PERSPECTA 46 : ERROR

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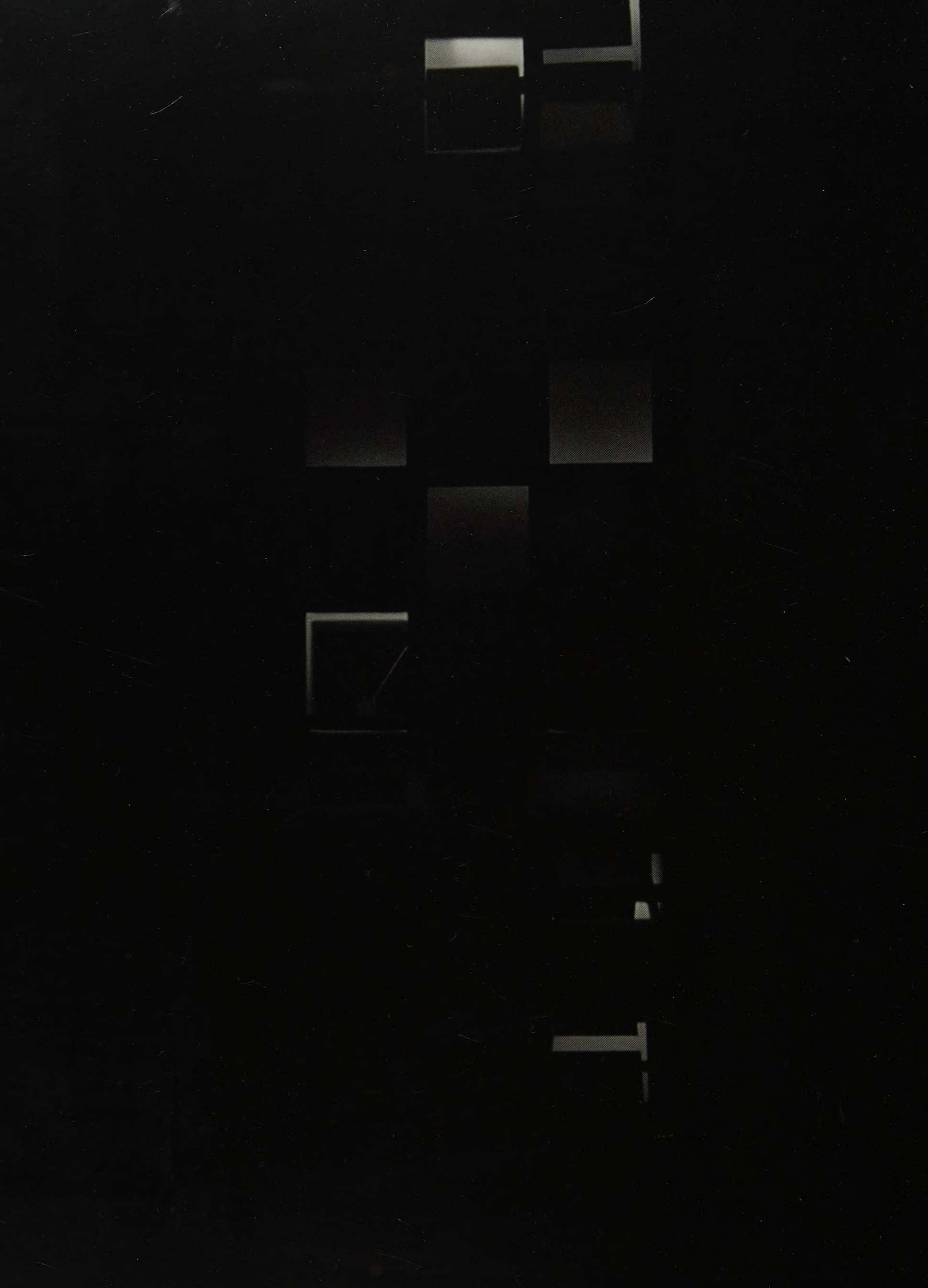
1. The sun was either setting or rising,
it was impossible to tell at that particular moment.

2. Maybe, Maybe not.



PERSPECTA

46. ERROR

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46—Error

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1...400 ALREADY HAPPENED TOMORROW BY MOS ARCHITECTS

3. He said we could solve this problem using methods more advanced than squinting and meditation [concentration], more advanced than anything we could have imagined. And, even better, someone might make a fortune doing it.

INTRODUC-
TION

JOSEPH CLARKE & EMMA JANE BLOOMFIELD

Architecture never goes entirely according to plan. While it would be impossible to build without norms—a word derived from the Latin term for a carpenter's square—it seems equally inevitable that architects deviate from those norms. Design relies on calculated predictions that rarely unfold as expected; the experience of a building can never be fully prescribed; and the discipline itself often progresses through trial and error. Neither clearly negative nor self-evidently productive, error is an architectural process ripe for investigation.

The essays and projects in *Perspecta 46* explore architects' evolving efforts to understand this process—in some cases to diagnose and mitigate it, in others to adopt it as a generative force.

The effects of error are apparent today at the planetary scale: with global systems underpinned by layers of computer code, predictability and volatility go hand in hand. The most pressing problems, such as climate change, beg questions about what our putative errors are and against what norm they should be measured (see Bryan Boyer & Justin Cook, 142). It can be hard to find a conceptual foothold when even the images we use to navigate our world are beset by technological aberrations (see Clement Valla, 160).

To imagine architectural responses to these conditions, one must account for the role of error in the design process itself (see Sean Keller, 30). This process is now increasingly mediated by algorithm and automation. Some architects respond by outsmarting existing tools (see supermanoeuvre, 290), while others make new ones that embrace indeterminacy (see Nat Chard, 360). A third approach is a strategic return to architectural convention, carefully excavating its internal rules and procedures (see Anna Neimark & Andrew Atwood, 48). Buildings that purposely venture toward error may reflect dream-like departures from modernist forms (see Rudy Ricciotti, 128) or misalignments between the past and the present (see Maison Edouard François, 328).

Such experiments are the newest manifestations of a centuries-old architectural problem. It was probably designers' self-comparison with the ideals of antiquity that first opened the door to new and potentially critical definitions of error (see Pirro Ligorio, 116). The questioning intensified as encounters with different cultures suggested alternative ethical perspectives on architecture (see Stanley Tigerman, 178). Eventually, the waning of classical metaphysics radicalized the aesthetic embrace of error. As Gotthold Ephraim Lessing wrote: "If God were to hold all Truth concealed in his right hand, and in his left only the steady and diligent drive for Truth, albeit with the proviso that I would always and forever err in the process, and offer me the choice, I would with all humility take the left hand."[1]

In the 19th century, Heinrich Wölfflin cited Lessing to explain the distinction between the self-contained perfection of ancient buildings and the more dynamic forms of Renaissance and Baroque architecture, which suggest not "a conclusion so much as...a process of becoming"[2] (see Daniel Sherer, 78). John Ruskin proposed that architectural failures and flaws were salutary characteristics of craft labor, thereby preparing the way for a critique of standardized mass production.[3] Their efforts to redeem "imperfect" aesthetics took on significance against the backdrop of industrial modernization, as technological progress depended more and more on eliminating error—or at least distributing its consequences differently (see Elihu Rubin, 302). Ulrich Beck argues that beginning in the nineteenth century, the classic problem of the social allocation of goods was overshadowed by the increasingly urgent question of how we apportion "bads," that is, vulnerabilities to error. As massive bureaucracies and new statistical methods allowed errors to be anticipated and their consequences redistributed, distinguishing what is an error from what is not became a political decision[4] (see Jason Mena, 202).

After Nietzsche and Freud swept away the religious devotion to normativity and uncovered perversions at the core of the human psyche, the possibility that error could be fundamental to human thought began to influence a range of disciplines: Dada and Surrealist artists embraced irrationality

in art and literature (see Susan Wager, 374). Philosophers of science from Gaston Bachelard to Thomas Kuhn untangled the interrelationship of error and truth in the evolution of knowledge.[5] Cyberneticists modeled self-correcting systems of communication and control (see Asli Serbest & Mona Mahall, 342).

These cultural developments met with resistance in architecture, as some modernist designers clung to utopian dreams of freedom from error (see Pruitt-Igoe, 66), a humanist rhetoric of unidirectional progress (see Angie Waller, 250), or uncritical conceptions of the institutions they served (see John Harwood, 220). Eventually, architectural avant-gardes staked out a new agenda rooted in fictions, paradoxes, and purposeful misreadings (see Aarati Kanekar, 264), leaving architects with a conceptual toolbox to inform new kinds of work. As Robert Venturi wrote, "A valid order accommodates the circumstantial contradictions of a complex reality."[6]

Looking ahead, however, architects confront a world characterized not only by multiplicity but also by interconnectedness, in which small errors can rapidly cascade to cause system-wide changes.[7] Proliferating through the pages of *Perspecta 46*, stills from MOS Architects' film *Already Happened Tomorrow* relate an architectonic odyssey in which a conversation between designers skirts the edge of nonsense. The film and its new formulation in print follow a serial logic punctuated by slips, contradictions, and temporal redirections.[8] The resulting reading experience offers lessons for operating in a world in which the desire to control error has become near-pathological, even as it often seems impossible to attribute responsibility for it.[9]

Nowhere are the pressures toward normalization more intense than in architecture itself. We believe such efforts can never fully succeed. A discipline always eager for self-understanding naturally seeks to codify error—but in the very act of doing so, finds itself once again going astray.

1 Gotthold Ephraim Lessing, *Anti-Goetze: Eine Duplik* (1778), Werke vol. 8 (H. Göpfert, 1979), 32–33.

2 Heinrich Wölfflin, "Prolegomena to a Psychology of Architecture" (1886) in *Empathy, Form and Space: Problems in German Aesthetics, 1873-1893* trans. Harry Francis Mallgrave and Eleftherios Ikonomou (Santa Monica: Getty Texts & Documents, 1994), 178.

3 "The demand for perfection is always a sign of a misunderstanding of the ends of art... No great man ever stops working till he has reached his point of failure: that is to say, his mind is always far in advance of his powers of execution, and the latter will now and then give way in trying to follow it… In all things that live there are certain irregularities and deficiencies which are not only signs of life, but sources of beauty." John Ruskin, "The Nature of Gothic" in *The Stones of Venice* vol. II (New York: Bryan, Taylor & Company, 1894),171–172.

4 Ulrich Beck, *Risk Society: Towards a New Modernity* trans. Mark Ritter (London: Sage Publications, 1992), 57–61.

5 "Ideas are invented only as correctives to the past....There is no original truth, only original error." Gaston Bachelard, *Fragments of a Poetics of Fire* ed. Suzanne Bachelard trans. Kenneth Haltman (Dallas: Dallas Institute Publications, 1990), 7.

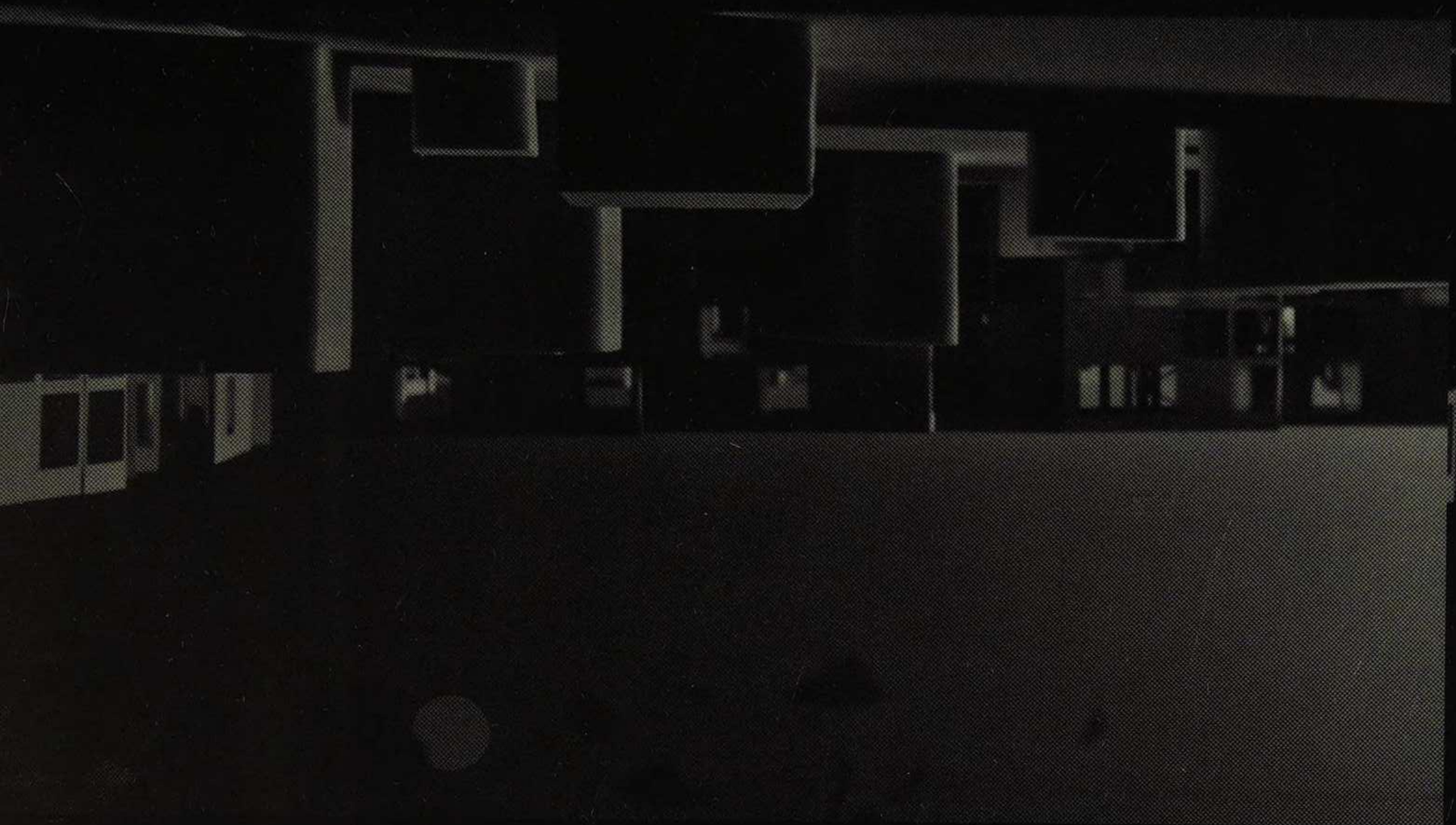
6 Robert Venturi, *Complexity and Contradiction in Architecture* (New York: Museum of Modern Art, 1966), 41. Also see Peter Eisenman's introduction to AA Publications "Box 3," *Moving Arrows, Eros and Other Errors*, reprinted in AA Files (Summer 1986), v. 12, 82.

