does not postulate a suppression of architectural terms in Kant.

44. The Vitruvian categories are useful not because they provide an eternally valid definition of architecture's responsibilities, but because they have been deployed repeatedly in very different ways since the Renaissance. The terms were certainly familiar to Enlightenment architectural critics.

they have a moral or scientific content, etc.? Thus Kant provides specific examples only by way of discussing the rational basis for making judgments. Architecture is singled out, not as an art object to be interpreted, but in order to distinguish between aesthetics and utility. Kant does not exclude buildings from being considered beautiful, but their complex investments in style and practicality make them appropriate for formulating a difference between aesthetic contemplation and other modes of apprehending objects. Buildings are far more intensely drawn into the very problems that motivated the claim to autonomy. The *Critique of Judgment* differs from Renaissance treatises after Serlio because it is not prescribing rules for creating art, whereas architectural manuals, according to the common Enlightenment criticism, presented complex design definitions, without explaining the basis for making such statements.

By separating the concern for utility from the judgments of beauty, Kant is holding separate two propositions that had long been held in combination with a third—moral goodness. Kant's entire project is to distinguish between these forms of reason, for their combination when applied to nature had served as a teleological proof of God's existence. By insisting on the autonomy of art from claims of knowledge, personal interest, or moral good, Kant is refusing, among other things, the claims of cosmological unity in Renaissance thought. However, Kant does not preclude the possibility that a thing might be judged under several different rubrics. Thus it is possible for a house to be functional, secure, and a comfort to its residents while also appearing beautiful. Kant's main point is that these two modes of judgment be separated from one another. He insists on separating forms of judgment in order to avoid precisely the cosmological unity asserted by earlier metaphysics, such as Renaissance Platonism.

Kant does include buildings in the list of plausible objects of beauty. When he makes the point that judgments of beauty cannot be demonstrated through rational argumentation in the manner of scientific propositions, he list houses as among those things that one could judge to be beautiful. Indeed Kant's point is that tasteful individuals do not let someone else decide whether something is beautiful or not; rather, they insist on viewing it for themselves. If someone calls a house beautiful, we would not agree or disagree until we had seen it for ourselves: "We cannot press [upon others] by the aid of any reasons or fundamental propositions our judgment that a coat, a house or a flower is beautiful." (Ob ein Kleid, ein Haus eine Blume schön sei: dazu läßt man sich sein Urteil durch keine Gründe oder Grundsätze *beschwätzen*.)[45] Similarly, we would not let some philosophical principle determine for us whether a dress was beautiful. The three examples Kant uses to make this point—a dress, a house, a flower—all have a distinctly practical purpose in addition to potentially being beautiful. Contrary to Wigley's presentation of the

45. Immanuel Kant, *Critique of Judgment,* trans. J. H. Bernard (New York: Hafner Press, 1951), §8, p. 50; Kant, *Kritik der Urteilskraft,* ed. Wilhelm Weischedel (Frankfurt: Suhrkamp, 1974), §8, p. 130.

third *Critique* as a work that defines a canon of art, Kant makes clear that aesthetic judgments are not proscribed by universally valid propositions.[46] He insists instead that they always rely upon the subjective contemplation of the object. Only after a judgment has been formulated by the subject, does it take on a universal quality, but then never as a truth statement. Aesthetic assertions speak with a universal voice, even though they are grounded in subjective contemplation. This tension between the universal tone of aesthetics and its origins in individual viewing is for Kant one of the reasons why aesthetic judgments cannot have a proscriptive character.

The seventeenth-century architectural theorist Claude Perrault assumed the existence of certain works that all tasteful individuals would agree are beautiful, yet he understood, as well as any other critic, that opinions on art vary and are open to intense debate. The entire eighteenth-century discussion of taste is weighted with the problem of how to resolve these differences of opinion. For Kant to grant that judgments of taste impute universal assent does not mean that they are in any objective sense validly so.[47] The very nature of aesthetic judgment precludes the existence of a definitive list of which objects are art and which are not. Kant's *Critique* leaves open the question of a thing's aesthetic status. This makes his system particularly flexible, not only in terms of practical forms such as architecture and fashion, but also in terms of the further development of artistic media. Despite his own neoclassical preferences, Kant's description of aesthetic judgment does not preclude film, photography, performance pieces, or modernist painting. The more fundamental criticism of the third *Critique* is its presumption that beauty is the defining feature of art.

The Baroque Palace of Metaphysics

Kant's critical philosophy is the distillation of lifelong revisions. The house metaphor displays this writerly process. Far from presenting an eternal statement on foundations of knowledge, the philosophical house represents thought as it rethinks itself. In this sense Kant shares with Goethe the figure of the subject as a building under renovation. Quite the opposite of a monument, the philosophical self is constantly under pressure. Will it stand on its own or collapse under the weight of its ambitions? Will it be knocked over by some outside force? Furthermore, it was not always clear when a building was complete; indeed the large ones are always under renovation. The Empire State Building may have a smooth, coherent exterior, but inside there are, at any given moment, many floors being torn out and rearranged.

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46. "There can be no objective rule of taste which shall determine by means of concepts what is beautiful. For every judgement from this source is aesthetical; i.e. the feeling of the subject, and not a concept of the object, is its determining ground. To seek for a principle of taste which shall furnish, by means of definite concepts, a universal criterion of the beautiful is fruitless trouble, because what is sought is impossible and self-contradictory." Kant, *Critique of Judgment,* §17, p. 68.

47. Kant, *Critique of Judgment,* §8, pp. 50–51.

From cathedrals to palaces, the early modern world knew many construction projects that extended for decades, if not centuries.

Buildings are not permanently complete, nor are philosophical systems. Through much of Kant's first *Critique* we see thoughts still being refined. There is no finality to Kant's argument, just as a large building always requires further work. Because Kant is aware that individual sections of the first *Critique* still required elaboration, he asks that the plan be viewed as a whole. Construction is ongoing throughout the *Critique;* if there is anything lasting in Kant's opinion, he would claim it is the overall layout, yet a more modernist position would state that Kant's legacy lies in his insistence on always tearing down and rebuilding. He does not emphasize the laying of permanent foundations so much as the examination of what are purported to be secure foundations, in order to find the inevitable flaws and limits. The *Critique* undergoes revision, rephrasing, reworking. Arguments are reiterated, stated more than once.

Kant's early career involved many changes in argument, and repeated attempts to prove the existence of God, only to be replaced with a different, sharper argument that also failed. Over the course of Kant's career the architectural metaphor undergoes several transformations, much like the rest of his thought. In the early essays, Kant uses architectural terminology as ontological description. The "Bau" of the universe is God's creation. Kant starts in the tradition of Leibniz and Wolff wherein architecture serves ontology. By the first *Critique,* his architectural allusions reverse their direction so as to emphasize the weakness of this tradition. Philosophical speculation is likened to the Tower of Babel. Architectural concepts, such as the integrated unity of a beautiful building, are transformed, so that they no longer describe the harmony of God's universe so much as the activity of philosophical thought. Kant follows the trend of many other eighteenth-century German writers in that he adapts architectural terms to describe subjectivity. Kant still maintains the need for foundations in thought. In that sense he has not given up Descartes' project to ground thought in secure principles. Similarly, he sets these foundations in thought, rather than in the universe. His metaphors emphasize the manner in which thought turns against itself. Writing to Herder years after they had last seen each other, Kant reaches for the building metaphor to explain that he no longer holds the same views as when Herder studied under him: "As far as I am concerned because I am not caught up on any one opinion, I treat them with a profound indifference, my own and those of others. I turn the whole building/ structure over several times and view it from all sorts of viewpoints, in order to find the one from which I can sketch the truth. Since we have parted, I have in many regards found a place for new insights." (Was mich betrifft da ich an nichts hänge und mit einer tiefen Gleichgültigkeit gegen meine oder anderer Meinungen das gantze Gebäude ofters umkehre und aus allerley Gesichtspunkten betrachte umzuletzt etwa deniegen zu treffen woraus ich hoffen kan es nach der Wahrheit zu zeichnen, so habe ich seitdem wir getrennt seyn in vielen Stücken anderen Einsichten

Platz gegeben.)[48] The two sides of the architectural profession—the qualities of the engineer and the designer—are joined here as a single professional ideal for philosophical critique. Thought is represented literally as a model that can be picked up and turned all directions so that its construction might be examined. The engineer/philosopher dismantles the building with the goal of ultimately sketching a more truthful one. Architectural practice provides a two-step method for philosophy. First, the activity of critical thinking is likened to the engineer roaming over a building to examine its structural flaws. Kant describes himself as having a deep indifference—or disinterestedness (*eine Gleichgültigkeit*), to use another, more potent, philosophical term—a lack of feeling, or even a certain apathy toward his own arguments. This lack of care, this coldness toward his own writing, mimics the attitude of the structural engineer or natural scientist who tests the soundness of a building or a hypothesis, without concern for the feelings of its author. Kant is distinguishing himself from *Schwärmer,* enthusiasts who are convinced of their truthfulness because of their own intense feelings. The detached Kant invests less in his own philosophical positions than in his ability to examine them. Descartes likewise claims to take an engineer's attitude toward his own metaphysical beliefs.

Kant alludes to a second aspect of the building profession: the architect who solves existing flaws by sketching alternatives out in his mind and on paper. Drawing represents thinking about a problem in its entirety. The distance between a few hasty lines on paper and a detailed representation of a building's many parts is great, yet for Kant the architectural drawing signifies systematic philosophy's attempt to represent the conditions for certain knowledge. The ability of a plan or drawing to demonstrate had a special appeal for Kant, for he often referred to the sketch or plan of his philosophy as that aspect that would remain even after the particulars had been criticized. Inevitably a tension arises between the drawing that represents the whole and the engineering work of building, or, in other words, the *Critique*'s epistemological goal of explaining how a priori synthetic judgments are possible, and the specific arguments of Kant's deduction.

The question of examining and constructing foundations for philosophy is so familiar that Kant even makes a little joke of it. As he sets out to explain his understanding of the term "a priori," he gives the curious example of a man who digs underneath the foundations of his house. Common opinion, Kant writes, would say that the man should have known a priori that the house would have fallen on him, once he had dug it out [B2]. Kant goes on to point out that in fact this assumption that the man should have known his house would fall is not pure a priori knowledge, because the effects of gravity are taught only by experience. Kant goes on to explain that his investigation is concerned with pure a priori judgments, which are independent from all experience. Philosophers like to choose amusing illustrations

48. Kant to Herder, 9 May 1767, in *Gesammelte Schriften* (Berlin: Walter de Gruyter, 1980), 10: 74.

when arguing a broader point, and here Kant is alluding to Descartes, who also uses the house metaphor to describe his method of doubt. Having dismissed all beliefs so that he might examine them critically, Descartes likens himself to a man who needs to live somewhere while he pulls down and then rebuilds his house.[49] The little joke is of course on Kant himself, for he is certainly the man who has already more than once undermined his philosophical foundation. This wry example in the introduction to the *Critique* has Kant presenting himself to the reader as a philosopher, much like Descartes, who is about to pull down his house. And indeed, Kant, like the man in his example, knows from experience what happens when foundations are stripped away, because his entire career has entailed repeated examinations of his most cherished assumptions.

The prefaces and the introductions to the two editions of the *Critique* are points wherein Kant aligns architectural metaphors against speculative thought. A third related passage comes at the beginning of what according to the book's layout is the *Critique*'s second half, the transcendental doctrine of method. In each case, Kant uses the moment of introduction to indulge in architectural metaphors that circumscribe his project. In the preface and in the introduction to the *Critique,* Kant repeats the same metaphors in order to explain the inevitable conflict between the desire for speculative knowledge and the critical scruples of epistemology. These very abstract metaphors resurface as allegories of Babel in the transcendental doctrine of method.

In the preface to the first edition of the *Critique of Pure Reason* [AVIII-AX], Kant offers a cautionary lesson in philosophical history. He recounts how philosophy has tried many times to solve certain irresistible problems by engaging in speculation, only to find that each time the answers fail to prove reliable:

> Human reason has this peculiar fate that in one species of its knowledge it is burdened
> by questions which, as prescribed by the very nature of reason itself, it is not able to
> ignore, but which, as transcending all its powers, it is also not able to answer.[50]

In this rounded paradox lie two tendencies in Kant's philosophy: the desire to provide metaphysical answers, and the refusal to speculate. The tension between these two inclinations is so great that interpreters have often chosen one over the other. Loyal Kant scholars burrow into the minutiae of the first *Critique* to explain the

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49. Descartes, "Discourse on Method," in *Selected Philosophical Writings,* trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1988), pt. 3, p. 31: "Now, before starting to rebuild your house, it is not enough simply to pull it down, to make provision for materials and architects (or else train yourself in architecture), and to have carefully drawn up the plans; you must also provide yourself with some other place where you can live comfortably while building is in progress."