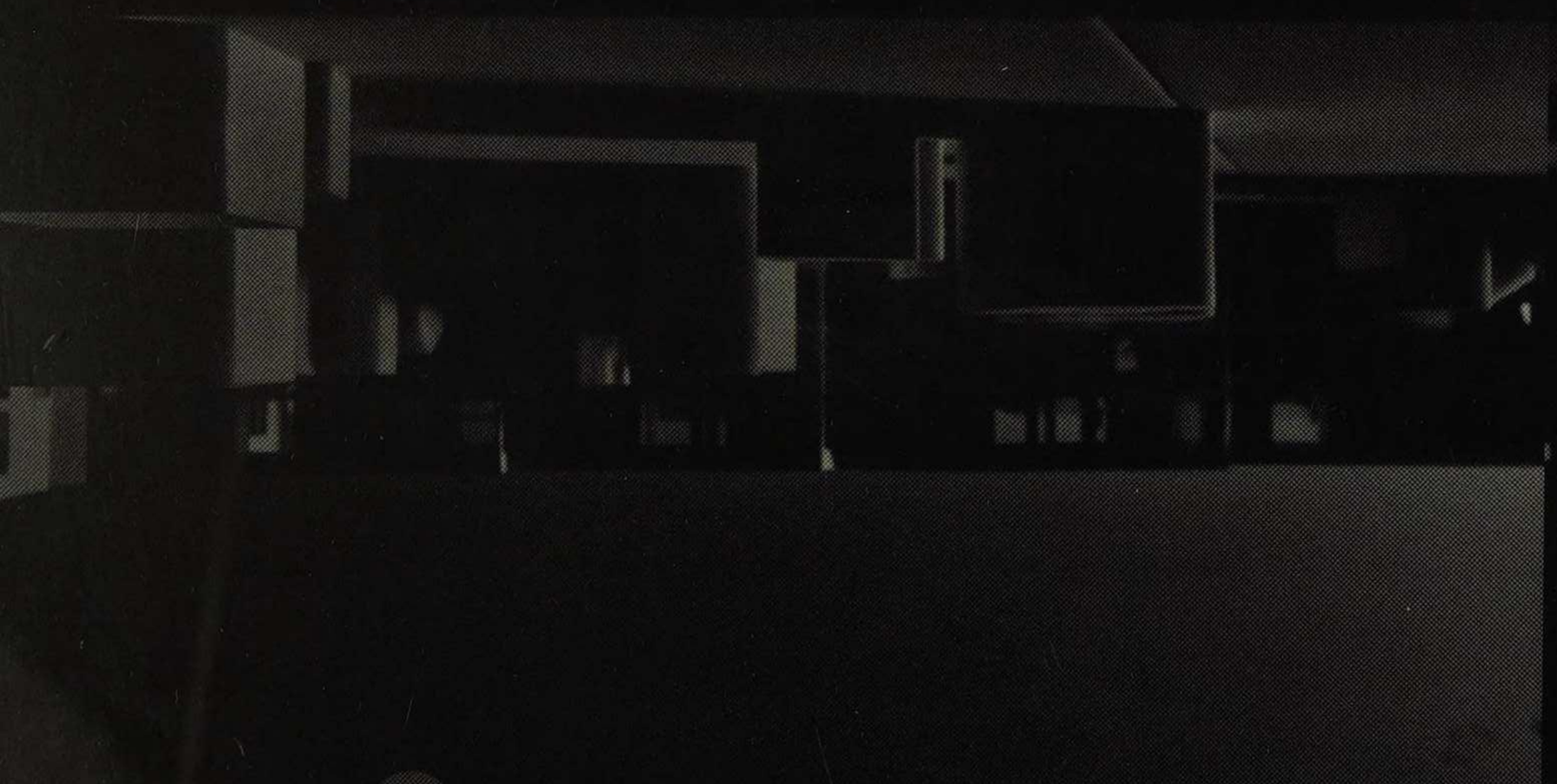
7 Edward Lorenz coined the term "butterfly effect," a classic concept of chaos theory, after Ray Bradbury's story "A Sound of Thunder," *Collier's* June 28, 1952; see Edward N. Lorenz, "Three approaches to atmospheric predictability," *Bulletin of the American Meteorological Society* v. 50 (1969), 345–349.

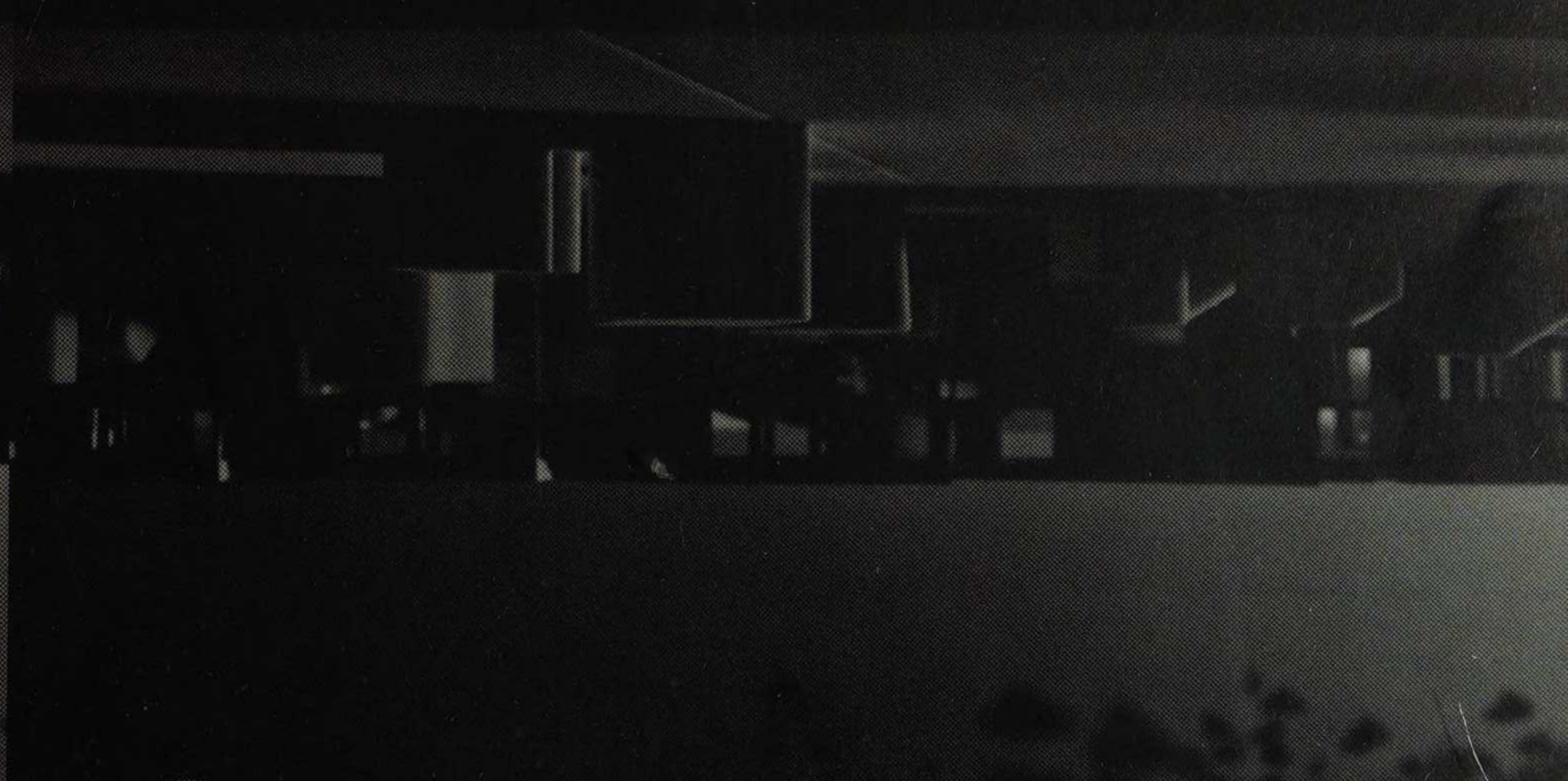
8 See Umberto Eco, "Interpreting Serials" in *The Limits of Interpretation* (Indiana University Press, 1990), 83–100.

9 Keller Easterling, *Enduring Innocence: Global Architecture and its Political Masquerades* (MIT Press, 2005), 124–127.

4. Holding a dusty wooden prism, he asked each of us to choose:
"Architecture or Revolution." Maybe it was the thick accent, or maybe it was something else entirely, but I swear he said Architecture or Resolution. ...unfortunately, we chose Architecture.







5. It has been a mess ever since. *It has always been a mess.*
All we see are ruins, encrusted with glittering static.

WAYS ABOUT ERROR

SEAN KELLER

What does it mean to talk about error in architecture? It seems simultaneously—or alternately—correct and incorrect. The phrase "architectural error" is suggestive yet unnatural. Is it an error to talk about error in architecture? Though it risks a wildly immodest comparison, I admit here to the feeling that Wittgenstein characterizes when he writes that "A philosophical problem has the form: 'I don't know my way about.'"[1] It seems that trying to understand what error could mean in architecture requires exploring the field under an unusual light, in which our concepts about architecture may appear strange and in which new concepts begin to emerge. Thinking about error in architecture requires finding our way about the conceptual terrain of both error and architecture, and this, as Wittgenstein would emphasize, will also mean finding out about the practices that construct these concepts.

1 Ludwig Wittgenstein, *Philosophical Investigations*, 3rd ed., trans. G. E. M . Anscombe (New York: Macmillan, 1953), 123.

ACCIDENTS AND MISTAKES: TWO WAYS OF SHOOTING THE WRONG DONKEY

Having begun in this roughly analytic tone, a classic of the mode suggests itself. In his essay "A Plea for Excuses," J. L. Austin offers some suggestions about the conceptual and practical terrain of errors and excuses. Tactically, Austin's approach resembles the exercise of examining architecture through error: he recommends the study of excuses as a way to understand the various forms of failure that can occur in acting. By looking at the many ways actions can fail—practically, aesthetically, morally—Austin hopes to reveal the typically overlooked complexities of actions, as well as the fact that there are these complexities, that actions are not simple or unitary or consistent. Thinking about error seems to provide a similar opportunity to reveal the complexities that constitute architecture.

In a well-known and characteristic footnote, Austin makes a distinction that bears directly on the theme of error: he suggests that although we may often use the words "accident" and "mistake" indifferently, there is in fact a fairly clear distinction between them, with which nearly everyone would nearly always agree. He uses a bizarre but compact story to tease out the difference, one that can hardly be paraphrased:

> You have a donkey, so have I, and they graze in the same field. The day comes when I conceive a dislike for mine. I go to shoot it, draw a bead on it, fire: the brute falls in its tracks. I inspect the victim, and find to my horror that it is your donkey. I appear on your doorstep with the remains and say—what? "I say, old sport, I'm awfully sorry, &c., I've shot your donkey by accident"? Or "by mistake"? Then again, I go to shoot my donkey as before, draw a bead on it, fire—but as I do so, the beasts move, and to my horror yours falls. Again the scene on the doorstep—what do I say? "By mistake"? Or "by accident"?[2]

Following this model we could ask ourselves what an architectural mistake would be and what would be an architectural accident. The latter seems like a relatively clear but theoretically uninspiring category (although practically perhaps costly, even deadly): steel of one type is specified but steel of another is used; the construction documents show an atypical detail but the drawings are misread; a glass coating does not perform as predicted and the interior over-heats; etc. Building practices are generally arranged to catch these sorts of technical accidents in which the goal, the target, is in itself accepted, but the execution fails for reasons outside of the architect's control. (While these are accidents from the point of view of the architect, it will usually be a mistake, or a dishonesty, by another party that results in the failure.)

Architectural mistakes are both more common and more interesting. Here the execution is correct—the architects get what they aim at—but their target somehow turns out to be not what they thought it was (they were

aiming at the wrong donkey all along). Nearly all architectural failures fall into this category, at a range of scales: the room should be brightly sunlit—it is a blinding hothouse; the galleries should be exceedingly spare—they come across as flimsy and banal; the plaza should be a serene abstract landscape—it is an uninhabitable wasteland; etc. Architectural mistakes, in this sense, are difficult to avoid because it is difficult or impossible in these cases to apply the sort of checking, or control, in the process of execution that would to prevent architectural accidents. Often it is only possible to recognize them after the fact: we must go out and "inspect the victim" to determine if we have in fact hit our target.

Austin gives us some guidance for thinking about mistakes in this sense, which he describes as failures "at the stage of appreciation of the situation":

> ...we can know the facts and yet look at them mistakenly or perversely, or not fully realize or appreciate something, or even be under a total misconception. Many expressions of excuse indicate failure at this particularly tricky stage: even thoughtlessness, inconsiderateness, lack of imagination, are perhaps less matters of failure in intelligence or planning than might be supposed, and more matters of failure to appreciate the situation.[3]

This analysis builds on Austin's observation—which he sees as one of the chief discoveries of his investigation—that actions are not simple, unitary phenomena. Instead, they are in themselves complex and multipart. This "machinery of action," as he calls it, is revealed by the points at which, and ways in which, actions fail. He suggests that we need to recognize the various stages, stretches, and phases out of which an action may be constituted—stages such as intelligence, planning, decision, resolve, appreciation, and execution (he emphasizes that his description is incomplete). Certainly for any "action" at the scale of architecture—extended as it must be over a wide range of time, space, and actors—we must recognize these sorts of subdivisions if we are to have any hope of identifying where something has gone wrong. Austin's calling out of failures at the stage of appreciation seems especially applicable to architectural failures, where there is nearly always an (over?) abundance of planning, and a broad assembly of intelligence (of the wrong sort?), and yet still, so often, a "failure to appreciate the situation." One could say that this is a failure of judgment, but of an especially tricky variety: a failure to judge well in advance what should be done in a given situation. Recognizing this also reveals the difficulty of avoiding such failures, since all the intelligence and care in the world can be undone by a misappreciation, a failure of sympathy to the situation that may only be revealed after all is done.

(But not all is said. This is where criticism in its unenviably *post facto* status enters. Austin's comments should serve as a caution to critics:

2 J. L. Austin, "A Plea for Excuses" (1956), in *Philosophical Papers*, 3rd ed., Oxford: Oxford University Press, 1979), 185.

3 *Ibid.*, 194.

perhaps some architectural failures are impossible to foresee; and as a caution to critics of critics: there may not be ill will behind the critic's observations, but merely the situational clarity that observing the completed act affords. Of course, a project can also be poorly imagined, out of pernicious principles, with careless execution; and criticism can also be shallow, partisan, or simply nasty; but both of these conditions may be less common than they seem. Instead, the distance between the two judgments may more often be an effect of the structural influences pointed to here.)

STRAYING INTO ERROR

If we follow Austin's suggestion that it is illuminating to work out distinctions between seemingly similar concepts such as accident and mistake, how can we delineate error? Austin himself gives us a clue:

> ...a word never—well, hardly ever—shakes off its etymology and its formation. In spite of all changes in and extensions of and additions to its meanings, and indeed rather pervading and governing these, there will still persist the old idea. In an accident something befalls: by mistake you take the wrong one: in error you stray...[4]

Austin is reminding us that the Latin precursor to our word error meant "to wander" or "to stray"—a sense that still clings to the adjective "errant"—and that when we use error to describe our actions, we still mean that the action strays from some norm (moral, intellectual, aesthetic, customary, procedural, etc.).

There are, of course, many ways of deviating from a norm besides committing an error—flouting, resisting, subverting, perverting, mocking, exaggerating, etc. Speaking strictly we would have to say that error denotes only unintentional deviation. This presents serious difficulties for any attempt to use error programmatically as a stimulus in architectural practice. How, we might ask, could I set out to err? Just by "setting out" must I not be doing something else? The bizarre, but logical, consequence would seem to be that if I set out to err I succeed only if nothing goes wrong, only if I inadvertently fail to fail. Much of the discussion that follows will be colored by this contradictory—and, taken strictly, incorrect—notion of intentional error; but, if we are interested in error as a programmatic strategy, it is a contradiction we will have to tolerate (it is also one that seems close to the heart of modernist aesthetics). As a matter of architectural practice, the issue will be how to intentionally construct situations and ways of working that encourage errant acts—often through the use of some form of automatism that, in part, neutralizes the original intentionality.

Thinking of error as straying highlights another peculiarity of error in architecture. As much as it is an art, architecture itself often has been defined as straying, as deviation, from the normal expectations of building:

> Le Corbusier once defined architecture as having to do with a window which is either too large or too small, but never the right size. When it is the right size, the building is merely a building.[5]

This suggests that, in some sense, architecture is not something that we err from but something that we err into. Yet in this view, based ultimately on a Romantic notion of artistic genius, not all straying leads to architecture, but only straying that discovers something, that comes to be recognized as significant, and that succeeds in establishing new norms (here is one definition of the avant-garde). If for genius there can be no error, we strike another paradox: in the most significant architectural examples, talk about error has little meaning.

There would seem to be two sources for the norms ("the right size") against which architecture is defined: conventional building (*Baukunst*) and the historical precedents of architecture itself. Peter Eisenman has elaborated on the role of the latter in his argument that architecture is defined as a sequence of misreadings or dislocations of previously established norms.[6] In this view architecture separates itself both from (mere) building and from previous examples of architecture by straying from the norms they have established.

Here contemporary architecture encounters a problem: while the norms—financial, technical, programmatic—of conventional building may press increasingly on us, the historical trajectory has fragmented almost completely, making it difficult to identify any norm against which error could be meaningfully defined. While Eisenman could read the history of architecture as a chain of (intentional) misreadings of established norms, and could then see his own practice as a continuation of this chain—foremost as a productive misreading of Le Corbusier and Giuseppe Terragni—it seems difficult to imagine working today with such a strong sense of a lineage from which one could stray. (Eisenman, though, is himself perhaps the foremost representative of such a lineage, his early work functioning as the norm from which figures such as Greg Lynn, Preston Scott Cohen, and Jessie Reiser have strayed. Still, he is an individual, not an entire movement or style.)

TAKING CHANCES, BECOMING ERROR-PRONE

Already decades ago, thinking about other arts, Stanley Cavell—who, not incidentally, was "knocked off his horse" by Austin's discussion of excuses—identified the lack of a coherent tradition as the problematic of modernism:

> What modernist painting [for example] proves is that we do not know a priori what painting has to do or be faithful to in order to remain painting... a modernist art seems to break down the

4 Austin, "A Plea for Excuses," 201–2.

5 "Discord Over Harmony in Architecture: The Eisenman/Alexander Debate," *Harvard Graduate School of Design News* 2, no. 5 (1983), 15.

6 See Peter Eisenman, "Misreading Peter Eisenman," in *Houses of Cards* (New York: Oxford University Press, 1987).

> concept of genre altogether: what a painter or poet or composer has to achieve in his painting or poetry or music is not a landscape or sonnet or fugue, but the idea of his art as such.[7]

With the loss of traditional forms, each artist becomes responsible for establishing the coherence of his/her work through a set of concepts and methods. Given this condition, the modernist artistic process—as Cavell outlines more precisely in regard to music—comes to be defined between the poles of systemization and chance.[8] On one side is the risk of "total organization," demonstrated by the compositions of Karlheinz Stockhausen and the theory of Ernst Krenek, where artistic responsibility is displaced by an empty formal system. On the other side is the "radical ceding" of artistic control, and even the dissolution of art itself, proposed by John Cage's chance operations. While both extremes themselves have substantial relationships to error that I will address below, I want to focus first on Cavell's argument that art, in order to remain art, must not collapse into either of these absolutes, but must run between them, offering both recognizable coherence and the possibility of improvisation, of discovery, or what he calls "the taking and seizing of chances."[9]

Although etymology might suggest that such improvisation is related to error through a sense of wandering, this would be a poor interpretation of improvisation, which, as Cavell's phrasing suggests, should be understood not as aimless straying but as an active "seizing" of opportunities provided by artistic structures. What is crucial to improvisation is that nothing can guarantee the success of the chances taken. Precisely because improvisation breaks from, extends, or distorts the system in which it is embedded, it is aesthetically risky. Which is to say that improvisation requires the potential for error. For Cavell, this possibility of error defines a humanist modernism that is constantly at risk of collapsing into the meaninglessness of either total systemization or total chance. Here it is not erring itself, but the chance of erring, that is human.

While improvisation preserves a realm of human meaning for Cavell, this is not by means of some naïve artistic expressionism. Instead, the chances that meaningful improvisation seizes are made possible, and made significant, by external structures or modes. In the past this semi-automatic role would have been played by established forms, for example, the musical conventions of the fugue, the minuet, the sonata, etc., which told the composer or performer what was expected. Cavell suggests that in the modern condition, the artist must both construct a system of practice that offers similar direction—what he calls an automatism—and then, compelled into unexpected terrain by the system, take chances that carry the risk of error. In this model, a successful automatism must provide enough structure to make artistic improvisations meaningful and not merely arbitrary, but must also leave enough room that significant choice is possible: the automatism must not be entirely automatic.

Broadly speaking, Cavell's model of artistic process remains a common one for critical practices, as each artist or architect is expected to

locate, explore, and extend his or her own set of concerns and working methods, and as judgments of quality are based on the depth of this exploration (this model is especially prevalent in schools of art and architecture). Yet, while the heroically struggling humanism of this vision is undeniably attractive, we must also ask whether it is not merely nostalgic. Or, at least, we must ask whether Cavell's model of automatism/improvisation, and particularly the scale of this improvisation, have not been overtaken by the cultural context in which they operate. In what follows, I want to examine other options for artistic processes that operate near the poles of Cavell's model: systematization and chance. While these options emerged in the "lighter" arts of music, painting, sculpture, and film already before, or at, the time of Cavell's work on automatism in the late 1960s, they have only recently taken an important role in architecture as computational modeling and the aesthetic possibilities it allows become truly pervasive.

ERROR TRAPPING

With the expansion of computation in the decades since the essays by Austin and Cavell, another way of thinking about error and its relation to the automatic has become unavoidable. At the most obvious level, computation is related to the tendency Cavell identified as "total organization," and it is not surprising that a figure like Stockhausen was an early explorer of the possibilities of computational methods in the arts. Following Cavell, we could say that in various ways—from the value-engineering fantasies of BIM to the formalized design processes of parametricism—contemporary architecture is shaped by strategies of "total organization" (and in this regard unknowingly replicates the problematics of mid-20th-century music, and later painting and sculpture). Questions about error would seem to be particularly pressing for practices that emphasize formalized design processes, since any formalization depends upon the definition of a boundary between what is legitimate to a process and what is not, between what is within a system and what is external to it, between what is correct and what is erroneous. Contemplation of error may suggest the limitations of, and alternatives to, such formalized design processes.

Within this context of pervasive computation—just as important in its shaping of thought as in its actual application—the desire to use error as a strategy of resistance is understandable. Svetlana Boym expresses a representative view:

> To err is human....In advanced technological lingo, the space of humanity itself is relegated to the margin of error. Technology, we are told, is wholly trustworthy, were it not for the human factor. We seem to have come full circle: to be human means to err. Yet, this margin of error is our margin of freedom. It is a choice beyond the multiple choices programmed for us, an interaction excluded

7 Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film*, enlarged ed. (Cambridge, MA: Harvard University Press, 1979), 106. Cavell's remark about Austin is from Stanley Cavell, *The Claim of Reason: Wittgenstein, Skepticism, Morality, and Tragedy* (New York: Oxford University Press, 1979), xv.

8 See Stanley Cavell, "Music Discomposed" (1967), in *Must We Mean What We Say? A Book of Essays*, updated ed. (Cambridge: Cambridge University Press, 2002).

9 *Ibid.*, 198.

> from computerized interactivity. The error is a chance encounter between us and the machines in which we surprise each other.[10]

In architectural terms we can imagine Boym's attitude applied to the potentially strangling totalities of both parametricism and global capitalism: error expressing a recalcitrant desire to be *in corpere* and unincorporated.

At first reading, Boym's description of error as a "margin" of humanity seems to repeat Cavell's model of resisting total organization through a humanism of improvisation. However, this impression conceals a more important distinction. Cavell's concerns were always with the (over) organization of aesthetic material and the artistic process, not with technological organization per se (although technology might play a role in the aesthetic organization). The sort of chances he believed needed to be seized were always chances within modes of practice that were more than merely technological forms. It is for this reason that Cavell used the term "automatism" to describe these modes, and it is this conviction that continues in Rosalind Krauss's extension of Cavell's thinking to what she calls the post-medium condition. In contrast, Boym—as well as much contemporary "glitch" art—expresses a view in which the human is almost completely reduced by its definition solely as that which is not (yet) technology. "To be human means to err" (against technology) is the motto of a world in which the aesthetic and moral chances that Cavell sought to preserve have already been lost. In this sense, a world in which error is defined as technological failure has lost the possibility of error as a human failure. The unnoticed consequence is that erring no longer marks humanity, but merely a moment of failure in an already complete technological organization. We have here no sense of error as straying but only error as failure.

SINGLE MINDEDNESS: SYSTEMS OF ERROR

Against Boym's advocacy of the spontaneous glitch, we might consider the effectiveness of systems themselves (of the right sort) as tools of resistance, as generators of error. Or, to return to Cavell's framework, we could say that some forms of "total organization" offer their own, perhaps largely negative, potential for aesthetic expression—though admittedly this may lack the full humanist range that Cavell hopes to preserve. We should recall that the various minimalisms of music (preeminently those of Steve Reich and Terry Riley) and the visual arts that emerged at the time of Cavell's essay were concentrated on just this potential.

The early work of Sol LeWitt provides the strongest example of this approach in the visual arts. As Krauss has argued, projects such as LeWitt's *122 Variations of Incomplete Open Cubes* (1974) should be understood as undermining the "false and pious rationality" of mathematical systems through an "absurdist Nominalism" that insists on a stubbornly literal execution of meaningless systems.[11] LeWitt exposes the emptiness of systems by pursuing them single-mindedly (and in the wrong context). As he famously

put it, "Irrational thoughts should be followed absolutely and logically."[12] As an artistic strategy, LeWitt's approach offers a partial answer to the dilemma of intentional error by refusing to offer any positive alternative direction. It works through another mode of erring: not straying but halting, suspending, idling, or repeating.

In an architectural context, the disruptive potential of strict formal systems—and their ability to generate errors—was a characteristic that Eisenman identified over the course of his first houses. What became clear in the development from House I to House VI was that the more complete—the more total—the formal "logic" of the houses, the more they were alienated from the norms surrounding the idea of a house. Within the conventional architectural atmosphere of compromise and comfort, a project that was systematic at the level of form could be used to generate errors at the level of use and reception. It is a mark of post-criticality that most of the computational descendants of these projects have, consciously or not, neglected the confrontational dimension of Eisenman's formalism. When compared with the ruthlessness of LeWitt's work, though, even Eisenman's houses are surprisingly accommodating—kitchens and baths wedged into their formalism—another sign of the challenge of producing error in architecture.

INDETERMINATE TECHNIQUES, OR, ERRING AWAY FROM ERROR

> The thing
> to do is to keep the head alert but
> empty. Things come to pass, arising
> and disappearing. There can then be no
> consideration of error. Things are always going
> wrong.[13]

suitcase events, baththtub events, gallery events, outdoor events, refrigerator events, bumping-into-something. "Art is not the most precious manifestation of life. Art has not the celestial and universal value that people like to attribute to it. Life is far more interesting" (Tristan Tzara) cowbird. blackcap. bluebird. reedbird. stork. All emotions allowable, even boredom. "Nature creates all beings without erring....It is calm and still....It tolerates all creatures equally....Therefore it attains what is right for all without artifice or special intentions. Man achieves the height of wisdom when all that he does is as self-evident as what nature does." (The I-Ching, or Book of Changes) ebony. deodar. lime. savin. elm. pine. larch.[14]

10 Svetlana Boym, *Architecture of the Off-Modern* (New York: Buell Center and Princeton Architectural Press, 2008), 73.

11 Rosalind Krauss, "LeWitt in Progress," *October* 6 (Fall 1978), 46–60.

12 Sol LeWitt, "Sentences on Conceptual Art," *Art-Language* 1/1 (May 1969).

13 John Cage, "45' for a Speaker" (1954), *in Silence: Lectures and Writings by John Cage* (Middletown, CT: Wesleyan University Press, 1961), 187.

14 George Brecht, "Paragraphs, Quotations, and Lists" (dated Spring 1961), in La Monte Young, ed., *Anthology of Chance Operations*, 1963.

If, in contrast to the systemic approach of LeWitt, we are interested in architectural methods that resist total organization (whether financial, technical, or formal)—and if Boym's leveraging of error seems to give away too much from the start—it may be useful to return to the second pole identified by Cavell in his mapping of the modernist condition: that of chance. (Though, as we will see, the two poles of total organization and chance are closely related and in some cases collapse into one another.)" For Cavell improvisation, by running between total organization and chance, preserves the possibility of meaningful choice—and therefore of meaning itself. Chance, however, offers its own, albeit non-humanist, opposition to total organization. If Cavell's advocacy of a modernist humanism now strikes us with a somewhat nostalgic tone, chance may yet be an option left open, one in which total organization is resisted not by error but by the vicissitudes of happenstance.

At least since Dada, chance methods have played a key role in other artistic fields, especially music; but because ideas of purpose and intention are so central to our conceptions of architecture—to the sense of architecture's "weightiness"—aleatory methods of composition, such as those explored by John Cage, which seek to escape intention and purpose, raise profound challenges. (Here again, we echo themes voiced by Eisenman more than four decades ago in his advocacy of post-functionalism.) Still, if now in the latest stage of late capitalism, fully human purposes are increasingly difficult to come by, and are continually replaced by the empty purposes of total organization, it may be worth speculating on the possibility of deploying indeterminate methods in architecture.

Or, to be precise, we would have to say something more neutral like "building" since, as Cavell notes, indeterminate methods inherently threaten the very categories of art that are used to define something like "architecture":

> In the writing of John Cage, chance is explicitly meant to replace traditional notions of art and composition; the radical ceding of the composer's control of his material is seen to provide a profounder freedom and perception than mere art, for all its searches, had found.
>
> That his work is performed as music—rather than a kind of paratheater or parareligious exercise—is only a sign of the confusions of the age.[15]

The success of any such methods would therefore involve setting aside architecture as we know it—as well as setting aside the possibility of erring against architectural ideals and purposes. I say "setting aside" rather than "replacing" because I do not completely share Cavell's view that Cage's works, for example, should be understood as something other than music. Instead, it seems better to say that, though they often claim this, they are best understood as an active dissolving of the category "music" that necessarily depends on the original referent. By extension, indeterminate design methods

would dissolve conventions of architectural purpose and authorship without entirely abandoning those references. Which is to say that it would be a continual building away from architecture. In order to imagine how such methods might be used within, and against, archi-tecture, it will help to keep in mind that Cage himself approached indeterminacy through several paths.

The first approach involves leaving the artistic work open, to greater or lesser extent, to the decisions and actions of people other than the author. Exemplified in Cage's oeuvre by pieces such as the *Variations* series (1958-67), *0'00"* (1962), and *Musicircus* (1967), such works dilate the conditions that lie outside of the composer's control—always factors in the performance or reproduction of music and convert these conditions into a compositional device intended to (partially) de-author the work. In our discipline we can find parallels in a range of approaches that motivate building through the choices and actions of non-experts. In the West, the earliest formalized example of this attitude may be John Ruskin's theory of the Gothic, which he champions over stricter modes, such as classicism, because it allows individual builders a space of freedom in their work—meaning that in Gothic architecture the final form is not completely determined in advance. (Despite their historical separation, one can recognize a parallel between Ruskin's concern to preserve the human in the midst of expanding industrial systemization and Cage's similar concerns at the time of that systemization's fulfillment.)

We could include here a wide range of post-1968 practices: the championing of vernacular building ("Architecture Without Architects"), less and more cynical community design processes, the design of open infrastructural supports, and the deadpan pseudo-empiricist designs of Office for Metropolitan Architecture and many others working in a "Dutch" mode. Indeed, OMA's proposal for the La Villette competition can be seen as a paradigmatic example—both looking like one of Cage's transparency works and, more importantly, functioning like one, as the La Villette proposal is, in fact, not a collage in the traditional sense, but an open structure for the deployment of programs yet to be determined.

All of these approaches, with differing levels of control, use compositional strategies already probed in music in which the work is determined by the actions of users or performers other than the composer. Whether the result is "natural," authentically democratic, or simply a brutal reflection of late capitalist subjectivity, largely depends on one's faith in the public.[16] In any event the category of error is dissolved by a compositional method that not only tolerates, but is built upon, a range of "user errors" to generate the work. Again Ruskin stands as the forefather of this attitude: for him the strict perfectionism of classicism was erroneous in its denial of human variation and imperfection, while the Gothic was correct in being formed out of this very imperfection. (In this light OMA's self-consciously unartful details—for example, the exposed taping of greenboard—stand as a post-humanist parallel to Ruskin's personalized gothic stonework.)

15 Cavell, "Music Discomposed," 194–6.

16 Cage himself saw a risk in opening his pieces to performers who, potentially not being free from oppressive musical and social presumptions themselves, might undermine the very freedom he hoped to achieve. It was in the face of these concerns that he claimed that—contrary to any superficial indifference to performance that his works might suggest—there were, in fact, only a small number of musicians (foremost David Tudor) mature enough to handle the freedom his works provided.

A second major strategy for Cage, which I will refer to as aleatory composition, can be seen as a response to the risks of performer-based indeterminacy. As exemplified by Cage's famous piece *Music of Changes*, aleatory composition uses chance devices of some sort—rolling dice, flipping coins, shuffling cards, dropping sticks—to generate a fixed score. In the spirit of Austin, a bit of terminological refinement between the terms "aleatory" and "arbitrary" is helpful here. While works that rely on user/performer choice are structured around decisions that are arbitrary—that is, based on the whims and prejudices of the individual(s)—aleatory works use chance devices to avoid the arbitrary, to remove (aspects of) the work from direct human control. One consequence of this shift away from subjectivity, as Cage and George Brecht remind us above, is to dissolve the category of error, since error exists only as the other of purpose, of intentionality, and ultimately of free will.