50. Immanuel Kant, *Critique of Pure Reason,* trans. Norman Kemp Smith (New York: St. Martin's Press, 1965), 7.

various limitations imposed on philosophy, while speculative thinkers ranging from Fichte to Heidegger use Kant as a springboard to a new articulation of ultimate answers.[51] Kant interpretation should neither scholasticize the details of his system nor sweep past his epistemological scruples. Kant explains how thought can be dynamic and yet stand still, because speculation and critique press against each other to form a stasis that is hardly stable.

Kant works within what he considers an inevitably paradoxical condition of thought. Rather than harp on the failings of philosophers, he insists that no one is to blame for the many cycles of assertion and retraction followed by another round with a new approach. The situation has a fatalistic character. Kant shifts between stating that it is the "besondere Schicksal" (particular fate) of reason to be burdened with concerns it cannot dismiss, and claiming that the nature of reason is to ask questions that it cannot answer. Either way, philosophy is caught in a contradiction: it demands what it cannot give and must always do so. Kant here is preparing the reader for an antinomy, for two equally valid propositions. First, metaphysics is unavoidable; there is no end to grand questioning.[52] Secondly, speculating about ultimate ends is futile. Unlike the sciences and mathematics, there has been no advance in metaphysical insight, there has been no corpus of knowledge accepted by a community of scholars. Metaphysics repeatedly fails to provide what it most fervently seeks to prove. Kant describes this paradox as if it were a process of impulsive construction followed by renovation, a method that does not follow a plan so much as an urge. A glance at the quote in the original German shows architectural terms built into his characterization of metaphysics. English readers are so accustomed to philosophical "structures" that they do not perceive "the building" (*das Gebäude*), from which the abstract term is derived:

> It is, indeed, the common fate of human reason to complete its speculative structures as speedily as may be, and only afterwards to enquire whether the foundations are reliable.

> Es ist aber ein gewöhnliches Schicksal der menschlichen Vernunft in der Spekulation, ihr Gebäude so früh, wie möglich fertig zu machen, und hintennach allererst zu untersuchen, ob auch der Grund dazu gut gelegt sei. [A5/B9][53]

These additional *Grundsätze* extend beyond experience; they extend beyond the limits of experience [A4/B7]. The architectural metaphor assumes a topographical

51. Dieter Henrich places Heidegger in relation to post-Kantian idealist speculation. Dieter Henrich, "On the Unity of Subjectivity," trans. Guenter Zoeller, in *The Unity of Reason,* ed. Richard L. Velkely (Cambridge, MA: Harvard University Press, 1994), 40.

52. Those who claim to be radical skeptics, or who are just uninterested in metaphysics, Kant will argue, are prone to fall into the very formulations they claim to doubt.

53. Kant, *Critique of Pure Reason,* 47; Kant, *Kritik der reinen Vernunft,* ed. Jens Timmermann (Hamburg: Felix Meiner, 1998), 54.

tone as Kant moves from architectural to territorial language to describe an episte-
mology concerned with defining the limits of thought. Whether topographical or
architectural, the result of using overextended foundations is the collapse of philos-
ophy into darkness and confusion. The preface to the first edition states: "But by this
procedure human reason precipitates itself into darkness and contradictions." (Da-
durch aber stürzt sie sich in Dunkelheit und Widersprüche" [AVIII].)[54] The verb
"sich stürtzt" is a reflexive form of the more direct "stürzen"—a biblical-sounding
word that invokes the fall of man, or Satan being hurled into hell. "Stürzen" en-
tails a fall from a great height, the kind of punishment usurpers or charlatans re-
ceive when they have lost their precarious grip. It is a word that implies heavenly
retribution. But by employing the reflexive form "sich stürzen," Kant takes the di-
vine judge out of the scenario. Philosophy brings about its own fall, for, as Kant
states, the collapse of metaphysical palaces inevitably leads back to an investigation
of the foundations of philosophy to uncover the hidden errors that must lie in the
ground: "There must be…concealed errors." (irgendwo verborgene Irtümer zum
Grunde liegen müssen [AVIII].)[55] Somewhere there must lie errors, but philoso-
phy does not know where to locate that place with its hidden flaws, Kant writes,
because it does not rely on the "Probierstein" (philosopher's stone) of experience.
The metaphor of the ground rests then on another figure, the alchemic touchstone
used to distinguish gold from other alloys, truth from falsehood. Kant traces out a
narrative of philosophical building, from the laying of foundations, the raising of
a building, its extension on questionable foundations, to the collapse of the edifice,
followed by the reexamination of the foundations. This rise and fall of metaphysics
might serve as a parable of philosophical history, but, as we shall see, Kant does not
position himself outside the cycle. Indeed, the tale can be understood as recounting
Kant's own career. Scholars trend to distinguish between the precritical Kant, who
wrote essays explaining the cosmology of the natural universe in order to reconcile
it with a divine being, and the world-famous Kant, who reversed his position at age
fifty-six with the publication of the *Critique of Pure Reason.* Kant disavowed much
of his early work and discouraged its publication, which is all the more reason why
one might imagine that the tale of speculative philosophy's collapse presented in the
preface to the *Critique of Pure Reason* recounts Kant's own failures.

Edifices are always threatened with collapse; they are not unproblematic and
secure. The construction of a foundation always entails the danger that it will fail
to support the building raised upon it. Architecture for Kant is not the metaphor
of certainty; it represents instead the threatened future of all philosophical claims,
the possibility that a series of arguments will be proven wrong, that great effort
has been expended on a hopeless line of thought. With the house metaphor comes
the ruin, the destruction of a system of thought, and then again with collapse there

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54. Kant, *Critique of Pure Reason,* 7; Kant, *Kritik der reinen Vernunft,* 5.
55. Kant, *Critique of Pure Reason,* 7; Kant, *Kritik der reinen Vernunft,* 5.

emerges again the potential for rebuilding, or at least reapplying portions of the collapsed structure for another purpose; as in Rome, ruins are carted off for a new purpose. Kant characterizes his own rearrangement of Scholastic logic in these terms. Foundations are necessary for stability, and philosophical systems promise secure terms, but Kant reiterates that the house of philosophy is always subject to critical re-construction. Kant spells out the cyclical movement of construction and critique quite clearly in his lecture notes when he explains the difference between the hypothetical constructions of mathematics and the systems of philosophy: "The philosopher can also play the artist, though his work does not last as long as the mathematician's. For even when the philosopher believes he has raised his building rather artfully, someone will come along, who is even more artful and knock it over." (Der Philosoph kann auch einen Künstler vorstellen, allein sein Werk ist nicht so dauerhaft als das Mathematikers. Wenn der Philosoph sein Gebäude recht künstlich aufgerichtet zu haben glaubt, so kommt ein anderer, der noch künstlicher ist, und wirft es um.)[56]

The *Critique of Pure Reason* sets out to find a means past this paradoxical situation. Kant addresses the tension between the desire for complete answers and the tendency to challenge any one explanation in the section entitled "The Antimony of Pure Reason" [A474/B502] through allusions to the story of Babel. In his re-telling of the architectural fable, he refers to a skepticism that continually undermines every effort at total knowledge. Implicit within the antinomy is a narration of construction and demolition. First comes the natural inclination to explain all existence, a habit that Kant explicitly connects to building: "Human reason is by nature architectonic. That is to say, it regards all our knowledge as belonging to a possible system." (Die menschliche Vernunft is ihrer Natur nach architektonisch, d.i. sie betrachtet alle Erkenntnisse als gehörig zu einem möglichen System.)[57] The critical attitude, which insists that all knowledge have a basis in empirical reality, undermines the *construction* of a system: "But the propositions of the antithesis are of such a kind that they render the completion of the edifice of knowledge quite impossible." (Die Sätze der Antithesis sind aber von der Art, daß sie die Vollendung eines Gebäudes von Erkenntnissen unmöglich machen.)[58] Whatever foundation a system of thought uses in order to develop its all-encompassing interpretation of the world is shown to have an older, and thus more fundamental, predecessor. Skepticism, according to Kant, points to an endless chain of original moments, each preceding the other. At no point does skepticism allow systematic thought to rest on the true foundation of all knowledge; thus it prevents the completion of the architectonic project: "Since therefore, the antithesis thus refuses to admit first or as a beginning anything that could serve as a foundation for building, a complete

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56. Immanuel Kant, "Philosophische Enzyklopädie," in *Gesammelte Schriften,* 29: 7.
57. Kant, *Critique of Pure Reason,* 429; Kant, *Kritik der reinen Vernunft,* 574 [A474/B502].
58. Kant, *Critique of Pure Reason,* 429; Kant, *Kritik der reinen Vernunft,* 574–575 [A474/B502].

edifice of knowledge is, on such assumptions, altogether impossible." (Da also die Antithesis nirgend eine Erstes einräumt, und keinen Anfang, der schlechthin zum Grunde des Baues dienen könnte, so ist ein vollständiges Gebäude der Erkenntnis, bei dergleichen Voraussetzungen, gänzlich unmöglich.)[59] In a tangled invocation of German military history, he aligns skepticism with the mercenary armies of the Thirty Years' War—willing to turn against any institution, loyal to none. On the second page of the preface to the *Critique of Pure Reason,* Kant recounts a short history of modern metaphysics. He writes that initially metaphysics was practiced so despotically that it created a barbaric state of war, a reference to the Reformation and the Thirty Years' War, which brought particular devastation to Prussia. Extending the military theme, Kant describes skeptics as nomads who despise all permanent dwelling. Kant twice uses the term *anbauen,* which refers to both building and farming ("die allen beständigen Anbau des Bodens verabscheuen") [AIX].[60] Because these nomads were few in number, Kant writes, they could not prevent attempts to rebuild metaphysics. These new efforts were undertaken as if to rebuild Babel after its fall. Kant writes that these new metaphysical systems were not carried out according to a single plan in a single voice [AIX].[61] The many examples that Hans Vaihinger lists in his commentary on the *Critique* make clear that for Kant philosophical discourse was readily understood in military terms.[62] The integration of these war references with architectural allusions suggests that systems are required to withstand assault from competitors as well as their own weight.[63] Inherent in Kant's structural metaphors is the imposition of a limit, a wall dividing the sanctioned from the inadmissible, coupled with the awareness that all such boundaries are subject to demolition. The instability of the architectural figure in Kant's writing is augmented by the military terms that are brought to bear against his philosophical house.

The first preface to the *Critique of Pure Reason* elaborates an almost tragic tale of thought's rise and fall, a movement that again in the second edition Kant refers to as "das Stehen und Fallen der Metaphysik" (the stability or collapse of metaphysics)

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59. Kant, *Critique of Pure Reason,* 429–430; Kant, *Kritik der reinen Vernunft,* 575 [A475/B503].

60. The standard English translation refers to "the *sceptics,* a species of nomads, despising all settled modes of life." Kant, *Critique of Pure Reason,* 8.

61. Vaihinger connects this passage to the later, more detailed discussion of Babel. Hans Vaihinger, *Commentar zu Kants 'Kritik der reinen Vernunft'* (1881; repr., New York: Garland Publishing, 1976), 1: 95.

62. Vaihinger, *Commentar,* 1: 86.

63. Goetschel argues that military metaphors in Kant have a satirical quality, wherein Kant somewhat mockingly compares philosophical debate to the anachronism of feudal conflict. Willi Goetschel, *Constituting Critique: Kant's Writing as Critical Practice,* trans. Eric Schwab (Durham, NC: Duke University Press, 1994), 126. Certainly Kant does emphasize the *folly* of both military and metaphysical conflict, and his concept of reason, especially in his political essay, does strive to put an end to both types of warfare; however, Kant is never so grandiose as to claim that his work would accomplish this goal. His allusions to war do not exclude the possibility that his own work will become embroiled in one.

[B19].[64] At first, the preface presents a story so abstract one can barely visualize its setting. Instead of beginning with specific characters or concepts, Kant describes the rise of human reason in terms that imply comparisons with both the construction of a tall building and flight, whether of a bird or a mythical figure such as Icarus.[65] These two metaphors, construction and flight, reappear through the first *Critique* to represent the activity of thought quite simply as the tendency to climb upward and then fall precipitously. Later, in the introduction, Kant seems to move between the dove and the building as representations of speculative thought [A4–5/ B7–8]. Still, we should not be too quick to define the metaphor in Kant's opening. The indefiniteness of the terms lends the opening passage the mythic aura of Genesis 1. Kant resists using specific metaphors to make his argument. He does not immediately present allegorical characters with readily identifiable qualities, nor does he draw analogies in the manner of a fable; instead Kant portrays thought as movement without any fixed identity.[66] What interests Kant initially is the cyclical dynamic of thought, which he presents as an upward movement, followed by a sudden drop. Metaphysics has remained "in so vacillating a state of uncertainty and contradiction" (in einem so schwankenden Zustande der Ungewißheit und Widersprüche).[67]

The first hint of a substantive analogy, with which the reader is meant to visualize the movement of human reason, comes in the opening sentence when Kant states that philosophy begins with foundational principles: "Sie fängt von Grundsätzen an."[68] Here we have the first tangible image, the first metaphor of the *Critique* coupled with the first concept that is itself the concept of a first principle.[69] This is the first mentioning of first things in philosophy. Thus Kant begins by stating that philosophy always has a beginning, which in this case he compares to the foundation of a building. The German word *Grund* means, of course, "reason," in the sense of an explanation, but it also refers to the ground, as in the surface of the earth, as well as to a building's foundation. In the *Critique of Judgment,* Kant directly addresses the visual image implicit in the term: "Our language is full of indirect presentations of this sort, in which the expression does not contain the proper schema for the concept, but merely a symbol for reflection Thus the words *ground*

64. The standard English translation skips the spatial and structural dimension of Kant's language: "the success or failure of metaphysics." Kant, *Critique of Pure Reason,* 55.

65. Tarbel, "Fabric of Metaphor," 257–259, notes that Kant deploys an image of a dove rising in the air to represent abstract thought.

66. Kant provides a similar account of speculative philosophy soaring over its foundations in experience, in which he stresses that his own dry formulations strip off (*entkleidet*) the sensuality that gives metaphysics its greatest appeal. Kant, *Kritik der reinen Vernunft,* 565 [A463/B491].

67. Kant, *Critique of Pure Reason,* 55; Kant, *Kritik der reinen Vernunft,* 73 [B19].

68. Kant, *Kritik der reinen Vernunft,* 5 [AVII].

69. Derrida makes a rule of this expectation. See Jacques Derrida, "Die weiße Mythologie: Die Metapher im philosophischen Text," in *Rundgänge der Philosophie,* ed. Peter Engelmann (Vienna: Passagen Verlag, 1988), 206.

(support, basis),…and countless others are not schematical but symbolical hypotyposes and expressions for concepts, not by means of direct intuition but only by analogy with it."[70] The intrusion of such metaphors in Kant's own writing has been recognized from the earliest. In his 1797 commentaries, Georg Mellin reiterates that Kant used the term *Grund* in its specialized meaning of substituting an architectural term for an abstract principle.[71]

Despite the fact that Kant himself calls attention to the imagery implicit within the term, the metaphor of the *Grund* has been forgotten and rediscovered several times since the late eighteenth century. In *Kant and the Problem of Metaphysics,* Heidegger compares the practice of critique to the formulation of a plan. He makes the important distinction between the construction of a building and its initial planning through sketches and diagrams. The *Critique of Pure Reason* corresponds to the plan for organizing knowledge; it does not claim to be that knowledge. This, for Heidegger and for Kant, is an important distinction between metaphysics, which is associated with a house, and critical reflection upon the conditions for thought—a Kantian would say epistemology, Heidegger would insist on a distinction between ontology and epistemology. By comparing metaphysics with an enormous building, Kant and Heidegger are referring to the claim that philosophy used to make, namely, to explain the inner meaning of the universe in its entirety. The young Kant was very much engaged in seeking a philosophical explanation for the natural sciences. Only with his turn to critical epistemology does he reevaluate his earlier claims to universal knowledge. Heidegger and the critical Kant eschew the house metaphor in favor of the architectural sketch or plan, which outlines the conditions and the organization of rational thought, while leaving the construction of knowledge to the sciences.

Derrida mentions Kant's reflections on building metaphors in "White Mythology: Metaphor in the Text of Philosophy" but provides no immediate commentary.[72] Critics such as the architectural theorist Mark Wigley have followed up on Derrida's reference and traced it back to Heidegger.[73] The process of finding and forgetting is central to the critical practice of revealing Kant's reliance on the architectural metaphor. Wigley writes as if Heidegger had been the first to hint at the importance of the foundational metaphor, and then proceeds to rely on Heidegger's reading of Kant to deconstruct the first *Critique.* (Relying on Heidegger to understand Kant

70. Kant, *Critique of Judgment,* 198; "Unsere Sprache ist voll von dergleichen indirekten Darstellungen, nach einer Analogie, wodurch der Ausdruck nicht das eigentliche Schema für den Begriff, sondern bloß ein Symbol für die Reflexion enthält. So sind die Wörter *Grund* (Stütze, Basis)…und unzählige andere nicht schematische, sondern symbolische Hypotosen, und Ausdrücke für Begriffe nicht vermittelst einer direkten Anschauung, sondern nur einer Analogie mit derselben" (Kant, *Kritik der Urteilskraft,* 296).

71. Georg Samuel Albert Mellin, *Enzyklopädisches Wörterbuch der kritischen Philosophie* (Aalen: Scientia Verlag, 1970), 3: 166.

72. Derrida, "White Mythology," 224 n. 26.

73. Wigley, *Architecture of Deconstruction.*

is a little like taking Jung's word on Freud.) For Wigley the architectural metaphor seems a revelation, a secret buried in Kant's writing for a twofold purpose: to provide a paradigmatic "foundation" for philosophy as the science that grounds knowledge, which is then covered up for fear of displaying philosophy's debt to architecture. Yet Theodor Adorno in his lectures on Kant's *Critique* treats the importance of "foundations" as a long-standing concern for philosophical thinking. There has been a tendency, Adorno argues, within Western philosophy to not accept arguments until they have been traced back to a foundational principle. Whether Plato and the Ideas or Heidegger and the search for origins, philosophers have presumed, firstly, a correspondence between the capacity to know and the object of knowledge, which leads them, secondly, to expect that all knowledge be formulated in an irreducible form that provides philosophical knowledge a stable identity over time. Over the course of his elaboration on Kant's epistemology, Adorno places Kant within this tradition of a *Fundierungswahn* (foundational delusion).[74]

The difference between Kant's concern for epistemology and Heidegger's insistence on reading Kant as the basis for his ontology becomes clear when we compare the metaphors both philosophers rely upon to define their projects. Most importantly, the architectural metaphor in Kant implies a limit to the operation of reason; it has an implied epistemological character. By insisting on a foundation to a tower, Kant suggests that there are practical restraints, physical limits, to how far philosophy might build.[75] Because the limits implied by the foundation are only implied, not formulated explicitly as a rule, Heidegger feels free to supplant one metaphor with another. In his method of *Ursprungsenthüllung* (uncovering the origin), Heidegger abandons the architectural model just at the point where Kant would insist it is most relevant, that is, at the synthesis of *Verstand* and *Sinnlichkeit*.[76] Heidegger invokes the architectonic of knowledge, a term Kant uses to postulate a metaknowledge about all knowledge, because it is one of those moments in Kant's system where reference is made to what is for one reason or another unknowable beyond the capacity of critical reason. Heidegger wishes to use the term "architectonic" as a springboard for his own ontological project, but where Kant would define a conclusion to speculative thought Heidegger commences, and thus he switches from the architectural metaphor to other naturalistic, open-ended terms such as *Quelle* (spring) and *Stamm* (branch). The architectural metaphor, the tower that can be built only as high as its foundation allows, has a built-in understanding of limit, whereas the suggestion that philosophy search for a *Quelle,* as in finding the source of a river in a mountain

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74.   Theodor W. Adorno, *Kants 'Kritik der reinen Vernunft'* (1959), ed. Rolf Tiedemann (Frankfurt: Suhrkamp, 1995), Nachgelassene Schriften, sec. 4: Vorlesungen, 4: 30–31, 84–85.

75.   "The architectonic critique is concerned with determining boundaries, deciding what belongs to the faculties of reason and understanding and what does not. Critique finds an ideal partner in architecture. The latter is also traditionally seen as a sensible discipline. It is tied to the realisable." Morgan, *Kant Trouble,* 34.

76.   Heidegger, *Kant und das Problem der Metaphysik,* 36–39.

stream, suggests roving across a natural landscape. The limit to thought that the natural world suggests exists outside the *Quelle* metaphor. Each metaphor, to the extent that it contains its own spatial order, also implies an outside to its own operation. The spring that is the source for philosophy is not produced by philosophy; rather, it is given to reason by some external, that is, infinite, source. Unexamined and implicit in the metaphor that philosophy search for a *Quelle* is the natural world, which Heidegger does not, at least in the Kant book, bring to the fore.

One metaphor will imply another, so that a reference to the *Grund* will encourage another related analogy. However, any one metaphor will suggest many different associations. Heidegger broadens the spatial setting implied by the *Grund* image through his evocation of a natural landscape through figures such as *Quelle* or *Holzweg.* While Kant deploys geographical references throughout the *Critique,* his rhetoric tends to value methodologies over environments. To the extent that Renaissance building techniques provide Kant with a procedure for thought, he will construct a string of analogies that circle around architectural theory. From *Grund* he will not necessarily turn to other environmental analogies but instead will remain within the architectural discipline, so that the foundation metaphor begets a reference to the building plans and drawings that guides construction. Particularly in his epistemology, Kant's metaphors are guided more by a disciplinary logic than by a spatial or visual matrix.

When, in the section "The Architectonic of Pure Reason," Kant refers to the two branches of knowledge, *Verstand* and *Sinnlichkeit,* he also postulates the existence of a universal root of human knowledge ("die allgemeine Wurzel unserer Erkenntniskraft") but makes the point that his system explicitly does not speculate on its nature:

> We shall content ourselves here with the completion of our task, namely, merely to outline the *architectonic* of all knowledge arising from *pure reason;* and in doing so we shall begin from the point at which the common root of our faculty of knowledge divides and throws out two stems, one of which is reason. By reason I here understand the whole higher faculty of knowledge, and am therefore contrasting the rational with the empirical.

> Wir begnügen uns hier mit der Vollendung unseres Geschäftes, nämlich die Architektonik aller Erkenntnis aus reiner Vernunft zu entwerfen, und fangen nur von dem Punkte an, wo sich die allgemeine Wurzel unserer Erkenntniskraft teilt und zwei Stämme auswirft, deren einer Vernunft ist. Ich verstehe hier aber unter Vernunft das ganze obere Erkenntnisvermögen, und setze also das Rationale dem Empirischen entgegen.[77]

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77. Kant, *Critique of Pure Reason,* 655; Kant, *Kritik der reinen Vernunft,* 863 [A835/B863].

Three times Kant refers to a point, a place, a specific location, as the starting point and the limit of his system. For Heidegger, though, the importance of *this* place is that it exists as one location in a larger context. Similarly, a division of two branches suggests the larger organic unit of a tree. Kant picks the point where he stops and starts, but Heidegger finds it more interesting that the tree metaphor implies the existence of more, a root that in this case is a natural analogy to a foundation. Kant calls the limit of his system its *Architektonik,* again drawing attention to the constructedness of reason's order. Heidegger, on the other hand, wants to look beyond the architectonic to the more natural, and for some reason therefore more preferable, "root" that lies beyond the architectonic. Thus Heidegger reads the mixed metaphors of Kant's conclusion as a means of commencing his own ontological investigation. In the hierarchy of Heidegger's metaphorical reasoning the roots of the tree go beyond the architectural. Kant seems to resist the logic of the tree metaphor by insisting that his investigation stops where the two branches of *Verstand* and *Sinnlichkeit* separate. Trees and buildings are themselves analogous: both move upward, both have a hold on the ground that prevents them from toppling, both can be divided into constituent parts. If the logic of the architectural metaphor with its emphasis on secure foundations is applied to the tree, then one might expect that critical philosophy would search out the roots of the tree just as it secures the foundations of the building. However, Kant does not align the tree and the building; the foundation is not equivalent to the root. Instead he arbitrarily stops his reflections where two branches come apart, thereby suggesting that the rest of the tree, trunk and root, is not open to critical thinking. To demonstrate the disjointed relation of the two metaphors, he calls the point where *Verstand* and *Sinnlichkeit* divide the architectonic of knowledge, and then proceeds to unfold the architectural metaphor of a unity constituted by separate parts. Thinking within the tree metaphor inclines one to search for the root, whereas the architectural comparison produces its own conclusion. Heidegger notes both metaphors but supplants the house of philosophy with the tree.[78] He insists that Kant by his use of the tree implies the existence of a root more fundamental than the foundation provided by the architectonic of knowledge. Heidegger's concern is to uncover thought that exists prior to the foundations of metaphysics, an interest that Kant explains without recourse to naturalistic terms. For Kant the search for that which lies below and before philosophy leads to the ruins of an earlier philosophy. Thus the technical excavations of the philosopher engineer often become an archeological investigation. Kant often makes the point that any given system is built on the ruins of its buried predecessors.