Nature becomes the paradigm of this aleatory condition in which, apart from the human will, there is no error. While architecture has often turned to nature as its model, and while the growth of computational design methods has encouraged a new phase of such analogies, these have overwhelmingly tended to see nature as a model of lawfulness, rather than contingency. (Here we bump up against a dilemma that has troubled Western thought at least since Kant: on the one hand, nature appears to be entirely contingent; on the other, it appears to be entirely lawful.) Thus, despite any radical appearances, computational methods modeled on nature have typically maintained architects' traditional desire to isolate and control the design process through a set of codes.

In contrast, the interpretation of nature as entirely contingent suggests design processes that, rather than being internalized, would, like Cage's compositions, open themselves to the widest possible range of external contingencies. Such processes represent a profound challenge to our understanding of architecture: can we imagine building in such a way that, as Cage put it, "there can be no consideration of error"? One limited way in which such processes do appear today is in computationally-based design methods that rely on stochastic determinations of geometry. (While hypothetically such methods have always been available, the possibility of generating architectural representations directly out of algorithms that can include stochastic functions has made such methods feasible only recently.) Typically these methods are applied to relatively independent portions of a building, such as exterior or interior cladding, but one can sense a desire to push their effects "deeper" into the structuring of spaces and even the structuring of structures: for example in the failed ambition of Herzog & de Meuron's Beijing Olympic Stadium to work structurally as a non-hierarchical "bird's nest."

Given the irrevocable presence of computational tools, such recent efforts, however incomplete, are not mere curiosities. They are surveying possibilities that will now remain within the architectural repertoire, possibilities that—at least for architecture—involve a new set of concerns about how chance and control are managed, defined, and shaped. What Cage's oeuvre suggests is the range of levels at which chance methods might be applied, and

here architects still have much left to attempt. What if not only geometry were determined through bounded chance-based methods, but materiality, color, structure, spatial organization, detailing, etc.?

Yet what Cage's compositions also reveal is that, for us, chance is never simply natural. If he suggested that his works were like nature, they were still always like nature, and not nature itself: carefully carefree Zen gardens of sound that represent nature. It is this boundary that Cage's third, and most radical strategy—epitomized by his famous piece *4'33"*—attempts to dissolve. I suggest that we understand this work, in which the performer performs nothing, through the concept of "framing." Here the only work of the work is to frame (through the opening and closing of the keyboard lid) a period of time within which ambient sounds may come to the attention of the audience and the performer. It is here that—by creating a work of art comprised only of the sounds of what is not art—Cage goes the furthest in his long quest to overcome the distinction between music and sound, art and life. Still, even in its complete withdrawal from composition, it is important to note that framing, too, requires discipline, restraint. Despite its great openness, there are still things that should not happen in a work like *4'33"*: the performer should not suddenly begin to play a Bach fugue and the audience should not start whistling *Dixie*. Also, the attentiveness that the piece directs towards the environment is itself the product of the very disciplinary conventions of musical performance that *4'33"* overturns.

Through its near-total erasure of the distinction between the artwork and the world, Cage's technique of framing also does away with the boundary between music (or sound) and architecture (or building) since one revelation that occurs within the acoustic frame is a heightened awareness of the spatial environment within which the work takes place. Cage understood architecture, or what he valued in it, precisely in terms of such framing. As Branden Joseph has discussed in an illuminating essay, Cage explicitly aligned his compositions with the glass architecture of modernism, particularly the American works of Ludwig Mies van der Rohe, which, like *4'33"*, reduce themselves to the framing and reflection of their contexts (recall Mies's famous desire to create an architecture of *beinahe nichts*—almost nothing).[17] Cage believed that the framings provided by his compositions, and by Mies's architecture, offered experiences of the world in its full contingency, outside of, or prior to, the determinations of the ego and, therefore, free from the narrow limitations of late capitalist rationality. As such—and to return to our theme—these experiences shift perception so that truly "experimental action" becomes possible, action which, Cage writes, "does not move in terms of approximations and errors, as 'informed' action by its nature must, for no mental images of what would happen were set up beforehand; it sees things directly as they are: impermanently involved in an infinite play of interpenetrations."[18]

In Cage's Mies we discover an architectural aesthetic explicitly interpreted as an escape from error and from all of the purposes, whether

17 Branden W. Joseph, "John Cage and the Architecture of Silence," *October* 81 (Summer, 1997), 84.

18 John Cage, "Experimental Music: Doctrine" (1955), *in Silence: Lectures and Writings by John Cage* (Middletown, CT: Wesleyan University Press, 1961), 15.

humanist or techno-capitalist, by which error is defined. Yet two doubts about this escape plan quickly arise. First, there is the moral taught by the legacy of Miesian modernism, in which any distinction between a critical reflection of postwar technocapitalism and a non-critical embodiment of this condition becomes an "academic" issue in the most strained sense. Such an absence of stable critical distance is a consequence of the quietism of Cage's aesthetics—and more surely those of Mies, who literally stilled the Bauhaus—a lack of political autonomy which was subject to attack by Theodor Adorno and which can be defended only in part (on this point, Joseph does as well as one can). A second difficulty comes from the distinction, despite Cage's wish to collapse it, between architecture and music (or even building and sound). For while a piece like *4'33"* may be understood as standing open to allow "the world" to enter, and while similarly Cage admired the ability of glass both to open onto and to reflect "the world" around it, this deferral of positive compositional activity cannot continue indefinitely—at least not for architecture, which is responsible for the construction of that world. Here again the example of Miesian urbanism is revealing: in the absence of an articulated politics, the supposedly critical reflections of the Seagram Building were metastasized by the unchecked desires of property developers to become the totalizing glass urbanism of late capitalism.

With these doubts in mind, we can speculate on a final form of indeterminate architecture through a conception of framing that offers greater autonomy while maintaining the openness and purposeful purposelessness Cage sought. I am thinking here of Jacques Derrida's description of the *parergon*, in which framing is inextricably entangled with cutting.[19] Unlike Cage, who values the continuities made possible by the reflections and transparencies of glass, Derrida emphasizes the frame's performance of a separation, a cutting, between that which is framed and the fabric of the world. And it is in the violence of this cutting that we can see the potential of a negative autonomy that—without any nostalgic humanism—might offer greater resistance than Cage's all-encompassing Zen acceptance.

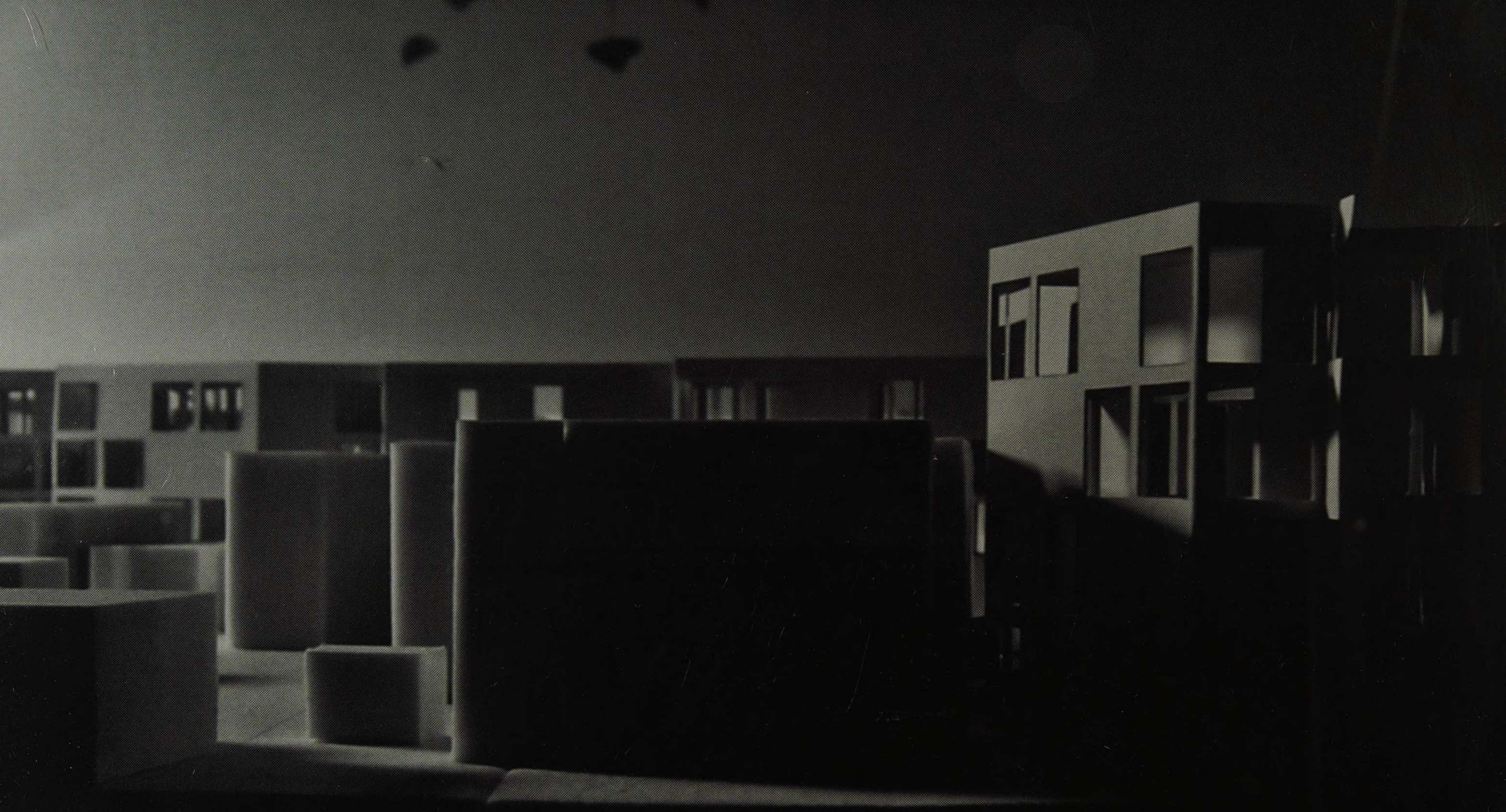
Though risking the overly literal, a work such as Gordon Matta-Clark's *Conical Intersect* (1975) suggests itself as an architectural version of such framing. By cutting the urban fabric of the 4th *arrondissement*, Matta-Clark's work exposes to our attention what was there already but, in contrast to *4'33"*, it does so with an autonomy of means that works against the grain of the existing condition to reveal more than its surfaces. Likewise, though inverting both the context and the formal means, we can see a similar operation at work in the landscape sculptures of Richard Serra such as *Schunnemunk Fork* (1991), in which the regularity of the steel forms cut, and thereby reveal, the topography in which they are placed. Or, more dramat-ically, Walter De Maria's *Lightning Field* (1977), which registers not only a more subtle landscape over a larger expanse, but also, day after day, takes its chances on the fulfillment of its title. It stands as a model of an aleatory but autonomous architecture, one that frames every happenstance without surrendering itself, and one that errs only against conventions that would ask it to have more than this as a purpose.

SCALES OF ERROR

How far have we strayed from error? Has this discussion of indeterminate techniques led us away from error, from purposes, from architecture? Yes and no—it is a question of scale. Where a model of artistic production such as Cavell's locates improvisation, and therefore erring, at the scale of individual choices (the taking of chances) within a system of conventions, indeterminate methods nullify such choices, as well as the possibility of erring at this scale. Yet as the examples above suggest, indeterminate techniques themselves always err at least once—all at once—in the rejection of purposive agency that is their origin. It is in this sense that indeterminate methods and LeWitt's single-mindedness are alike, following absolutely their initiating "irrational thoughts." The scale of indeterminacy's erring is particularly clear if we imagine going beyond music or drawing to apply such techniques to architecture. To do so would entail violating all conventions of good design based on the architect's ability to skillfully fulfill a purpose. Because of this shift in scale, it is possible to see indeterminacy as an erring against error itself, as a rejection of individual artistic choices and errors as meaningful (it is this rejection that gives indeterminacy a post-humanist valence).

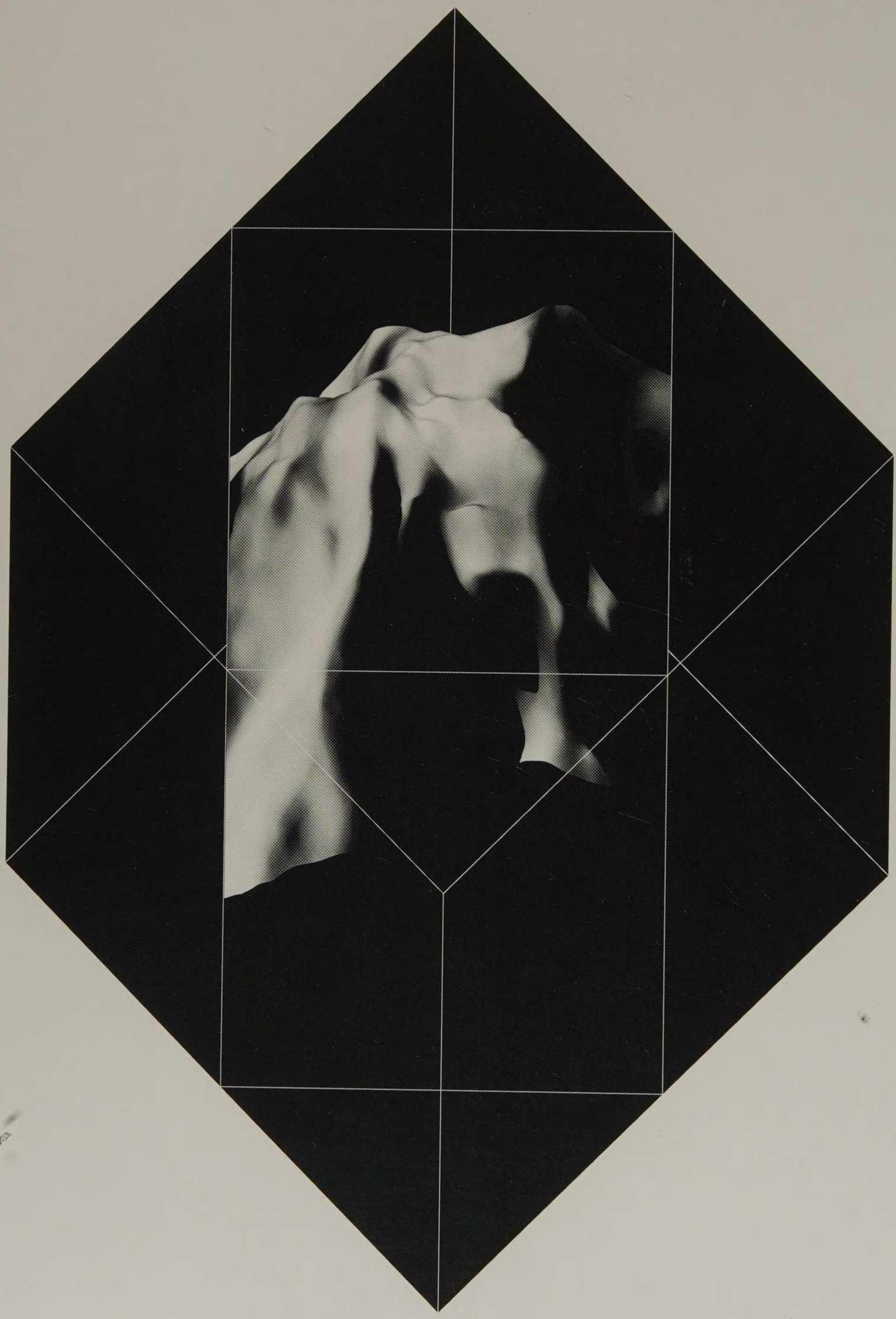
As the social conventions of building programs become ever less stable, and as computational tools make complex and stochastic variation technically manageable, indeterminate techniques, and the scale of erring associated with them, may at last have an important role to play in architecture. Given our topic it is not surprising that we have not arrived at a singular destination, but have instead wandered into a wide terrain of strategies for generating architectural errors: from LeWitt's single-mindedness to Cage's many forms of indeterminacy, all of which are now available for translation and transformation into architectural methods. Whether such methods can be convincingly applied to such a materially and socially weighted discipline is an open question, but one which architects will ever more often confront.