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78. Heidegger chooses sides in the "Genesis and Structure" debate, which Derrida credits Husserl with trying to avoid. If Husserl does not commit himself to defend one position systematically, Kant makes an explicit point of restraining himself (and his system) in pursuing either beyond a self-imposed limit. See Jacques Derrida, "'Genesis and Structure' and Phenomenology," in *Writing and Difference,* trans. Alan Bass (Chicago: University of Chicago Press, 1978), 154–168.

Because he relies primarily on Heidegger's reading of Kant, Mark Wigley focuses his argument on the ground/edifice metaphor. The implication is that the foundation metaphor is the most important of all the architectural metaphors. However, Kant does not confine himself to a critical discussion of foundations in philosophy. He deploys a series of architectural references so that one glides into another. Before long it becomes clear that in Kant's writing the metaphors translate into each other; behind one lies another. Architectural allusions turn into geographical references, which in turn can be translated into the imagery of birds in flight. Kant does not stop his string of associations with the ground/edifice metaphor.[79] As we shall see, it becomes difficult to isolate his images from the metaphors that surround them, in the text and in the imagination of the reader. Even when he does discuss the ground of philosophical knowledge, he elaborates his contention through recourse to another architectural principle, one inherited from Renaissance classicism, namely, the integration of parts into a whole. When writing about the architectonic of all knowledge, the ground metaphor translates into the architectonic whole, the organic unity composed of interlocking parts. Thus the ground turns into the Idea of the whole, which is the most abstract, least "firm," least empirical aspect of his argument.

No doubt the ground metaphor seems compelling because it has the "flavor" of empiricism. The foundation of Kantian epistemology corresponds to the empirical intuition. According to the logic of the analogy, the "foundation" of knowledge would be human perception. Scientific truth would be built upon the appearance of things in the world to us—ordinary, mundane perceptions. The ground metaphor would thus seem to be aligned with the empirical. The tectonic appeal of the foundation seems so intuitive because it is so childlike, a lesson everyone learns with building blocks and that baroque architects occasionally misapplied on a grand scale. However, toward the end of the *Critique of Pure Reason,* Kant explains that there is yet something beyond the ground. In other words, Kant provides a new conception of the ground that reverses the initial empirical associations. In the second half of the *Critique,* the ground no longer suggests the earth, rather it refers to the Idea of the whole, the schema that pulls together perceptions. The ground has become insubstantial, abstract; it is a plan that stands in a complex, hidden relation to perception. The ground is hovering in the air; it is architectonic, a relation of supports that create a whole, a cupola, a vault above, rather than a hole below. Kant moves from one metaphor to the other, flipping the architectural associations on their head, so that the ground becomes the plan, then

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79. Architectural terms in Kant match his geographical analogies closely. Both disciplines seek to "orient" the subject. Helmut Müller-Sievers also stresses the human need for spatial orientation in relation to the opening lines of the *Critique of Pure Reason.* Helmut Müller-Sievers, "Tidings of the Earth: Towards a History of Romantic *Erdkunde,*" in *Rereading Romanticism,* ed. Martha Helfer, Amsterdamer Beiträge zur neueren Germanistik 47 (Amsterdam; Atlanta: Rodopi, 2000), 56–60.

the vault. Paradoxically the ground becomes the height of abstraction. Put simply, architectural metaphors in philosophy do not provide stable concepts. Even a literal reading of Kant, which did not seek to critique but which would simply list off all the times he uses the words "architectonic," "plan," and "foundation," would show that architectural references in Kant's writing do not remained fixed and that the terms shift freely.

Kant's Precursors

The application of architectural terms to idealist thought developed from ancient practices, Jewish, Christian, and Greek. The New Testament attempts to rearticulate the temple in Jerusalem as a term defining the individual's relationship to God. The Pauline epistles already appropriate architecture to describe inner states of consciousness when the apostle deploys the figures of "the temple" and "the church" to define faith. Various Gospel parables and the Christian institution's self-legitimation by way of Christ's reference to the apostle Peter as the rock on which the church would be built all point to the active effort to give spiritual feelings the apparent solidity of architecture.

The claim that architecture's inspiration for philosophy has remained hidden becomes quite questionable once we recognize that Kant arranges his foundation metaphor in response to earlier, more renowned versions. The concern over building a secure foundation resulting in a strong edifice appears prominently in the New Testament. In 1 Corinthians 3:10–17, Christian faith is compared to a house that withstands assault. Christian faith stands much as a stone structure survives fire:

> According to the grace of God given to me, like a skilled master builder I laid a foundation, and another man is building upon it. For no other foundation can any one lay than that which is laid, which is Jesus Christ. Now if anyone builds on the foundation with gold, silver, precious stones, wood, hay, straw–each man's work will become manifest; for the Day will disclose it, because it will be revealed with fire and the fire will test what sort of work each one has done. If the work which any man has built on the foundation survives, he will receive his reward. If any man's work is burned up, he will suffer loss, though he himself will be saved, but only through fire. Do you not know that you are God's temple and that God's Spirit dwells in you? If anyone destroys God's temple, God will destroy him. For God's temple is holy, and that temple you are.

Whether Paul sought to combine a Christian appropriation of the Judaic temple with Greek architectural thought remains doubtful; nevertheless, an architectural analogy would have been particularly appropriate when addressing the Corinthians. Within the Roman *imperium,* the city had lent its name to the architectural canon. Paul portrays the history of the early church as a construction project that

has already undergone several planning stages. The relationship between the Gospels and Paul's own writings is explained as a direct foundation-edifice relationship. The new urban religious communities and the individual believers are conceived as parts of a larger construction. Paul articulates an early version of the antiornamental dogma that the Enlightenment and modern design have used against facade decorations. The insistence on a strong foundation over ornamentation is augmented by eschatological terms. The fire that tests the structure alludes to the Final Judgment.[80]

Paul's reference to himself as an experienced master builder (*sophos architekton*) allowed later theologians to connect the New Testament with Plato's *Timaeus.* The architect oversees many different operations, conveys orders to the various workers, and, presumably, knows how the final structure will appear. As Genesis indicates, construction sites (ancient and modern) have a confusion of languages and nationalities. By calling himself an architect, Paul is positing a similarity between his own role as a missionary and the direction of a construction site, reinforcing the analogy between the establishment of a Christian community and raising a temple. A long tradition reads the references to a temple as an allusion to the one in Jerusalem, suggesting thus that Christian faith, understood both as a community and as a spiritualized temple within the believer, restores and replaces the destroyed Jewish temple.[81] The exact status of the temple Paul describes has of course led to competing interpretations. Luther's contemporary Philipp Melanchthon, in his commentaries on First Corinthians, noted how fond Paul was of the temple analogy. In a gentle reference to the papacy, Melanchthon posits the temple within as a spiritualization of the cultic rituals practiced within stone temples.[82] Yet another line of analysis understands Paul's references to himself as a master builder as an effort to quell dissent within the Christian community. Certainly the epistle warns strongly against factionalism within the Corinthian church. The architectural metaphor could readily be understood as supporting the later church, as it promoted concord under Paul's leadership.[83] Regardless of the varied ideological implications of the passage, the allusion to architecture set a rich precedent for later speculation. Medieval texts gave a privileged place to the terms derived from 1

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80. Still, fire was also an obvious danger in any ancient, narrowly packed city. The historic city of Corinth had been reduced to ash by the Roman army in 146 b.c. only to be restored as a Roman settlement by Caesar a hundred years later in 27 b.c. At the time of the epistle, the city was a vibrant commercial center replete with construction sites. Wolfgang Schenk, "Korintherbriefe," in *Theologische Realenzyklopädie* (Berlin: Walter de Gruyter, 1990), 19: 624.

81. John Lanci, *A New Temple for Corinth: Rhetorical and Archaeological Approaches to Pauline Imagery* (New York: Peter Lang, 1997), 7–9.

82. Philipp Melanchthon, *Annotations on First Corinthians,* trans. John Patrick Donnelly (Milwaukee: Marquette University Press, 1995), 61.

83. Charles Wannamaker, "A Rhetoric of Power: Ideology and I Corinthians 1–4," in *Paul and the Corinthians: Studies in a Community in Conflict; Essays in Honour of Margaret Thrall,* ed. Trevor J. Burke and J. Keith Elliott (Leiden: Brill, 2003), 131–133.

Corinthians: *aedificium, domus, fabrica, structura,* and *machina* were frequent theological terms defining the church.[84]

Mary Carruthers argues that the New Testament's architectural trope was spiritualized well before the Reformation. She suggests that medieval theologians combined ancient Roman rhetorical mnemonic techniques with Paul's image of the temple within every believer so that the foundation and the edifice images were understood in meditative terms as the faithful Christians' contemplation of God. Hugh of St. Victor's *Didascalicon,* a frequently cited medieval text, presented an already well-established practice wherein the work of construction guided Christian contemplation. He paraphrased Pope Gregory the Great when he advised: "As you are about to build…'lay first the foundation of history; next, by pursuing the 'typical' meaning, build up a structure in your mind to be a fortress of faith.'"[85] Medieval meditations on scripture described the reading, elucidation, and explication of the text as requiring the techniques of a master builder. Hugh does not know the distinction between architects and masons in the Renaissance sense; nevertheless, the analogy between building and understanding a text is a recognizable precursor to modern metaphysics. Most importantly, Hugh recognizes a method in the construction of a house that he then applies to thought:

> Take a look at what the mason does. When the foundation has been laid, he stretches out his string in a straight line, he drops his perpendicular, and then, one by one, he lays the diligently polished stones in a row. Then he asks for other stones, and still others.…See now, you have come to your [reading], you are about to construct the spiritual building. Already the foundations of the story have been laid in you: it remains now that you found the bases of the superstructure. You stretch out your cord, you line it up precisely, you place the square stones into the course, and, moving around the course, you lay the track, so to say, of the future walls.[86]

Hugh is providing technical detail to the New Testament trope of the church as a house built upon a rock. As Carruthers argues, the placement of the foundation is an imaginary act, a mental exercise, wherein the monk reading scripture fits passages into his own written work.[87] The reader translates, scrapes and shapes stones to place them together in an edifice. Whereas Hugh's metaphysical building has its foundations in the soul, modern philosophy extended the excavation method to include a broader subjectivity. The mnemonic tradition, with its reliance on an architectural framework within which to organize thought, persisted well into the

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84. Henri de Lubac, *Exégèse médiévale: Les quatre sens de l'écriture* (Paris: Aubier, 1964), 2: 44.

85. Hugh of St. Victor, *The Didascalicon: A Medieval Guide to the Arts,* trans. Jerome Taylor (New York: Columbia University Press, 1961), 138.

86. *Didascalicon* 6:4, quoted in Mary Carruthers, *The Craft of Thought* (Cambridge: Cambridge University Press, 1998), 20.

87. Carruthers, *Craft of Thought,* 20.

eighteenth century. Even as the degree of data to be collected and stored grew tremendously, knowledge in all its various permutations was understood as contained within an architectural space.

René Descartes makes quite explicit that his method based on doubt employs Renaissance building techniques.[88] Critical reason's self-examination operates akin to the excavation of a new foundation. Antonio Negri traces the networks of metaphors, house, path, and fable that stretch between Descartes and the Renaissance.[89] The web of metaphor brings Descartes closer to the humanist world; it reveals the pull of fifteenth-century Italy on modern epistemology and the attempt to organize the sciences according to well-established rational principles. The opening passage of Descartes' *Meditations on First Philosophy* makes explicit a comparison that Leon Battista Alberti, the author of the first Renaissance architectural treatise, might have recognized:

> Some years ago I was struck by the large number of falsehoods that I had accepted as true in my childhood, and by the highly doubtful nature of the whole edifice that I had subsequently based on them. I realized that it was necessary, once in the course of my life, to demolish everything completely and start again right from the foundations if I wanted to establish anything at all in the sciences that was stable and likely to last.[90]

For much of his intellectual career Descartes relied on the architectural analogy to respond to his opponents. In one reply to critics, Descartes writes that his radical doubt and his reliance on cogito, ergo sum was analogous to the laying of a building's foundation:

> Throughout my writings I have made it clear that my method imitates that of the architect. When an architect wants to build a house which is stable on ground where there is sandy topsoil over underlying rock, or clay, or some other firm base, he begins by digging out a set of trenches from which he removes the sand, and anything resting on or mixed in with the sand, so that he can lay his foundations on firm soil. In the same way, I began by taking everything that was doubtful and throwing it out, like sand; and then, when I noticed it was impossible to doubt that a doubting or thinking substance exists, I took this as the bedrock on which I could lay the foundations of my philosophy.[91]

88. Claudia Brodsky, *Lines of Thought: Discourse, Architectonics, and the Origin of Modern Philosophy* (Durham, NC: Duke University Press, 1996); Abraham Akkerman, "Urban Planning in the Founding of Cartesian Thought," *Philosophy and Geography* 4.2 (2001): 141–167.

89. Antonio Negri, *Political Descartes: Reason, Ideology, and the Bourgeois Project,* trans. Matteo Mandarini and Alberto Toscano (London: Verso, 2006), 35–39.

90. Descartes, "First Meditation," in *Selected Philosophical Writings,* 76.

91. Descartes, *The Philosophical Writings of Descartes,* trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1984), 2: 366 (DV2 OBR ObRp7 ap. 536).

The Vitruvian question of what education properly defines an architect, and the professional rivalries of the construction site, enter Descartes' polemics when he dismisses his critic as "a jobbing bricklayer who, because he wants to be regarded as a professional expert in his town, has a grudge against an architect who happens to be building a chapel in his town, and looks for every opportunity to criticize his work."[92] "Descartes deploys the foundation metaphor in his "Discourse on Method" as a means of differentiating between forms of knowledge. Describing himself as a young man at university, Descartes explains that he preferred philosophy because it was more "fundamental": "As for the other sciences, insofar as they borrow their principles from philosophy, I decided nothing solid could have been built upon such shaky foundations."[93]

Descartes' description of laying bare a foundation mentions many of the details that Alberti spells out in book 3 of *On the Art of Building,* though with a key difference. Alberti warns that only the inexperienced tear away the entire foundation of an old building. Clearing a space entirely is a sign of an architect who cannot read the angles of what lay there before: "[The inexperienced] send in demolition men, wielding their mallets with less restraint than they would against their enemies, to ruin and destroy everything."[94] He counsels architects not to show disrespect toward their ancestors. Roman ruins were an important source of knowledge for fifteenth-century architects.[95] Furthermore, modern architects often cannot finish the grand projects they have begun. Thus they ought to leave old buildings intact. Alberti's advice may be pragmatic, but it also reflects his attitude toward antiquity generally.

Moreover, Alberti's respect for old foundations shows the skill of a practiced courtier who appreciates the danger inherent in advocating their complete removal. It might be tempting to interpret the difference between Alberti's willingness to renovate the old and Descartes' urge to clear it away as marking the turning point at which radical modern thought commences. What Descartes and later philosophers borrow from Alberti is his insistence that the architect carefully examine the ground around an old foundation before proceeding with the new:

> All the more to be blamed are those who, without taking the trouble to seek out a naturally solid piece of ground suitable for bearing the weight of a building, find leftovers of some ancient ruin and rashly use them as the base for a wall of considerable size, without inspecting the dimensions and their state of repair closely enough.[96]

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92. Descartes, *Philosophical Writings,* 2: 366.

93. DV1 DMT ap. 8 p. 115.

94. Leon Battista Alberti, *On the Art of Building in Ten Books,* trans. Joseph Rykwert, Neil Leach, and Robert Tavernor (Cambridge, MA: MIT Press, 1988), 62.

95. James Ackerman, "Architectural Practice in the Italian Renaissance," *Journal of the Society of Architectural Historians* 13.3 (1954): 4.

96. Alberti, *On the Art of Building,* 64.

Despite his inclination to build anew, Descartes, too, finds it necessary to pre-serve ancient edifices when he considers the political implications of his sweeping method. In the opening to the second section of the "Discourse on Method," Des-cartes traces the link between war and reconstruction. He begins biographically by describing his travels in Germany during the Thirty Years' War yet soon digresses into contemplation about city planning. Caught in a cold German winter, Des-cartes shuts himself up in a small room to write. Among his first thoughts is the proposition that a work composed by a single man is usually more perfect than one produced by several. A glance at architecture, he claims, proves the point: "Thus we see that buildings undertaken and completed by a single architect are usually more attractive and better planned than those which several have tried to patch up by adapting old walls built for different purposes."[97] Implicit in the sequence of Descartes' writing—the very fact that Descartes begins with this claim—is the analogy between philosophical reflection and the cohesion of an architectural plan. Descartes presents this first thought as if it were a random one, the first of a stream of ideas without any hierarchy, yet as his reflections on the comparison unfold, it becomes clear that this first statement characterizes his overall method. As Claudia Brodsky notes, "What Descartes *thinks* takes the image of what an architect *does.*"[98] His reflections center on the individual's self-investigation, an enterprise under-taken without overt reference to established intellectual or ecclesiastical authority. Descartes presents the proposition of the superiority of a work from a single author as if it came to him in isolation, without mention of a possible source, yet his imme-diate turn to architecture suggests that Descartes had read treatises on the subject.

By setting his comparisons between architecture and philosophy within the scene of a war in Germany and the coronation of an emperor, Descartes sets in mo-tion a series of correspondences between buildings and governments, both of which were being razed and defended with the greatest energy.[99] He pauses in his argu-ment to discuss the parallels between governments and cities. With the reliance on architectural theory as a philosophical mode of thought comes the critique of the disorderly development of traditional European cities. Alberti and his successors had reiterated the analogy that a grand house was organized as a small city and that a city ought to have the same coherence as a well-designed house. In theoreti-cal terms, the difference between orderly houses and towns was only a matter of scale. When modern thinkers such as Descartes and Goethe have drawn analogies

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97. Descartes, "Discourse on Method," in *Selected Philosophical Writings,* 25.

98. Brodsky, *Lines of Thought,* 32.

99. Timothy Reiss makes the same argument: "Such a context [Descartes' reference to the Thirty Years' War] is of fundamental importance to the *Discourse,* and the implicit goals of an ostensibly 'mere' philosophical method are immediately politicized, through the use of the architecture meta-phor." Timothy J. Reiss, "Power, Poetry, and the Resemblance of Nature," in *Mimesis: From Mirror to Method, Augustine to Descartes,* ed. John Lyons and Stephen Nichols (Hanover, NH: University Press of New England, 1982), 222.

between architectural theory and their own educations, they have often used the medieval city as their contrary image, the thing they wish to overcome. Descartes writes: "Ancient cities which have gradually grown from mere villages into large towns are usually ill-proportioned, compared with those orderly towns which planners lay out as they fancy on level ground."[100] When they use architectural metaphors to describe the subject who over time reflects about the conditions for his existence, they often equate this process with city planning, in which the self is laid out according to a disciplined design. The disordered layers of the medieval city offer a striking contrast to the architect's promise of clarity and control.[101]

Recent historians of medieval cities have shown that the disorder of Europe's oldest cities was only apparent.[102] Keith Lilley emphatically rejects the characterization of medieval cities as a random hodgepodge: "Some historians would have us believe that the formation of new urban landscapes outside castles and abbeys was a 'spontaneous' process. In reality, however, these institutional urban landscapes were a product of careful, controlled development overseen by local lords.... The landscapes of these new towns were designed so as to reinforce the political and economic position of the town's lord..., hence the close juxtaposition between the town and its host institution."[103] Lilley writes that modern conceptions about medieval cities are guided by Le Corbusier's critical remarks about their development.[104] However such modernist characterizations were derived from much older lineage. Descartes and the urban planners of the Enlightenment were clear precursors to Corbusier's claim that the medieval city street followed the path a donkey would take across rough terrain. Even if Lilley does not recognize that the negative stereotypes of medieval cities are much older than modernism, it is important to follow his point that the layout of medieval cities was not random but instead reflected the economic and legal pressures that determined the subdivision of plots and the varying scales of construction squeezed together in a society without modern divisions of labor and private life.[105] Many towns were founded during the course of medieval colonial expansion in central Europe and the western British Isles. A newly founded town would have a castle with a residential neighborhood for craftspeople just outside its walls; the ability of the authorities to survey

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100. Descartes, "Discourse on Method," 25.

101. Lewis Mumford uses this passage from Descartes to summarize the mentality that produced the "baroque city." Lewis Mumford, *The City in History* (New York: Harcourt, 1961), 393.

102. The canonical studies are Henri Pirenne, *Medieval Cities: Their Origins and the Revival of Trade,* trans. Frank Halsey (Princeton, NJ: Princeton University Press, 1952); Edith Ennen, *The Medieval Town,* trans. Natalie Fryde (Amsterdam: North Holland Publishing, 1979); for research that augments Pirenne's economic history with an account of how space is occupied symbolically, see Marc Boone, "Urban Space and Political Conflict in Late Medieval Flanders," *Journal of Interdisciplinary History* 32.4 (2002): 621–640, as well as other essays in this special issue.

103. Keith Lilley, *Urban Life in the Middle Ages, 1000–1450* (New York: Palgrave, 2002), 145.

104. Ibid., 18–21.

105. Horst Ossenberg, *Das Bürgerhaus in Oberschwaben* (Tübingen: Ernst Wasmuth, 1979), 17–18.

the populace was assured by the proximity of the fortress, which at the same time impressed the master onto the populace. Commercial developments led later to the laying out of marketplaces and streets at some remove from the castle yet arranged in such a manner that they could be regulated by the lord. Towns would have successive waves of settlers, each assigned a quarter in which to live. The tendency was for new settlers to live in one area rather than be distributed across the city, thereby allowing them to form a cohesive neighborhood within the larger town. What later seemed like random disorder was the result of layering on new inhabitants in increasingly dense towns, coupled with the disappearance of those trades that originally defined a neighborhood.

Descartes writes his criticism of medieval towns at a point when its central structure, the castle, was no longer a valuable military asset. The changes in artillery and the resulting response in fortifications meant that the high-walled castle offered little protection against cannon fire. Since the fifteenth century, the Italians had developed new expansive fortifications, which surrounded the entire town and took up considerable space outside the city limits. When Descartes writes that towns are more attractive when they are laid out by one authority, he is calling for a reenactment of the founding moment, one that frequently occurred between the tenth and thirteenth centuries when a count established a town by recruiting settlers to build near his castle. The new military tactics of the seventeenth century, coupled with the centralization of authority, meant that a castle surrounded by a feudal town no longer provided an effective defense. Descartes, by criticizing the layout of cities, is making an indirect attack on the persistence of feudal orders in an increasingly absolutist state. City planning becomes an indirect means for Descartes to "sweep away" older institutions. The supposed chaos of the medieval city reflects the layers of rights and privileges that confronted the absolutist monarch.

While Descartes praises projects designed by a single author, he is very cautious about the political and social implications of this argument. His complaint against the accumulation of styles in a medieval city could have easily been read as a criticism of the many, often contradictory feudal rights and privileges that legitimated the seventeenth-century state. No monarch was prepared to eliminate tradition, and after praising Sparta because it was founded according to the principles of a single lawmaker, Descartes takes a few cautious steps back. Buildings, and by implication states, are not razed simply to be rebuilt in a more attractive manner. Descartes becomes cautious here because he wishes to limit his architectural metaphors so that they do not apply to politics.[106] To discuss the foundations of thought is one thing; to raze the House of Valois is another thing entirely. Descartes' comments about the well-structured city differ from Thomas More's in *Utopia,* for Descartes refrains from the polemics implicit in the description of a distant, perfect society.

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106. Timothy Reiss makes a similar point in "Power, Poetry, and the Resemblance of Nature," 222.

The radical propositions of More's utopia, where private property is abolished, take clear aim at the suffering produced by the concentration of power in feudal England.[107] More was himself a cautious and diplomatic writer, familiar with the temper of kings, yet Descartes is even more so.[108] To temper any revolutionary architects, he states explicitly that it would be unreasonable for one individual to reform the state by changing its foundations or by dismantling it so as to reconstruct it. Having set limits to the range of his metaphor by loyally and arbitrarily denying any possible political implications, Descartes returns to the epistemological question of individual belief. On the plane of opinion, Descartes allows the analogy between thought and architecture much more range than in politics: "Regarding the opinions to which I had hitherto given credence, I thought that I could not do better than undertake to get rid of them, all at one go, in order to replace them afterwards with better ones, or with the same ones once I had squared them with the standards of reason. I firmly believed that in this way I could succeed in conducting my life much better than if I built only upon old foundations."[109] By removing his architectural analysis from politics onto the self, Descartes replaces one metaphorical connotation with another. If the critical examination of a dynasty and the state was not acceptable, then Descartes extends his architectural method to himself. By dint of having turned away from the house of politics, Descartes asserts a correspondence between subjectivity and architecture. Yet he feels obliged to redirect his metaphor because of the method it implies. If a thing is like a house, then it needs to be examined according to the professional standards of an architect and an engineer. The trouble for Descartes is not that the monarch would object to this analogy, but rather that he would find offense in the application of Descartes' architectural method. The metaphor has a new potency because of the method it suggests, not because of any quality inherent in the image alone. A house alone is not disturbing to the monarchical state; however, a house examined according to the architectural standards Descartes considers relevant would be a political threat to the established order. Given the confidence with which he describes the work of building, one wonders from whence Descartes derives his understanding of architectural practice. Why are the activities of an architect comparable to his own philosophical enterprise? Descartes can compare his method to architecture's because he has a specific norm of architectural thought and action in mind. Implicit within the analogy between architecture and philosophy is a definition of both professions.