19 Jacques Derrida, *The Truth in Painting*, trans. Geoff Bennington and Ian McLeod (Chicago: University of Chicago Press: 1987).



6. Hilary said, Modernism had been presented as a ruin since the Beginning. Whenever that was, maybe the Renaissance. The exact date keeps slipping backwards.

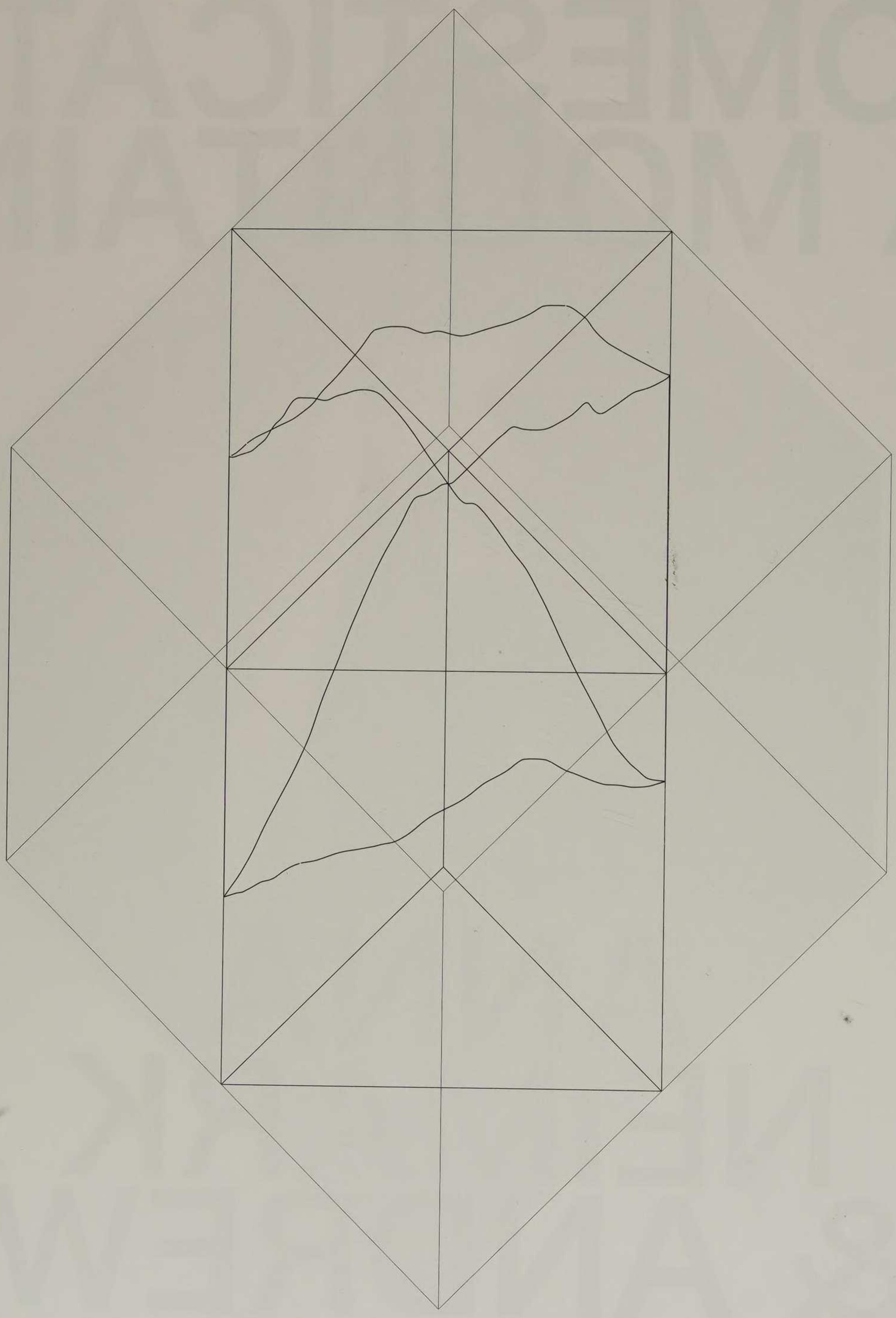
7. We argued vigorously—the relative superiority of the Post-Pre movement,
the not so relative superiority of the Pre-Post.



1—We inscribed the unmanageable in a bounding box.

HOW TO DOMESTICATE A MOUNTAIN

ANNA NEIMARK & ANDREW ATWOOD

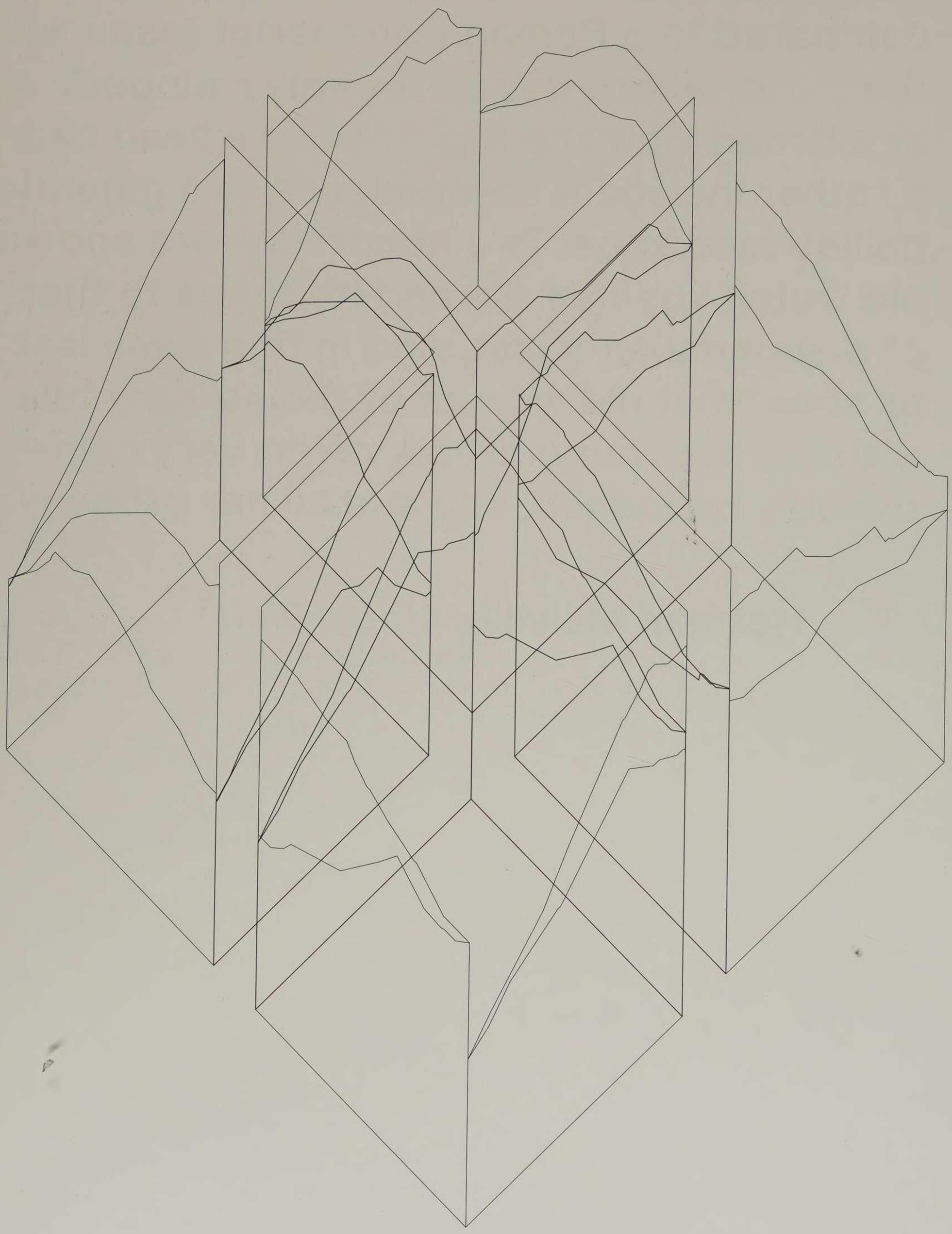


2—Subdivided into four quadrants for sanity.

Crossing the deck, let us now have a good long look at the Right Whale's head. As in general shape the noble Sperm Whale's head may be compared to a Roman war-chariot (especially in the front, where it is so broadly rounded); so, at a broad view the Right Whale's head bears a rather inelegant resemblance to a gigantic galliot-toed shoe. Two hundred years ago an old Dutch voyager likened its shape to that of a shoemaker's last. And in this same last or shoe, that old woman of the nursery tale, with the swarming brood, might very comfortably be lodged, she and all her progeny.

Herman Melville, *Moby-Dick*[1]

1 Herman Melville, *Moby-Dick; or, The Whale*, (New York: Signet Classic, 1980), 409.



3—Constructed orthographically projected elevations
for each part as we understood them.

Mountains are full of wonder. They are primordial symbols of time, glacial time, but also a record of the subtle fluctuations in seasons, changes in the sky. They are wild, stochastic, unpredictable. They have no discipline. They have no referent. Each mountain's identity is itself. It does not make sense to speak of errors when one speaks of mountains because they have no formal norm against which to stray.

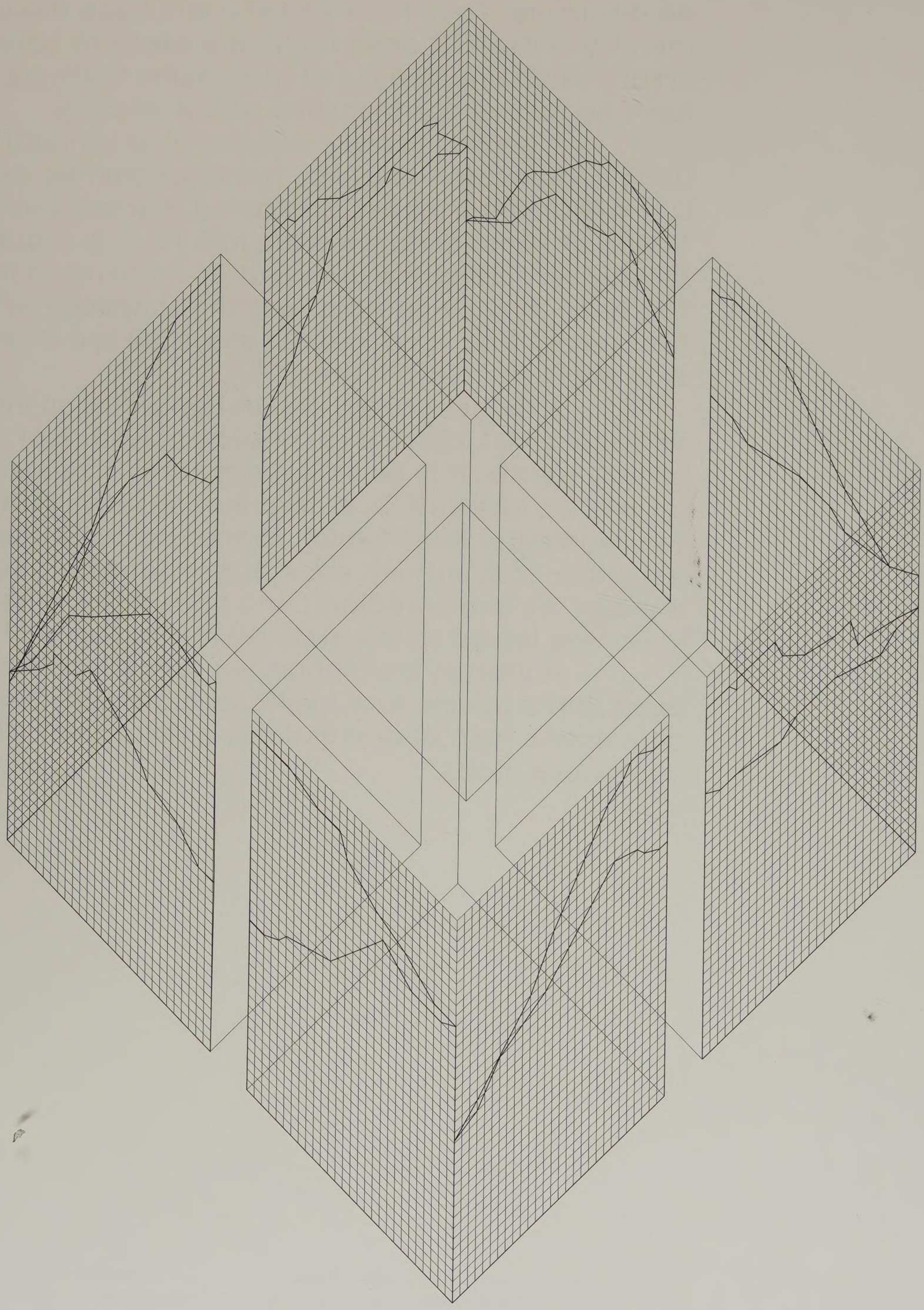
A house is rarely wonderful. It is mostly a mundane composition of parts, frames, volumes, and walls. It is willful, determined, controlled. Necessarily positioned at some distance from nature, it is regulated through architectural convention. Remember the primitive hut? "It is by approaching the simplicity of this first model that fundamental mistakes are avoided and true perfection is achieved."[2]

A domesticated object has all the attributes of the original, corrected through a system of disciplinary norms. It is an analogous form, "created not by genius, inspiration, determination, evolution, but by two modest actions (which cannot be caught up in any mystique of creation): substitution (one part replaces another, as in a paradigm) and nomination (the name is in no way linked to the stability of the parts)."[3]

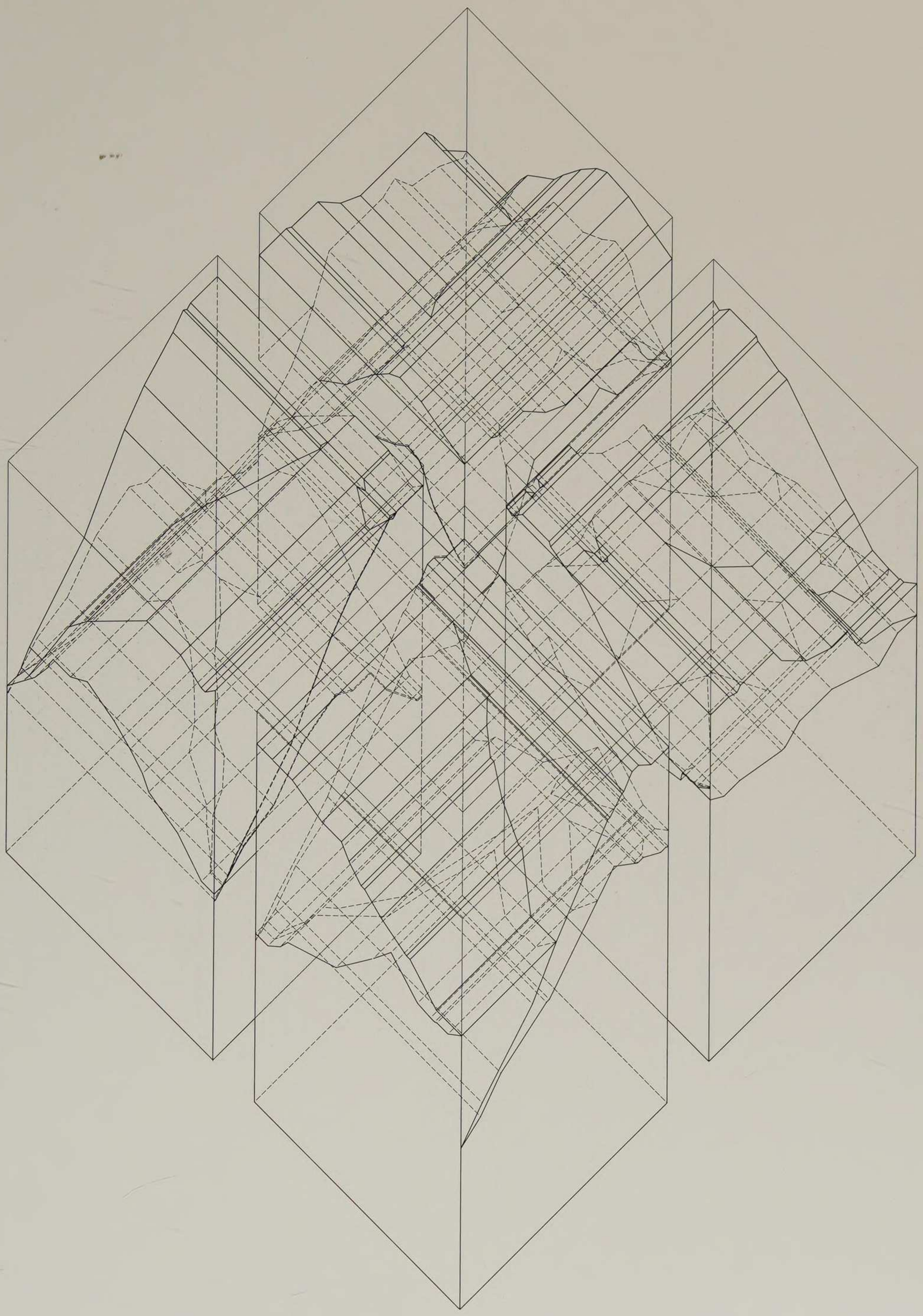
If literary metaphor can turn the Right Whale's head into a house, how might architectural drawing convention help to domesticate a mountain? Here are our twelve steps.