Descartes' skeptical use of the building metaphor has a Christian connotation. As much as Descartes was taken as a skeptic of faith, the foundation metaphor

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107. Thomas Nipperdey, "Die Funktion der Utopie im politischen Denken der Neuzeit," in *Gesellschaft, Kultur, Theorie* (Göttingen: Vandenhoeck & Ruprecht, 1976), 77.

108. See Stephen Greenblatt, *Renaissance Self-Fashioning: From More to Shakespeare* (Chicago: University of Chicago Press, 1980), on the tension between service to the state and the secluded thought of a humanist in More's writing.

109. Descartes, "Discourse on Method," 26.

hearkens back to 1 Corinthians as well as to the New Testament parable in which the faithful man builds a house on rock and the frivolous man on sand. This parable along with Christ's reference to the apostle Peter as the rock on which the church is built have had central importance for the Catholic Church. The Reformation aggressively put forth the fortress as a symbol of Protestant faith. Martin Luther rewrote the Forty-Sixth Psalm into the standard hymn of German religious rebellion: "Ein feste Burg ist unser Gott" (A Mighty Fortress Is Our God). Luther's most famous pamphlet against the papacy, *Open Letter to the Christian Nobility* (1520), is structured as an assault on "the three walls of the Romanists" and is saturated with images of fortification and besiegement. The rhetorical equation of fortresses with systems of belief was a familiar legacy after the Reformation with the many sieges of the Thirty Years' War. Fortifications not only protected institutions such as the Catholic Church; they also preserved individual virtue.[110] While the enigmatic term certainly shifted from the early church to the eighteenth century, the ability of the right-thinking persons to resist external force, whether fire, siege, or heresy, was shown to depend on the same architectural terms: solid foundations and walls.

These diverse associations overlap so often in early modern German thought that one cannot be surprised that Kant's engagement with architecture came early in his academic career. Already in his first essays on cosmology he relies upon the terminology of classical architectural theory. Because Kant did not leave a library behind after his death, we cannot reconstruct which books he read with any certainty. However, anecdotal accounts of his early lectures indicate that Kant was well read in military architecture. The first biographical studies on his life refer to his intense interest in the science of fortification, with its allied fields of ballistics, mechanics, and hydraulics; later scholars, however, downplayed the pragmatic aspects of early modern science in order to present Kant as a "purer" thinker.

To find the architecture in Kant, we need to consider the disciplinary definitions of mathematics in the eighteenth century. A hundred years after the fact, Friedrich Schubert directly connected Kant's knowledge of military sciences with his lectures on mathematics.[111] Starting with the 1755 winter semester and continuing for

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110. Erhard Weigel's *Wienerischem Tugend-Spiegel* (1687) has female representations of virtue hovering behind Vienna's newly constructed defenses against Ottoman attack. Ulrich Schütte, "Fortifizierte Tugend, praktische Philosophie, Mathematik und Gedächtniskunst in Erhard Weigels *Wienerischem Tugend-Spiegel* (1687)," in *Seelenmaschinen: Gattungstradition, Funktionen und Leistungsgrenzen der Mnemotechniken vom späten Mittelalter bis zum Beginn der Moderne,* ed. Jörg Jochen Berns and Wolfgang Neuber (Vienna: Böhlau, 2000), 661–673.

111. Friedrich Wilhelm Schubert, *Immanuel Kant's Biographie,* in *Immanuel Kant's Sämmtliche Werke,* ed. Karl Roesenkranz and F. W. Schubert (Leipzig: Leopold Voss, 1842), 35. Emil Arnoldt, who later compiled the extensive catalog of Kant's lectures, mentions Schubert's assertion that Kant lectured on fortifications, but finds no official announcement for a specific lecture on fortifications in the university archive. Arnoldt does not consider that the mathematics lectures, which relied on Wolff's treatise as a textbook, would have readily included discussions of fortifications and architecture. Emil Arnoldt, "Möglichstvollständiges Verzeichnis aller von Kant gehaltenen oder auch nur angekündigten Kollegia," in *Gesammelte Schriften,* ed. Otto Schlöndörffer (Berlin: Bruno Cassirer, 1909), vol. 5.

another ten years, Kant lectured on mathematics using Christian Wolff's works as his textbook. "Wolff's texts," Lisa Shabel notes, "were representative of the state of elementary mathematics when Kant was writing the *Critique.*"[112] Like most early modern writers on the subject, Wolff included architecture and fortification as subfields of his treatise on mathematics.[113] Kant's reliance on Wolff for his own mathematics lectures would have made it easy to indulge in considerations of artillery fire and siege defense, two topics that were serious concerns in Prussia. There is also the testimony of a Polish nobleman, Wannowski, who received lessons from Kant during the Russian occupation of Königsberg. He recalled that Kant was particularly attentive to fortifications and military architecture in general, as well as pyrotechnics.[114] Kant may not have risen to the obsessive heights of Uncle Toby in *Tristam Shandy,* yet his interest in fortifications would not have been a strange habit; rather, it would have been one of the hotly discussed topics of the day. Presumably, Kant's knowledge of the military applications for mathematics was more than just passing. When the Russian army occupied Königsberg during the Seven Years' War, the commanding general asked Kant to lecture his officers in mathematics.[115] While we have no information about the content of these lectures, they are certain to have included the same geometry and trigonometry that went into solving such ballistics problems as calculating the trajectory of a cannonball.[116] After the Russians' withdrawal, the returning Prussian general Meyer asked Kant to continue his lessons. Frederick the Great laid much emphasis on educating his officers, and so eventually established a small military academy in Königsberg.[117] For all his domains, he established the Oberbaudepartment, a precursor of the later, more famous Berlin Bauakademie, largely as an economic measure to help rebuild the farms and cities in East Prussia that had been devastated during the war.[118] Kant would have certainly been witness to this construction drive.

112. Lisa Shabel, "Kant on the 'Symbolic Construction' of Mathematical Concepts," *Studies in the History of Philosophy and Science* 29.4 (1998): 599.

113. Jörg Biesler, *BauKunstKritik: Deutsche Architecturtheorie im 18. Jahrhundert* (Berlin: Reimer, 2005), 62–65. While Biesler's work is the most recent architectural history to discuss Wolff, Biesler provides no additional secondary literature in his commentary.

114. "Auf Fortification und überhaupt Architectura militaris und Pyrotechnie war er sehr aufmerksam." Rudolph Reicke, *Kantiana: Beiträge zu Immanuel Kants Leben und Schriften* (Königsberg: Thomas Theile, 1860), 40. Karl Vorländer describes Wannowski's relation to Kant in *Immanuel Kant: Der Mann und das Werk* (1924; repr., Hamburg: Felix Meiner, 2003), 1: 96.

115. Manfred Kuehn also cites Wannowski in connecting Kant's interest in fortifications with the mathematics lessons he gave Russian officers. Manfred Kuehn, *Kant: A Biography* (Cambridge: Cambridge University Press, 2001), 114.

116. Calculating the trajectory of a heavy object thrown into the air was one of the first lessons of mechanics. J. A. Eytelwein, one of the founders of the Prussian Bauakademie, opens his *Handbuch der Mechanik fester Körper und der Hydraulik* (Berlin: Lagarde, 1801), 18, with such an analysis.

117. Kuehn, *Kant,* 127.

118. Marlies Lammert, "Akten neu gelesen, Oberbaudepartment und Bauakademie um 1800," in *Mythos Bauakademie: Die Schinkelische Bauakademie und ihre Bedeutung für die Mitte Berlins* (Berlin: Verlag für Bauwesen, 1997), 143.

While German translations and commentaries on Vitruvius were widely available in the eighteenth century,[119] the most likely immediate source from which Kant would have acquired the classical tradition was Christian Wolff's multi-volume treatise on mathematics, *Anfangsgründe alle mathematischen Wissenschaften,* which included a two-hundred-page subsection *Anfangs-Gründe der Bau-Kunst.*[120] Because classical treatises were devoted to lengthy discussions of the proper proportions for the orders, architecture was treated as a subfield of mathematics. Wolff indeed provides tables and drawings detailing the specific differences between the orders taken from the well-known German authority, Nicolaus Goldmann, whose *Entwurff dehr Baukunst* appeared in 1663.[121] Wolff's titles employ the foundation metaphor to explain that the treatise provides readers with the basic information. Wolff's work is encyclopedic, a quality Kant would later criticize as a manner of writing that avoids epistemological reflection. While comparing the differences between the most important Renaissance treatises, Wolff summarizes the Vitruvian principles. Like Perrault, Wolff is conscious that the Italian treatises differed on matters of proportions, so to avoid any problems of consistency, he simply picks Goldmann's ratios as his arbitrary standard. Nevertheless, the reader is given enough commentary to become acquainted with the most prominent foreign authors. Vitruvius is mentioned on the first page, though Wolff agrees with Scarmozzi and others that not all of his statements are to be taken at face value. As Wolff's work went through many editions, he incorporated the judgments of Alberti, Palladio, and Vignola into short footnotes, while also making sure to summarize the debate between Perrault and Blondel.[122]

John Zammito has argued that Wolff introduced a mathematical ideal into German philosophy very much in the spirit of Descartes and other seventeenth-century metaphysicians.[123] Wolff begins by pointing out that architecture has not always been considered a science, particularly not as a subsection of mathematics, and thus he makes the case that it should be taught at universities:[124] "Until

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119. Erik Forssman, *Goethezeit: Über die Entstehung des bürgerlichen Kunstverständnisses* (Munich: Deutscher Kunstverlag, 1999), 34–35: "Eine vollstandige Übersetzung ins Deutsche erschien 1548 in Nurnberg unter dem Titel, "Vitruvius Teutsch". Die Baumeister brauchten allerdings die Zehn Bucher oder richtiger 10 Kapitel dieses schwierigen und umstandlichen Textes nicht unbedingt im Original zu lesen: Zahlreiche Exegeten hatten seit dem Cinquecento die wichtigsten und notwendigsten Teile daraus exzerpiert, in faßlicher Form dargestellt und illustriert." For the most recent commentary on *Vitruvius Teutsch,* see Biesler, *BauKunstKritik,* 19–23.

120. Christian Wolff, *Anfangsgründe alle mathematischen Wissenschaften,* in *Gesammelte Werk,* ed. J. E. Hofmann (Hildesheim: Olms, 1973), vol. 12.

121. On Goldmann's singular importance as the first independent German treatise, see Biesler, *BauKunstKritik,* 31–40.

122. The first edition appeared in 1710. The reprinted edition most readily available today is the seventh, which appeared in 1750.

123. Zammito, *Kant, Herder, and the Birth of Anthropology,* 19.

124. Modern historical scholarship confirms the lack of academic training among early modern German builders; see Reinhart Strecke, *Anfänge und Innovation der preußischen Bauverwaltung: Von David Gilly zu Karl Friedrich Schinkel* (Cologne: Böhlau Verlag, 2000), 9: "Von außergewöhnlichen

recently architecture was practiced mostly as a hand craft. For that reason, one hardly wanted to dignify the profession by placing it among the mathematical sciences. And yet, because of her great usefulness in human life, she deserves to be taught properly at academies and to be learned vigorously by youthful students."[125] Presumably Wolff has a German context in mind, for his references to Italian sources suggest that he does not mean to claim that architecture has not been studied scientifically abroad. His opening repeats the move of so many eighteenth-century writers: he presents a nervous justification to treat architecture as a serious academic discipline.

One implication of Wolff's mathematical thought was that all knowledge needed to be organized into systems. Fittingly, he cites the canonical list: "Vitruvius rightfully requires of a competent builder that he demonstrate fundamental knowledge. Until recently few have concerned themselves with this."[126] For Wolff, the intellectual standing of architecture has changed little since Augustan Rome. As was common until the end of the eighteenth century, Vitruvius's work is treated as a handbook for construction technique. When discussing how to cut and cure lumber, Wolff quotes Vitruvius and Alberti before mentioning recent experimental observations made by the Dutch scientist Anton van Leeuwenhoek (1632–1723).[127] The accumulated criticisms of Vitruvius over the centuries did not diminish the sense that architecture existed in a single temporal continuum from Rome to the eighteenth century. Wolff means to elevate the field by incorporating it into mathematics, a strategy also employed by Sebastian Serlio (1475–1554), whom Wolff does not seem to have read, even though a German translation of his *Five Books on Architecture* had already appeared in 1609.[128] Unlike Serlio, Wolff does not provide a detailed account of how architecture integrates itself into mathematics. Whereas Serlio claimed that perspective painting mediated the connection between building and mathematics, for Wolff the mathematical component lay in the rules of proportion for the orders, a position also espoused by Serlio.

Without question Wolff's re-presentation of the classical tradition is imbedded in the politics of building in early modern Germany. More directly than many authors, Wolff points out that the scientific character of architecture serves the client. The architect never stops being a courtier even as he aspires to philosophy. The awkwardness of the relationship between these two roles shows

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Großbauprojekten abgesehen lief der eigentliche Baubetrieb im einzelnen nach wie vor als überkommener, traditionsgeleiteter, unreflektierter Praxisvollzug ab. Planungen und Ausführungen eines Bauwerks folgten im allgemeinen überkommenen Faustregeln und Erfahrungswerten, wie sie—wenn sie überhaupt schriftlich fixiert wurden—in handwerklichen Vorlagewerke ohne wissenschaftlichen Anspruch tradiert wurden."

125. Wolff, *Anfangsgründe,* 303.
126. Ibid.
127. Ibid., 317.
128. Sebastian Serlio, *Von der Architectur, Funff Bücher,* trans. Ludwig König (Basel, 1609).

itself in the syntax of Wolff's explanations. He opens his work with the state-ment "Architecture is a science" (Die Bau-Kunst ist eine Wissenschaft) and then immediately compromises the autonomy of that *Wissenschaft* by stating that a building must completely agree with the purposes of the client, "Der Bau-Herr." When in the next paragraph Wolff again characterizes the architect in Vitruvian terms, he adds an extra clause. The architect is indeed supposed to provide a full, rational account of his building, but "so that the building measures to the inten-tions of the Bau-Herr." Rationality is at the service of the prince. The final judge of a building's purpose remains the client, a statement that could find support in Vitruvius's many appeals to the emperor yet is not made nearly as directly by Alberti or Palladio. Wolff's writing spells out the tension that still defines the debate over architecture's autonomy, whether the architect ought to serve the client first or establish a theoretical agenda independent and critical of existing social relations.

Wolff presents a standard for judging a building that points to Kant's later concept of the architectonic of all knowledge while also giving a pragmatic ac-count of how to interpret a building. Wolff argues that the rules of architecture were discovered and applied to buildings to facilitate rational judgments. He then mediates between the firm belief that buildings are to be designed according to rationally grounded norms devolved from antiquity and the eighteenth-century inclination to judge architecture according to subjective standards. To bridge the gap between these two principles, he argues that judgments of taste are not im-mediately universal; rather, they are grounded in one specific person: the client. In this remarkably baroque maneuver, the prince is the instance that links the classical orders with vagaries of judgment. His judgment is the only one that de-termines how the classical rules are applied. Wolff, unlike Perrault, incorporates absolutist politics into architectural theory. Wolff and Perrault both refer to the power of the court to determine the shape of buildings, but the Frenchman does not affirm the absolute authority of the prince as client to make judgments. Wolff aspires to provide architecture with "proper and sufficient foundations" as a sci-ence, which rests for him not only on the ability of the architect to rationally justify his construction, but also on his ability to satisfy princely purposes. Once past the pragmatics that both compromise and define architectural practice, Wolff elabo-rates the key terms of classical theory by moving sequentially through a version of the Vitruvian categories. He lists off that a building needs to be "fest" (secure, firm), "bequem" (comfortable), "vollkommen" (complete, perfect), and "schön" (beautiful). The term *Vollkommenheit* mediates between comfort and beauty, in the sense that a well-constructed building has fully integrated and thought through components that satisfy the prince and give the appearance of beauty. The circle draws tighter when Wolff defines beauty as the ability to please; thus the perfection of a building lies in its ability to comfort and please the client. Pro-portions in the layout of a building are likewise called beautiful because they are

easily recognized.[129] The notion that a building's elements need to be integrated into a whole can be detected only vaguely in Wolff's theory. The Neoplatonic legacy lingers but is quickly overwhelmed by the presence of the prince as final arbiter. The need to present a beautiful whole is not an end in itself; rather, it justifies the use of ornamentation and other illusions to cover flaws in the building's design. Wolff, of course, warns against excess ornamentation, but only after he has stressed its political necessity. While it is added only after the building has been completed, ornament compels onlookers to take the building seriously. Ornament has for Wolff the same political expediency as other princely spectacles, from executions to feasts: the need to present an easily recognized image of total monarchical domination.

Regardless of how thoroughly he integrated classical theory and absolutist authority, Wolff's treatise would have provided Kant and many other rural Germans with the basic architectural terminology. As much as Kant disagreed with Wolff's explanation of beauty, the work would have given Kant the terminology, which he then used to describe the architectural qualities of metaphysical systems. He would also have found citations from the canonical treatises. In time, Kant evaluated Wolff's own system in precisely these terms. He often referred to Wolff's metaphysics as an absurd construction. In lectures he remarked that Wolff that was not an architectonic thinker: that is, he did not apply the classical principles of symmetry and organic integration to his own system. Wolff may have described classical architectural theory, but unlike Kant he did not apply its categories to his own thought. "Wolff was a speculative and not an architectonic philosopher and leader of reason. Actually he was not a philosopher, but rather a great artist of the human desire for knowledge, as so many people still are." (Wolff war ein spekulativer aber nicht ein architectonischer Philosoph und Führer der Vernunft. Er war eigentlich gar kein Philosoph sondern ein großer Künstler vor die Wißbegierde der Menschen so wie es noch viele sind.)[130] As biographers have pointed out many times, the young Kant was himself one of those readers lusting for knowledge, who read everything he could find. Wolff would have been a rich source.

Kant's Debt to Renaissance Architectural Theory

It is relatively easy to see how "der Grund" figures as the central trope for developing a new metaphysics; however, Kant also stresses that the *Critique of Pure Reason* should be understood as a methodological sketch, not scientific knowledge. The

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129. Exact proportions are almost never visible to the eye, and thus Wolff, *Anfangsgründe,* 311, allows that the architect need not be precise in his measurements, so long as the disparities cannot be detected unaided.

130. Kant, "Philosophische Enzyklopädie," 29: 8. Kant makes this remark during his own lectures on philosophical encyclopedia, a subject that he approached with considerable caution, as his opening methodological statements make clear.

drawing, or plan, as it was described in Renaissance architectural treatises, serves Kant as a representation of his epistemological project understood as a whole, which is to say that architecture provides the language of how to conceptualize a discourse through images. Architecture moves between image and discourse; it has a heritage that connects it with both mathematics and philosophical discourse and leads Kant's argument away from the many connotations evoked by the "grounding" of philosophy.

The language of architectural images runs through the *Critique of Pure Reason,* yet to the English reader these references to Italian architectural theory are lost. The Standard English translations mute the architectural references in favor of an even more abstract terminology than even the German text provides. The changes the translation makes are of course telling. Often the German text's explicit reference to a house or building is replaced in the English by the word "structure," lending credence to Mark Wigley's suspicion that structuralism borrows from architecture without acknowledging its debt.[131] Even if the English reader understands that the German word *Wissenschaft* has a broader meaning than the English "science," the following translation from the preface positions the *Critique* more in relation to the natural sciences than to architecture. While distinguishing the *Critique of Pure Reason* from earlier cosmological treatises, Kant writes in the preface to his second edition: "It is a treatise on the method, not a system of the science itself. But at the same time it marks out the whole plan of the science, both as regards its limits and as regards its entire internal structure."[132] As a translation, the English is fair enough, but certain words do get lost in the process: "Sie ist ein Traktat von der Methode, nicht ein System der Wissenschaft selbst; aber sie verzeichnet gleichwohl den ganzen Umriß derselben, so wohl in Ansehung ihrer Grenzen, als auch den ganzen inneren Gliederbau derselben."[133] When Kant refers to "den ganzen Umriß" of his method, the English "whole plan of the science" does not convey the architectural connotation. By promising an *Umriß* Kant alludes to the classical intersection of geometry and architecture. That the *Critique* is understood as an initial outline and not a finished system of knowledge mirrors the requirement that an architect represent his intentions in a drawing before commencing to build. Whereas the architect is required to transform words into an image, Kant here states that his text has the status of a guiding image. The difference between visual demonstrations and linguistic discourse defines for Kant the difference between mathematics and philosophy.[134] The metaphor of an *Umriß* suggests that Kant would provide a spatial representation of a discursive argument, a possibility he excludes through his

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131. Wigley, *Architecture of Deconstruction,* 37, 81.
132. Kant, *Critique of Pure Reason,* 25 [BXXIII].
133. Kant, *Kritik der reinen Vernunft,* 25 [BXXIII].
134. Descartes also wrote on the problem of transforming drawing, "taking an intuition of the whole," into discourse; see Brodsky, *Lines of Thought,* 92.

distinction between mathematics and philosophy, but to which he returns during his deduction of the a priori categories. Architecture and mathematics are related in that both entail the visualization of a concept. A triangle, Kant argued famously, can be intuited either through the imagination or on a piece of paper. Geometrical proofs, he argues, proceed through this visualization (*Anschauung*). Most modern critics note that Kant's assertions about mathematics are no longer applicable to non-Euclidean geometry.[135] However, if geometry can today be understood without recourse to spatial perception, classical architecture insisted that an abstract knowledge of geometry was a precondition for reflecting on the construction of a particular space. While the architectural need to make space *anschaulich* might seem foremostly a pragmatic concern not involving concepts of pure understanding, Serlio and his successors did, nevertheless, insist that drawing provided a single geometrically coherent representation of the building process. Thus, when Kant argues he is providing an *Umriß,* he is suggesting, metaphorically, that his text is a visualization of a discursive theory.

The classical tradition defined three types of drawing: a ground plan, a front view, and a perspective view. Kant uses the example of the ground plan and the perspective drawing in separate, distinct passages, suggesting a careful application of the terms to philosophy. Geometry is most aligned to the ground plan; as Werner Oechslin has shown, a tradition of commentaries starting with Daniel Barbaro's 1567 translation tied Vitruvius to a geometrical form of drawing.[136] Kant's references to his philosophy as an *Umriß* link the *Critique* to the simple, clear lines of a ground plan, as it was described in Renaissance theory. His familiarity with this older tradition is made explicit in the *Critique of Judgment* when he states that drawing is the essential feature that relates the plastic arts, including architecture, to one another:

> In painting, sculpture, and in all the formative arts—in architecture and horticulture, so far as they are beautiful arts—the *delineation* is the essential thing; and here it is not what gratifies in sensation but what pleases by means of its form that is fundamental for taste.

> In der Malerei, Bildhauerkunst, ja allen bildended Künsten, in der Baukunst, Gartenkunst, sofern sie schöne Künste sind, ist die *Zeichnung* das Wesentliche, in welcher nicht, was in der Empfindung vergnügt, sondern bloß was durch seine Form gefällt, den Grund aller Anlage.[137]

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135. A recent survey is provided by Johannes Lenhard, "Kants Philosophie der Mathematik und die umstrittene Rolle der Anschauung," *Kant Studien* 97.3 (2006): 302–311. The validity of Kant's proof for transcendental idealism based on the demonstration of an intuition of space has been strongly criticized as inadequate. Lisa Shabel, "Kant's Argument from Geometry," *Journal of the History of Philosophy* 42.2 (2004): 195.

136. Werner Oechslin, "Geometry and Line: The Vitruvian 'Science' of Architectural Drawing," *Daidalos* 1 (1981): 27.

137. Kant, *Critique of Judgment,* p. 61, para. 14; Kant, *Kritik das Urteilskraft,* 141.

The German word *Zeichnung* means not only "a sketch of lines on paper," but its cognate *Zeichen* means "a sign," so that the verb form *zeichnen* means "to show through the drawing of signs." Understood within this definition is the distinction between letters and images. *Zeichen,* by common understanding, refers to almost any sign—a sketch, gesture, sound, or event—that is not a written sign. Kant's usage follows the stricter visual usage of *Zeichnung* to mean "a visual image that is drawn, not painted."