2 Marc-Antoine Laugier, *Essay on Architecture*, trans. Wolfgang and Anni Herrmann (Los Angeles: Hennessey & Ingalls, 1977), 12–13.

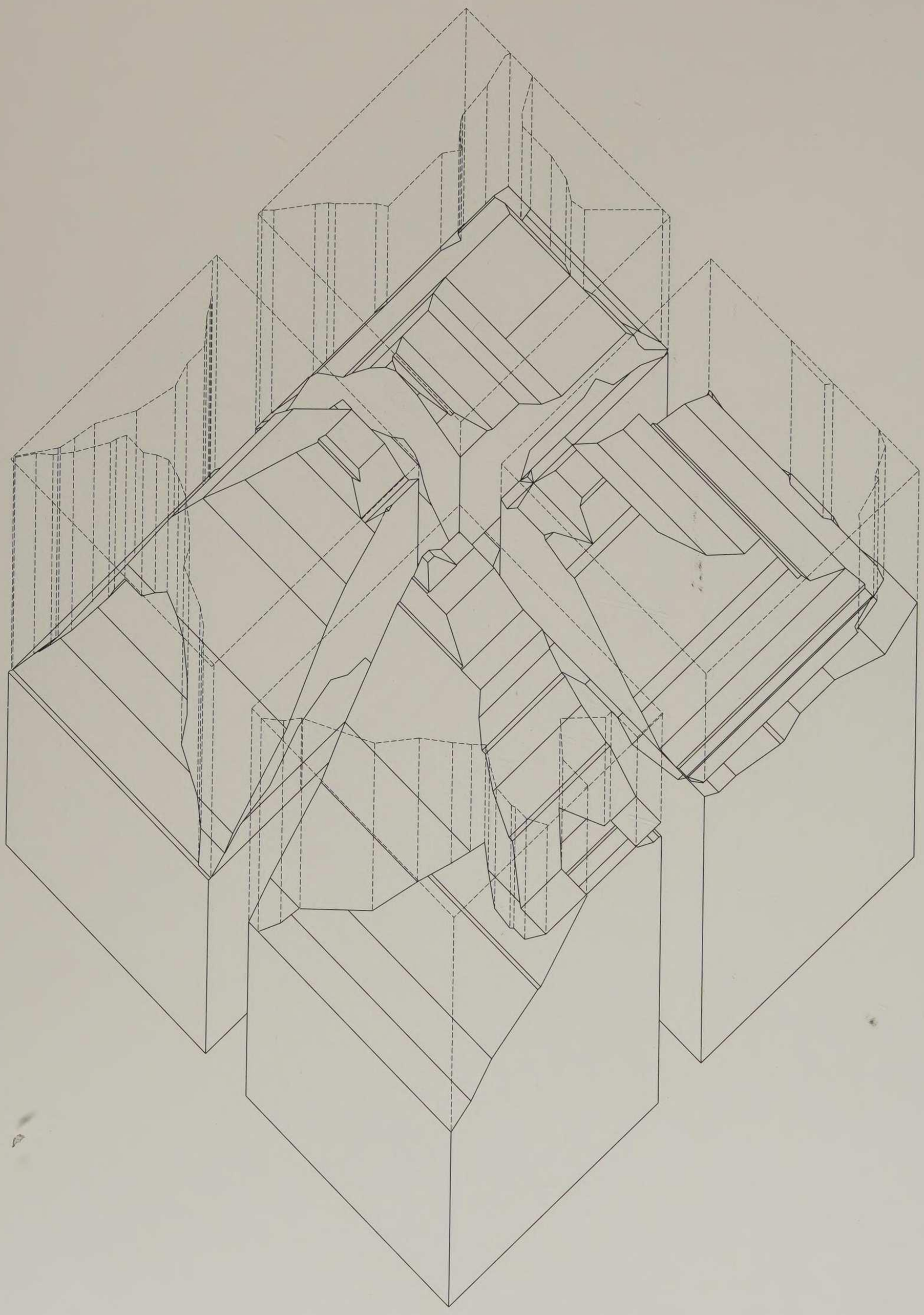
3 Roland Barthes, "The Ship Argo," *Roland Barthes*, trans. Richard Howard (New York: Hill & Wang, 1977), 46. Rosalind Krauss refers to this passage in the introduction to the collection of her essays, *The Originality of the Avant-Garde and Other Modernist Myths*, as a model for producing meaning without the myths of authorship or origin, but through shallow shifts along a planar surface (Cambridge: MIT Press, 1986).



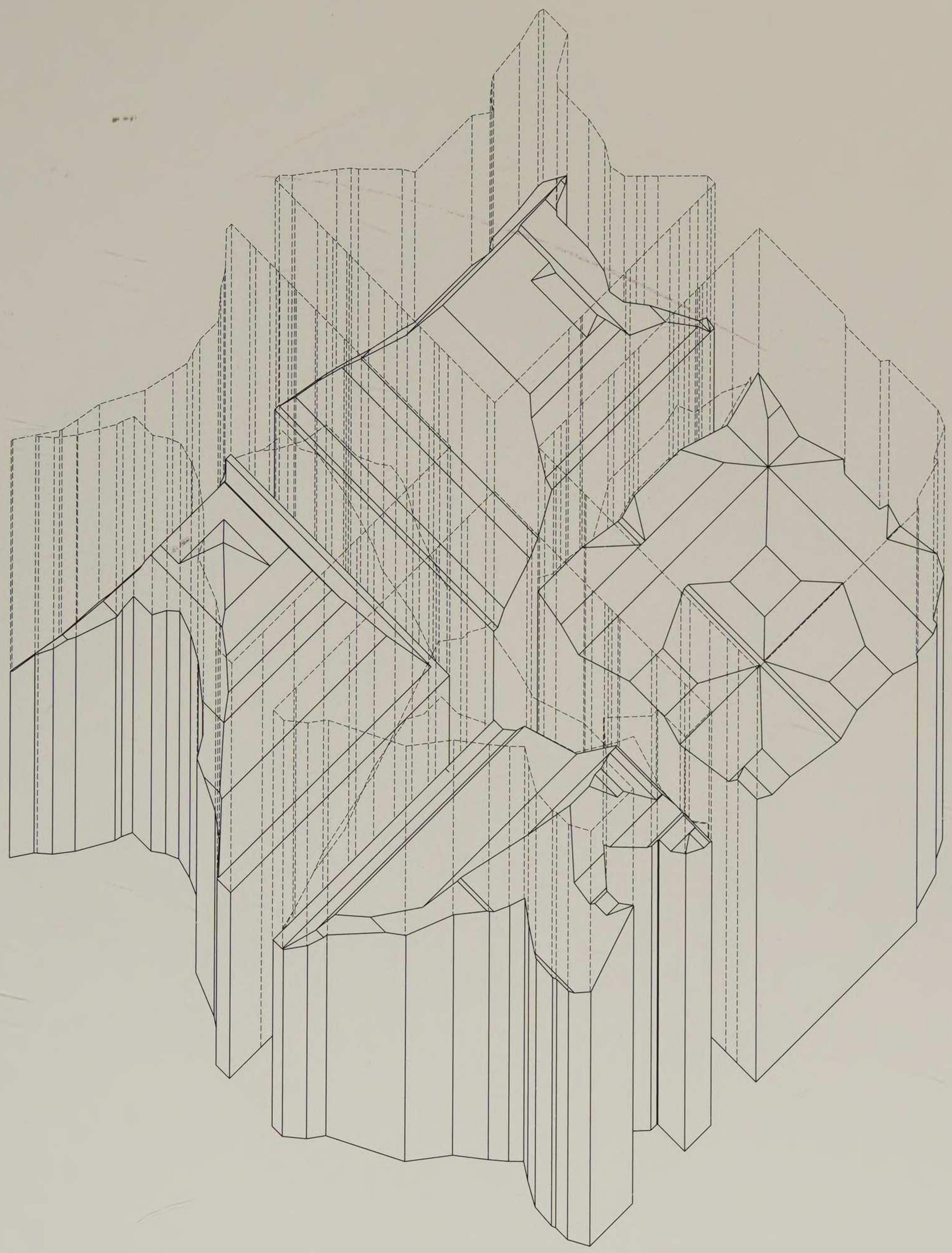
4—Corrected the new elevations to an orthogonal grid for inventory.



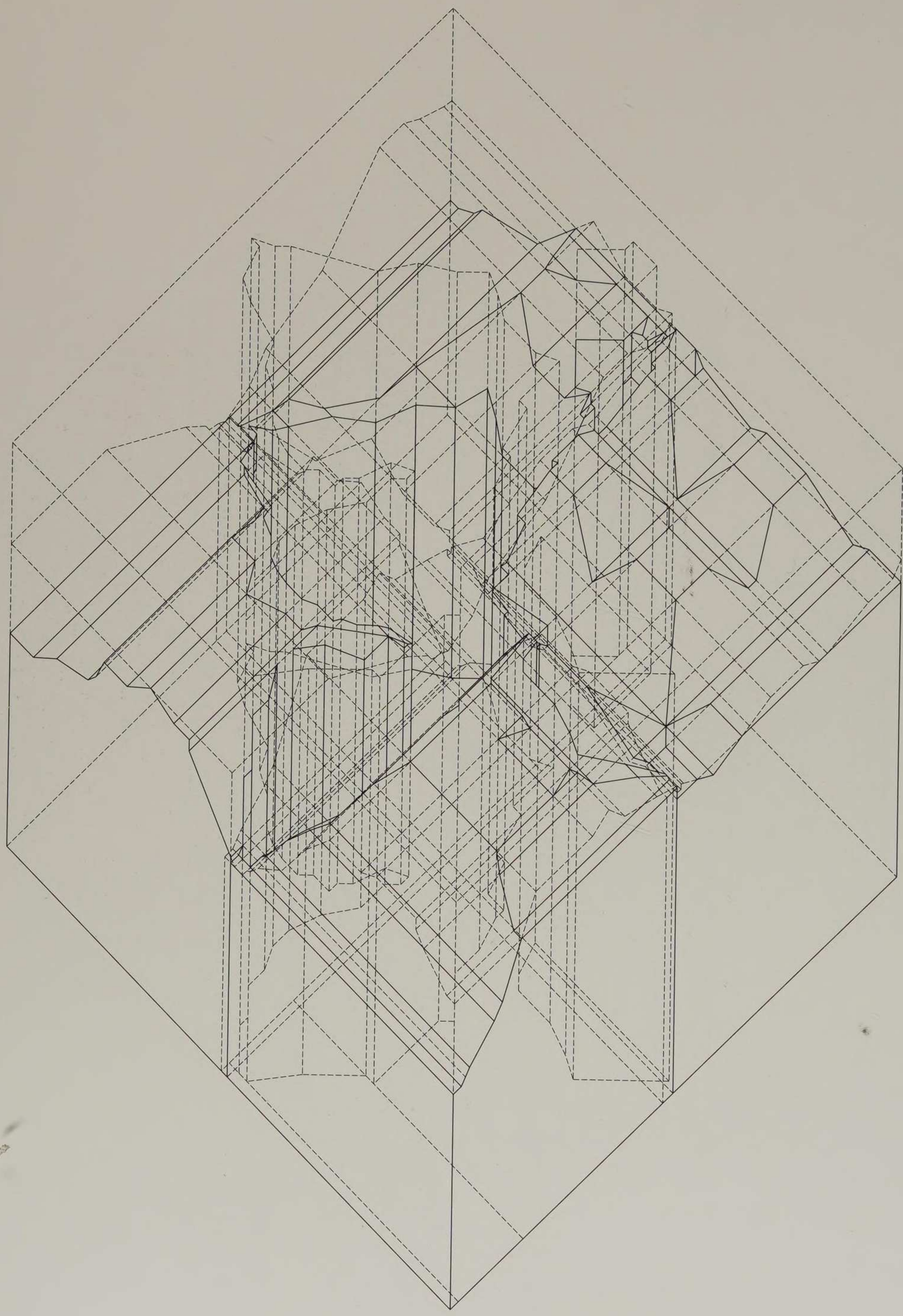
5—Extruded exactly the drawings.



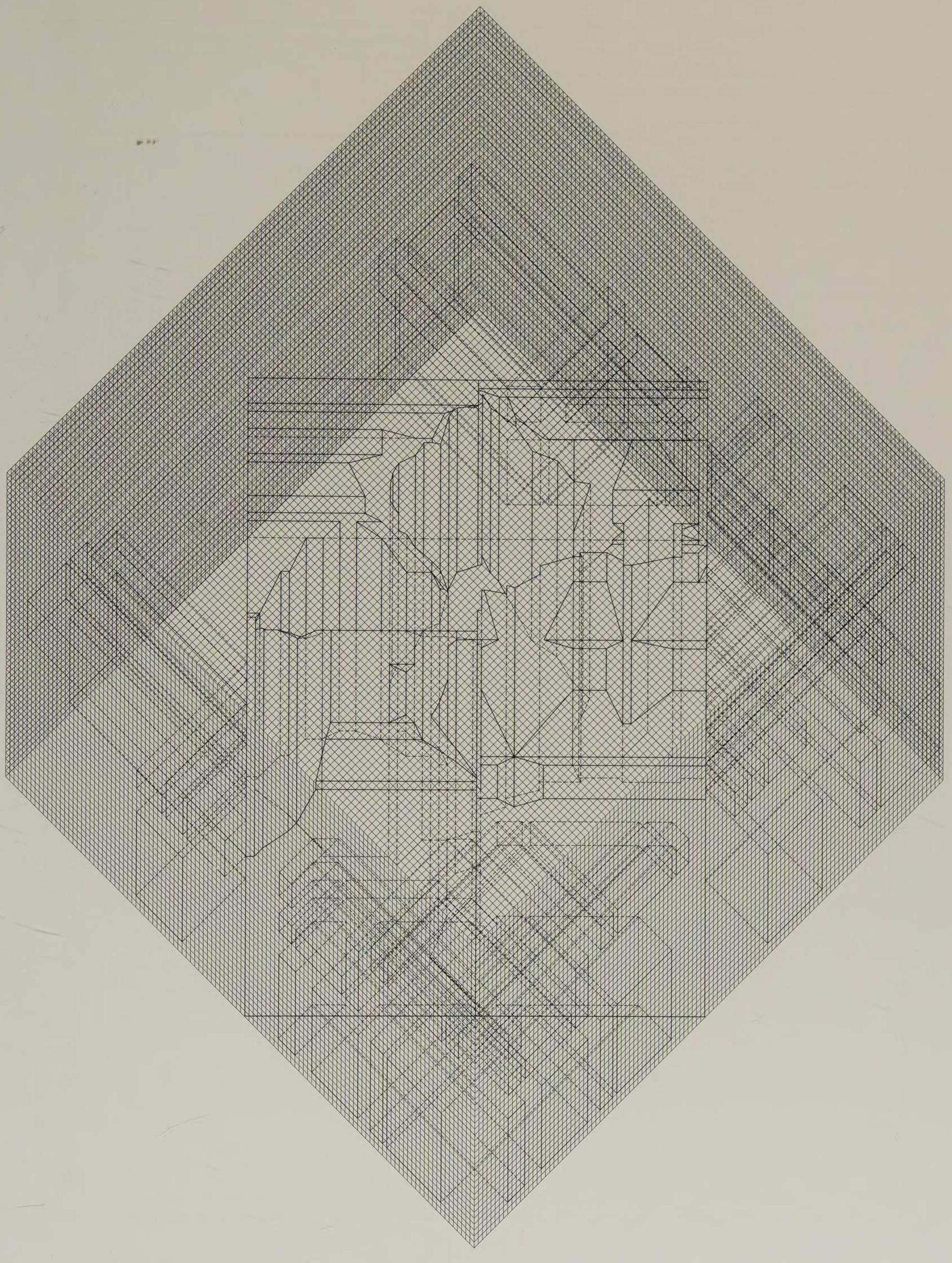
6—Trimmed all shortcomings.



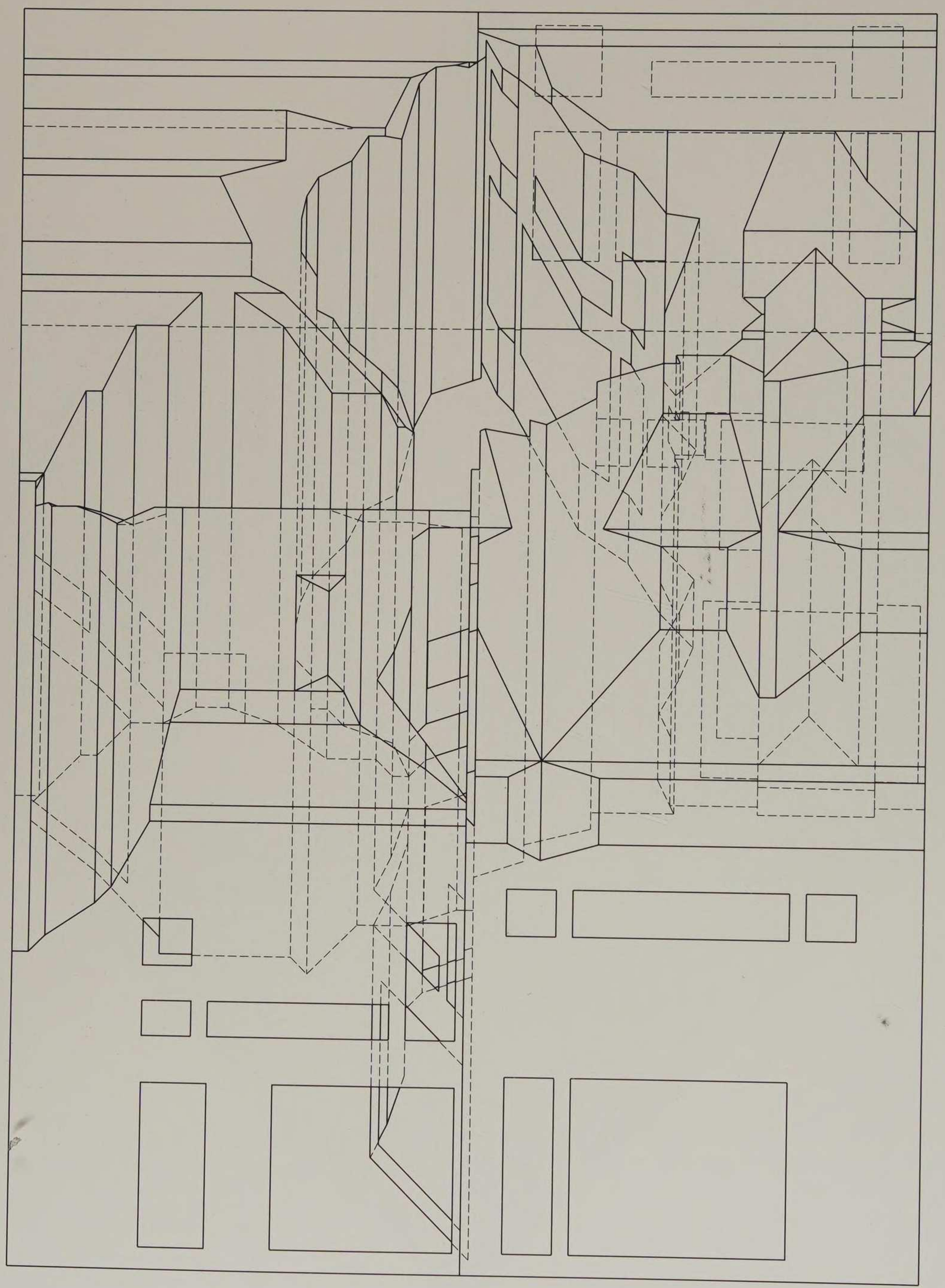
7—Projected the underbelly curves through a cube
to remove all defects of character.



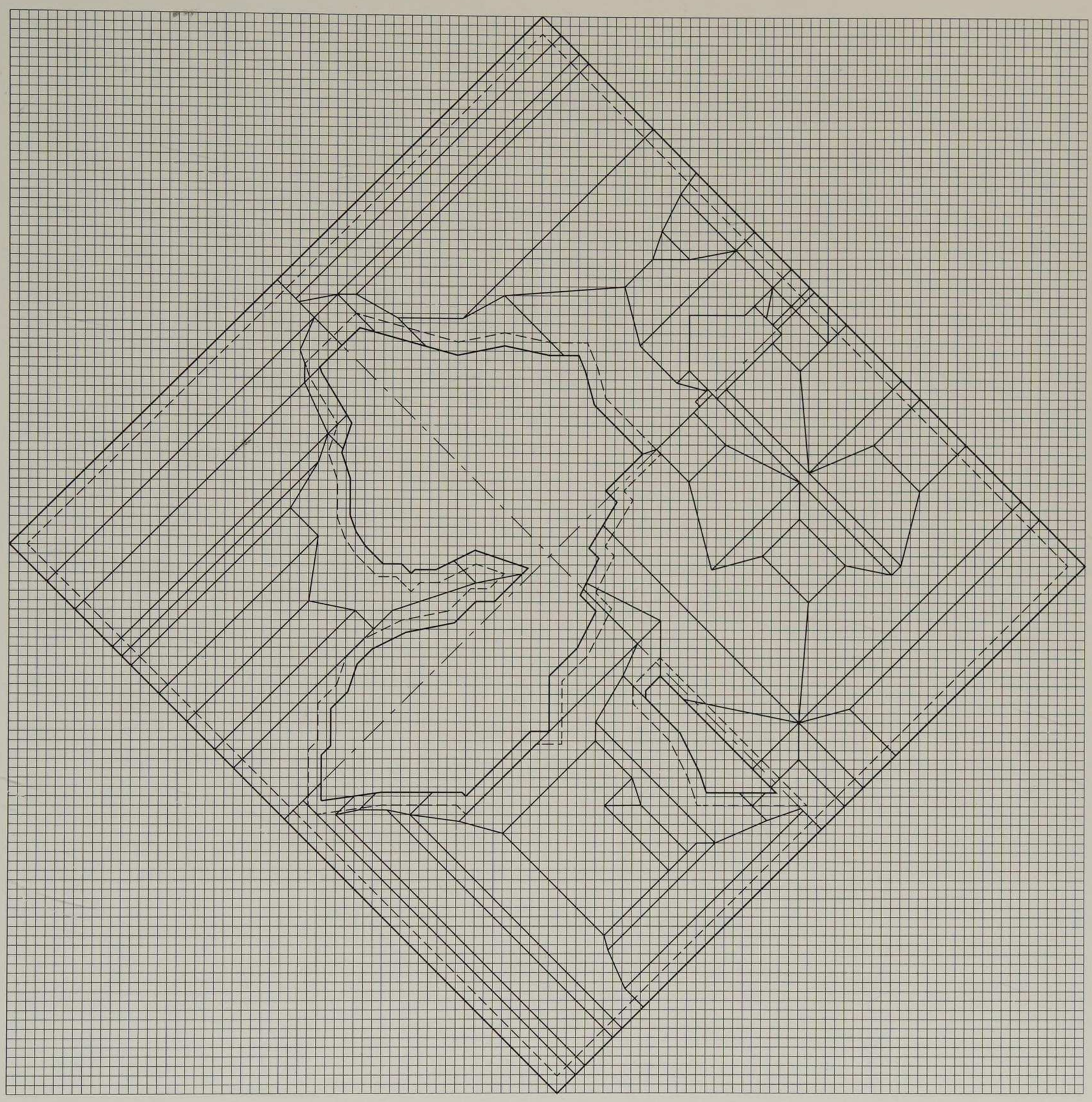
8—Rotated the willing quadrants 180 degrees.



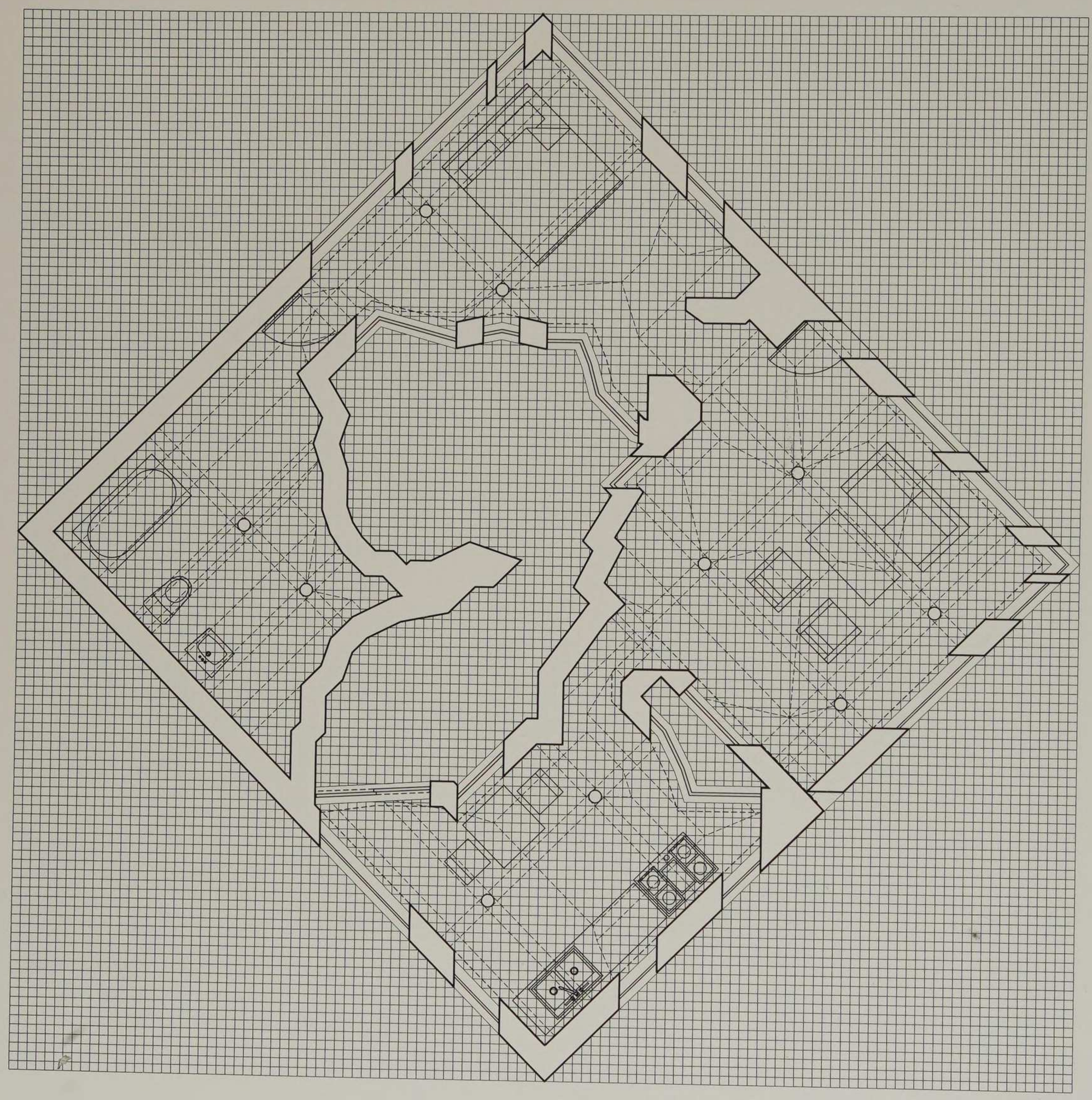
9—Projected apertures from the bounding diamond,
and when we were wrong, promptly admitted it.



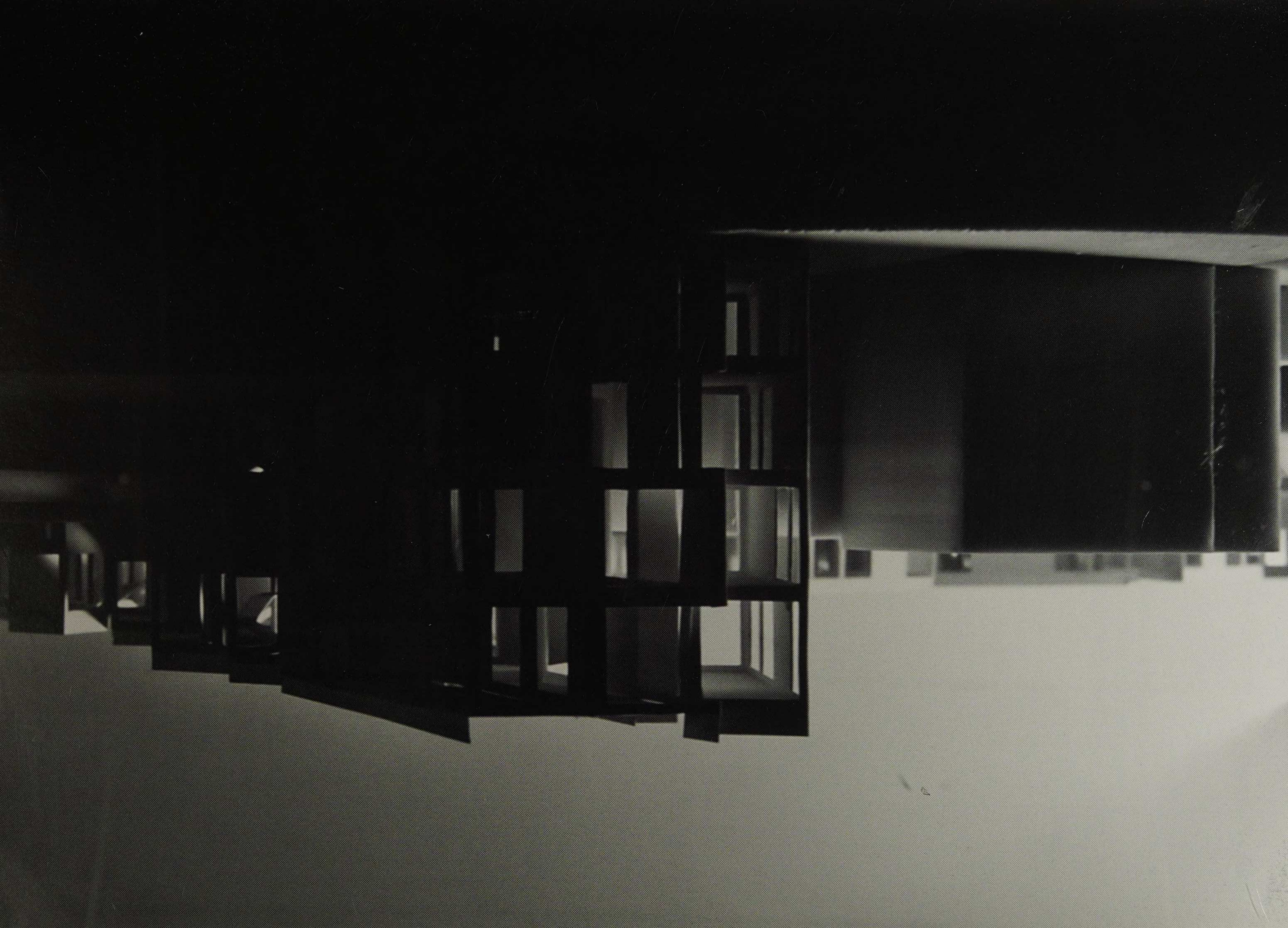
10—Called it a house only for the power to carry that out.