With his discussion of a building's *lineamente,* Alberti provided the most famous presentation of the importance of geometrical drawings for architecture. *Lineamente* has been translated in various ways; however, most agree that the term is related to the lines of a ground plan.[138] Alberti distinguishes between the *lineamente* and the matter of architecture, a distinction that flows well into Kant's distinctions between sensory experience and the categories of reason. Alberti's architectural terminology was reiterated in his rhetorical practice, in that his prose enacts the very same rules of composition that he urges upon architects.[139] Kant, however, does not borrow from Alberti in order to shape his writing; instead he uses the example of the architect as a thinker who composes a plan in advance of construction as a model for his own investigation into the a priori categories that precede all rational cognition. When Alberti states that faults in buildings can be divided into faults of the mind and those of the hand, he lays out a distinction that divides the field of architecture within itself while making it an attractive source for philosophers. Kant adapts Alberti's architecture of the mind for his own epistemology. Alberti's rich discussion of the proper selection, compartition, distribution, and outline of buildings reappears in the *Critique of Pure Reason.*[140] By stating that his philosophy is foremostly an *Umriß,* Kant is working within Alberti's distinction. Furthermore, Kant understands the *Critique of Pure Reason* not as a system of knowledge, that is, as a science with empirical information about the world, but instead as a book that outlines the formal arrangement within thought. The categories give a design to the material of perception.

As difficult as *lineamente* may be to translate, the term most certainly carries the connotation of an architectural drawing, specifically one that does not portray the building in a three-dimensional perspective, but rather in the form of a ground plan.[141] Eighteenth-century manuals written for German architects reiterate the Vitruvian demand that the architect draw skillfully. The leading academies

138. Alberti, *On the Art of Building,* 422–423.

139. Roy Eriksen, *The Building in the Text: Alberti to Shakespeare and Milton* (University Park, PA: Penn State University Press, 2001), 57–70.

140. "[Faults] of the mind are displaced, dispersed, or confused selection, compartition, distribution, and outline." Alberti, *On the Art of Building,* 320.

141. S. Lang, "De Lineamentis: L. B. Alberti's Use of the Technical Term," *Journal of the Warburg and Courtauld Institutes* 28 (1965): 333.

certainly emphasized drawing as the primary skill of an architect.[142] Friedrich Meinert's preface to his *Zeichenbuch für Baukünstler und Bauhandwerker* shows how easily one could translate his admonishments to architecture students into Kant's *Kritik*.[143] Meinert stresses that without knowledge of drawing the ordinary worker is incapable of understanding the project as a whole:

> Even with the best intentions, construction workers are not in a position to undertake and complete their work without flaw, unless they have an accomplished skill in the art of architectonic drawing. Drawing or sketching gives the mason and the carpenter an overview of the entire construction project and not just in parts, and the ability to follow diligently the demands and regulations of the architect (*Baumeister*).

> Ohne Kenntniß der architecktonichen Zeichenkunst, sind die Bauhandwerker mit dem besten Willen nicht im Stande, ihre Arbeiten tadelfrei zu unternehmen und zu vollenden. Zeichnen oder Reißen setzt den Maurer und Zimmermann in den Stand, einen Bau nicht nur Theilweise sondern auch im Ganzen zu übersehen, und verschaft denselben die Fähigkeit, den Willen und die Vorschrift des Baumeisters pünktlich zu befolgen.[144]

Meinert's architectural phrases lend themselves readily to Kant's building metaphor. What applies to the builder extends to the epistemologist and the systematic philosopher. The German *architecktonich* stresses the importance of comprehending a project as a whole. Both Meinert and Kant present drawing as the means of creating a plan that can then be followed by others. Like an architect, Kant expected that his initial *Umriß* would guide the work of more matter-bound laborers.

The switch from discursive argumentation to visual demonstration is reinforced by the phrase used in the second preface, "den ganzen inneren Gliederbau" [BXXII], which alludes to the Vitruvian notion that the arrangement of a building's rooms is meant to be symmetrically balanced in the manner of the human body, a quality demonstrated best through a plan or drawing. Deconstructive readings of Kant tend to focus on his use of the term "foundation"; however, Kant's architectural metaphor really posits the plan or the drawing as preceding even the foundation. The foundation metaphor has a rich heritage in modern philosophy,

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142. The Dresden academy under the directorship of Friedrich August Krubsacius divided beginning students into three classes. The first class was for students twelve and older who were intent on learning a craft. They were to be taught geometry. The second class concentrated on painting, which, in addition to geometry, included teaching perspective, chiaroscuro, and the history of ancient architecture. The third class was for architecture students who had completed the previous two levels. They were taught to compose clean, detailed plans and to draw interior and exterior views from models. Klaus Jan Philipp, *Um 1800: Architekturtheorie und Architekturkritik in Deutschland zwischen 1790 und 1810* (Stuttgart: Axel Menges, 1997), 20.

143. Friedrich Meinert, *Zeichenbuch für Baukünstler und Bauhandwerker,* vol. 1 (Leipzig: Friedrich August Lev, 1799).

144. Meinert, *Zeichenbuch,* iii-iv.

commencing with Descartes; however, the key to Kant's critical turn lies in the design that precedes material knowledge. Before the building of knowledge can commence, before even the foundation can be dug out, there exists a plan that shapes knowledge. The architectural drawing is thus ironically a more "foundational" metaphor than the foundation, for it alludes to the categories of pure understanding that organize the rational subject's empirical knowledge of the world. Before the house takes shape, it exists in the mind as an idea, a form without a corresponding intuition.

Later, when he takes up the Tower of Babel, Kant alludes to architectural treatises that emphasize the importance of a coherent plan: "We have been warned not to venture at random upon a blind project." (Wir sind gewarnt…nicht auf einen beliebigen blinden Entwurf…zu wagen.)[145] We are warned not to follow an arbitrary and blindly chosen design. The short phrase "we are warned" in the context of Kant's brief indulgence in explicit architectural metaphor is one of the few moments where a reference is made outside philosophy. The warning to plan before building is one Kant means to take seriously. External references in the *Critique of Pure Reason* are sparse. Hume and Aristotle merit mention. Descartes is never named; only his phrase "cogito, ergo sum" is granted an allusion. Thus the reference to a warning delivered to philosophy from the outside is a brief, but telling moment. Furthermore, Kant accepts it without challenge. Whereas Hume and Aristotle are critically examined, and their arguments reformulated, the advice to plan before building comes across without trouble. Kant accepts the principle in order to proceed with his comparison between thought and construction. That the precise source of this advice is never mentioned should not surprise, but its inclusion in the text indicates that Kant was familiar enough with architectural discourse to summarize one of its admittedly most basic premises. The warning is so well understood that it is reiterated in countless works; indeed, it is the basis for the entire profession of the need to plan ahead, to reflect on construction before laying the first brick, and justifies the difference between construction workers and architects. The conceptualization of the building as an entirety is held up by architecture as the feature that distinguishes the profession. It marks the difference between an architect and a well-trained, ambitious worker. By accepting this warning, Kant acknowledges the parallel between his own epistemology and classical architectural theory, the beginnings of which lie in Vitruvius and Alberti.

Alberti stresses that an experienced architect thinks through a building project in advance. Every aspect of construction should be determined beforehand so that one is not forced later to admit a mistake.[146] He gives the example of Julius Caesar, who had an entire house demolished after completion because he did not approve of its final form. Alberti organizes architecture into two fields: lineament (derived

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145. Kant, *Critique of Pure Reason,* 573; Kant, *Kritik der reinen Vernunft,* 759 [A707/B735].
146. Alberti, *On the Art of Building,* 33.

from the mind) and material (taken from nature). He lists the functions and duties of lineaments as "to prescribe an appropriate place, exact numbers, a proper scale and a graceful order for whole buildings and for each of their constituent parts, so that the whole form and appearance of the building may depend on the lineaments alone."[147] The lineaments precede and predetermine the form of the material building. Composing the lineaments of a building, however, requires no recourse to the material, just as transcendental philosophy precedes empirical knowledge: "It is possible to project whole forms in the mind without recourse to the material, by designating and determining a fixed orientation and conjunction for the various lines and angles. Since that is the case, let lineaments be the precise and correct outline, conceived in the mind, made up of lines and angles, and perfected in the learned intellect and imagination."[148] (Alberti, like Kant, states that both reason and imagination are required to compose the plan that precedes material construction, though imagination is far less well-defined than reason.) That Kant's references to transcendental philosophy as a plan for a whole reiterate Alberti's distinctions is made even more evident by the 1912 German translation of *On the Art of Building,* which translates "lineament" as "Risse."[149] Kant's use of the term *Risse* to describe the *Critique of Pure Reason* should be understood as a deliberate allusion to the distinction that isolates lineaments as a moment of critical reflection preceding construction. This process of raising and demolishing buildings Kant readily compares to the critical process of philosophical discussion. It readily stands as an allegory of Kant's own attempts at demonstrating metaphysical theories that he repeatedly revised. To build a cosmological argument only to have it torn down again later, either by a critic or by oneself, encapsulates the frustration of metaphysics and for Kant becomes a reason to abandon the cosmological theories of his early career. To avoid this embarrassment, Alberti recommends that the architect make drawings as well as build models before commencing, so that every detail might be examined. For Alberti, and then later Kant, the sketch becomes a means of anticipating critique and adjusting for it before one has asserted a principle or built a house. Alberti writes: "I will always commend the time-honored custom, practiced by the best builders, of preparing not only drawings and sketches but also models of wood or any other material. These will enable us to weigh up repeatedly and examine, with the advice of experts, the work as a whole and the individual dimensions of all the parts, and, before continuing any farther, to estimate the likely trouble and expense."[150] Drawing plans and building models compare to epistemology as

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147. Ibid., 7.

148. Ibid.

149. English translators of Alberti have defined "lineament" as "form" (Panofsky), "definition," "plan," and "schematic outlines" (Krautheimer); and the most recent translation renders the term as "lines," "linear characteristics," and "design." See Rykwert's notes on Alberti, *On the Art of Building,* 423.

150. Alberti, *On the Art of Building,* 33–34.

an effort to determine in advance what statements or constructions are possible, and under what conditions they will stand. The ease with which building terms represent theory only reinforces their interchangeability and the readiness to translate architectural language into philosophical.

The point that buildings are thought about before they are constructed was by no means self-evident.[151] Alberti's warning should not be patronizingly accepted as necessary only because it was given in the first architectural treatise written after antiquity. Kant's contemporary the French architectural theorist Étienne-Louis Boullée opens his essay on architecture with a strong argument that architecture is first a reflective practice, and not simply the craft of construction. He distinguishes sharply between the architect and the general contractor when he argues that building is secondary to conceiving a plan for a site: "In order to execute, it is necessary to conceive.... It is this product of the mind, this process of creation, that constitutes architecture." (Il faut concevoir pour effectuer.... C'est cette production de l'esprit, c'est cette création qui constitue l'architecture.)[152] Architectural theorists, like epistemologists, are prone to pause before making an assertion in order to test the conditions under which one can possibly make a statement (or raise a building). This preliminary investigation, which seeks to anticipate critique, is common to both disciplines, and it explains why the *Critique of Pure Reason* insists on its own status as nothing more than a plan or a sketch detailing the conditions of knowledge.

The concept of the whole as derived from architectural theory has several connotations. The architectonic arrangement of knowledge is meant to allow something akin to the perspective of an architectural model. By looking at the unity of knowledge, its purpose might better be understood, and any missing component recognized, as Kant claims. The architectonic has a further quality for Kant, namely, as an abstract level of analysis that overrides failures in the details. In his correspondence, Kant insists that critics should not only concentrate on specific arguments such as the transcendental deduction but should treat the work in its entirety. Clearly this defensive gesture no longer uses the whole in order to anticipate critique, but rather to dismiss it. The Kantian notion does not remained confined to the insight made possible by an architectural plan. Even in Alberti the concept of the integrated unity of a building does not depend only on the plan; rather, it is the plan that allows the architect to perceive the whole. Alberti's

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151. Ackerman states that in the Renaissance "the average palace and church was built from rough plans and a batch of details." Ackerman, "Architectural Practice in the Italian Renaissance," 8. He goes on to argue that, despite the impression given by architectural treatises, in actual practice buildings were designed in stages from the inside out.

152. Helen Rosenau, *Boullée and Visionary Architecture* (New York: Academy, 1976), 83; Étienne-Louis Boullée, *Architecture: Essai sur l'art,* ed. Jean-Marie Pérouse de Montclos (Paris: Hermann, 1969), 49. J.-M. Pérouse de Montclos notes (48 n. 3) that Alberti is the only classical theorist to separate conceptualization and execution so rigorously.

advice to draw the entire project first does not preclude an understanding of a unity that goes far beyond the material form of the building in its completion. The concept of the whole is likely to have had cosmological connotations for Alberti as it had for later philosophers, such as Leibniz. The main point is that the plan allows reflection upon the unity, as a material construction, and perhaps more.