11—Turned the plan 45 degrees whenever possible.



12—Having had no spiritual awakening as the result of these steps, we nonetheless tried to carry this message to architects, and to practice these principles, as we furnished.



8. The conversation flipped, the Left/Right poles reversed themselves:
On and Off and On and Off, etc...The oscillation was faster and faster until it was
On and Off at the same time. The indifference went humming along—assured,
if not always smooth—for years and years.

PRUITT-IGOE FROM THE GROUND UP

Probably the most notorious icon of modernism's putative errors, the Wendell O. Pruitt and William L. Igoe Homes were designed under the 1949 United States Housing Act by Leinweber, Yamasaki & Hellmuth and completed in 1954. The residential complex was conceived during St. Louis's postwar population boom to provide people formerly living in slums with clean, safe housing and a sense of community established by internal "neighborhoods." In the years that followed, a stagnating urban population left Pruitt-Igoe with insufficient revenue for basic maintenance and security, and the buildings descended into urban blight.

Charles Jencks famously described the complex's partial demolition in 1972 as the day "Modern architecture died."[1] Following his diagnosis, Pruitt-Igoe became a cautionary tale for architects who shifted their focus from social problems to purely "architectural" ones. Beginning in the 1990s, however, some historians argued that modernist architectural ideology was not to blame after all, and that institutional and political problems set the project up for failure.[2]

The recent resurgence of interest in the possibility of utopian thinking and praxis has made the debate especially relevant in the context of this volume's theme. It would seem that the spectral image of Pruitt-Igoe's implosion has yet to be exorcised fully from architectural discourse.[3] We offer instead these photographs of its construction, which evoke not only the project's size and logistical complexity but also the massiveness of postwar social ambitions.

MO. 1-4
A-10

8/13/52 c
Foundation Walls

MO. 1-4
A-10 East

1 Charles Jencks, *The Language of Post-Modern Architecture* (New York: Rizzoli, 1977), 9.

2 The revisionist accounts began with Katharine Bristol, "The Pruitt-Igoe Myth," *Journal of Architectural Education* v. 44 no. 3 (May 1991), and finally went mainstream in Chad Freidrichs's 2011 film *The Pruitt-Igoe Myth: An Urban History*.

3 See Reinhold Martin's account of Pruitt-Igoe in *Utopia's Ghost: Architecture and Postmodernism, Again* (Minneapolis: University of Minnesota, 2010), 15.

8/20/52 d
ading Crawl Space

1-4
West

8/26/52-F
Footings at Crawl Space

MO.1-4 9/9/52 H

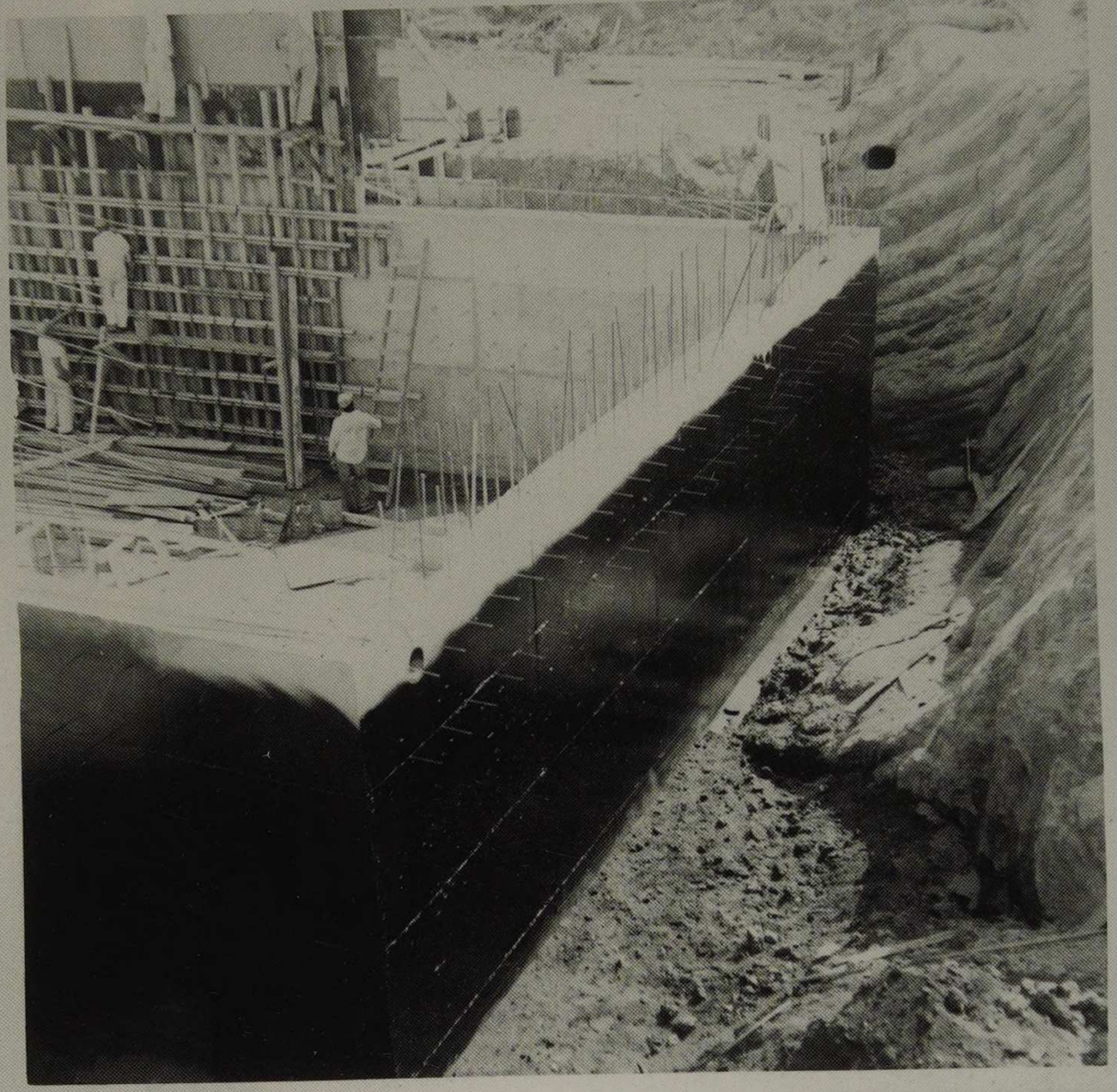
Boiler Room #3 Drain Tile Ready
for setting at So. Wall

MO. 1-4

A-1

9/9/52 H

undation Wall



MO.1-4
Boiler Room #1

9/17/52 I
West Wall Lower Half

O. 1-4 9/24/52

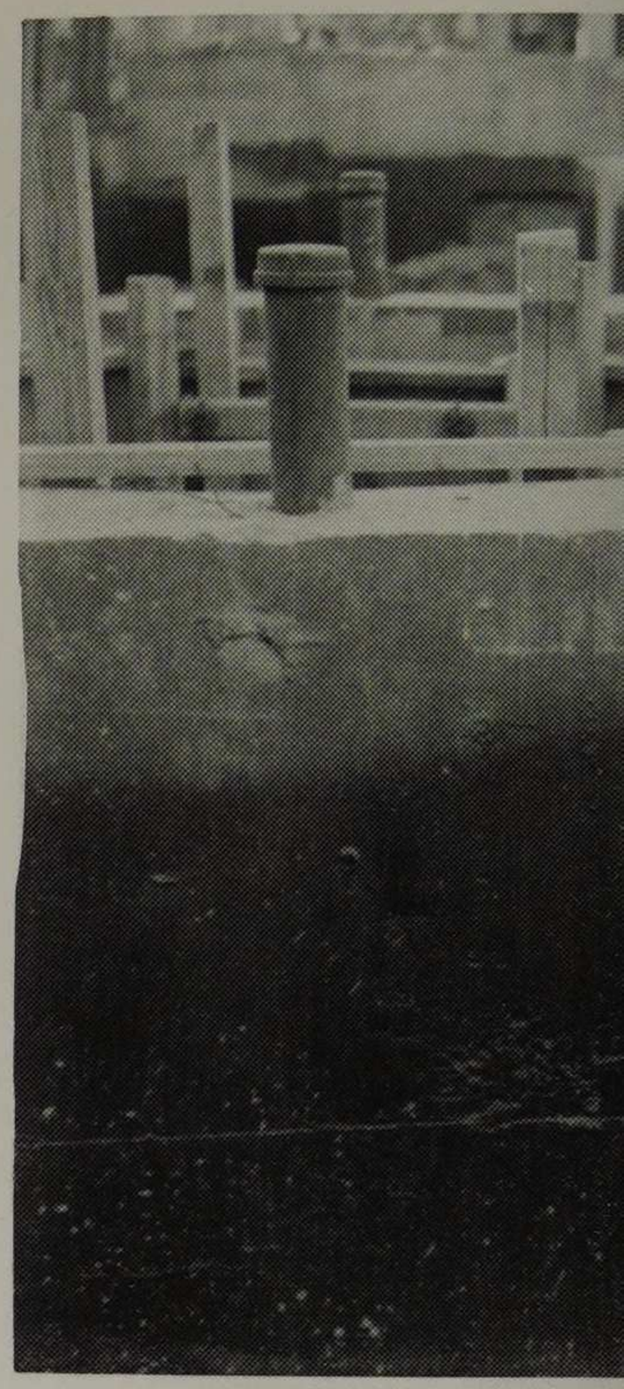
-9 West Metal Strut at Stairway "

MO.1-4

10/21/52 - N

B-9

4th Floor



MO. 1-4
Boiler Room #1

10/24/52 - C
Cable at
ck

MO. 1-4
A-13 & B-14

10/2
Genera

2 - P
iew

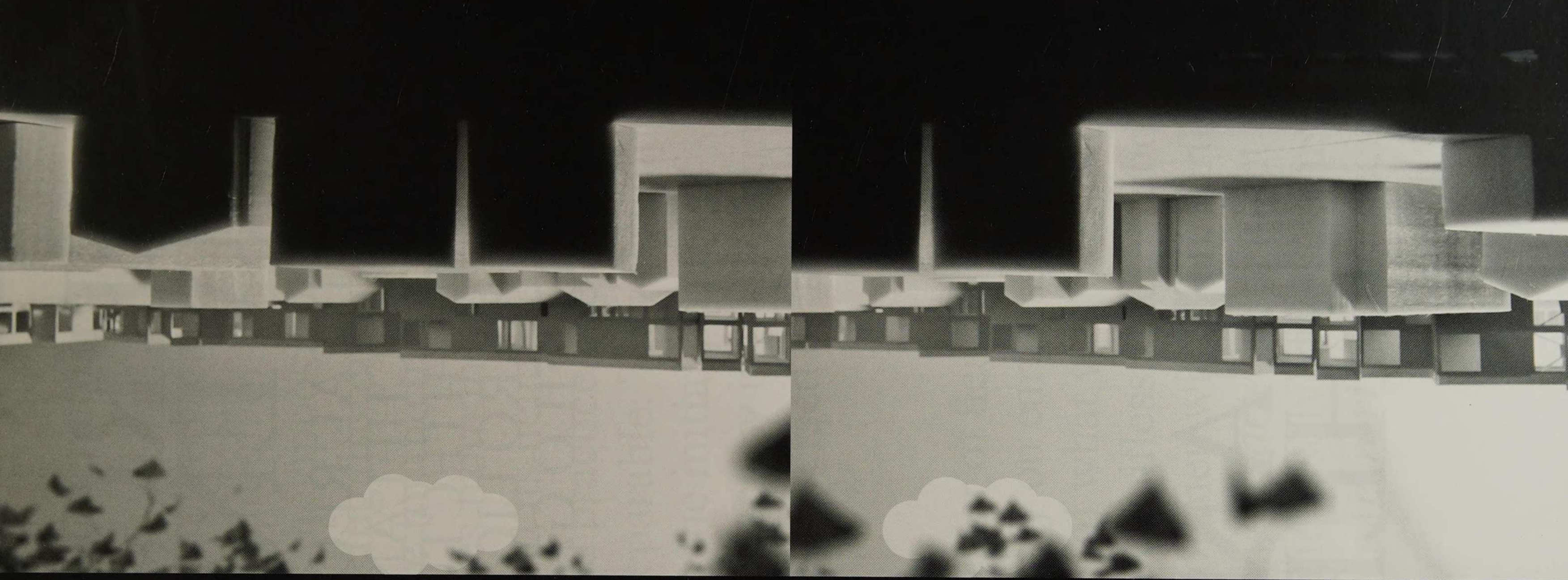
0. 1-4 11/5/52 - Q

Moving Shed

O. 1-4 3-25-53 - Y

A-13 Pouring Roof Slab

8. We heard a POP.



ERROR OR INVENTION?

CRITICAL RECEPTIONS OF MICHELANGELO'S ARCHITECTURE FROM PIRRO LIGORIO TO TEOFILO GALLACCINI

DANIEL SHERER

For James S. Ackerman

A crucial yet little-studied feature of the *incipit* of the 1568 edition of Vasari's *Life of Michelangelo* is the opposition between truth and error. Taking this opposition as a point of departure for the narrative as a whole, Vasari moves from the assumption that artistic truth and its negative correlate, errors of theory and practice, are interdependent, and even inseparable. This assumption helps Vasari locate the initial phases of his protagonist's trajectory in a Florentine artistic milieu that, traversed by flaws, is all too human:

> ...the benign ruler of heaven looked down graciously on earth, saw the worthlessness of what was being done, the intense but fruitless studies, and the presumption of men who were further from true art [*vera arte*] than night is from day, and resolved to save us from our errors [*errori*]. So he decided

to send into the world an artist who would be skilled in each and every craft, whose work alone could teach us how to attain perfection in design (by correct drawing and by the use of contour and light and shadows, so as to obtain relief in painting), how to use right judgment in sculpture, and, in architecture, create buildings which would be comfortable and secure, pleasant to look at, well-proportioned and richly ornamented.[1]

In this passage, a specific set of biographical conventions takes on new meaning when it comes into contact with Vasari's theory identifying *disegno* as the foundation of the visual arts. As a result of this conjunction, Vasari grants Michelangelo unique access to artistic truth, understood both in light of the specific characteristics of each art and as a dynamic whole, i.e., in relation to the principles governing painting, sculpture, and architecture. Indicating the correct way to produce art through the use of right judgment [*buon giudizio*], this idea of artistic truth assumes that error is something that must be avoided, and that Michelangelo is the artist who, more than any other, knew how to do so. In this context, error means the pursuit of false paths, a moving away from the truth—away, that is, from the mimetic perfection attained by the supreme artist who avails himself of a set of highly differentiated methods. These methods, whose application is guided by *giudizio*, enable him to reach the pinnacle of style in accordance with the idea of "*perfetta regola.*"[2]

This passage has another level of significance that attests to an unprecedented transformation of the Christian ideal: that of the savior sent by God to redeem the erring artists. Yet just as one should not overestimate the role of astrology in the *Life of Michelangelo* when Vasari notes the auspicious character of his hero's date of birth, its religious component should not be overemphasized, even if Christian and astrological motifs are important

elements of Vasari's mental universe.[3] Both motifs serve the wider purposes of Vasarian biography, which is part mythmaking and part separation of the true from the false, i.e., real history. Bestowing an exalted role on the artist that links his form-giving power to that of divinity (as is attested by the epithet *il divino Michelangelo*, the first artist to be characterized as such),[4] Vasari associates this role with potent claims of aesthetic verisimilitude. By placing these claims at the center of his historical scheme, Vasari singles out Michelangelo—the only living artist included in the first 1550 edition of the *Vite*, significantly placed at its end—as the figure who is destined to realize the idea of the sovereignty of the artist to its fullest extent: already in the *Proemio*, he is presented at the epitome of the *terza maniera* or modern style.[5]

Adopting these strategies, Vasari casts Michelangelo as enemy of error and champion of truth. Carlo Ginzburg has noted that his narrative, based upon a specific teleological scheme, reworks Augustine's distinction between absolute and relative progress [*sempliciter and secundum quid*] originally formulated to make sense of the relationship between the Old and the New Testaments. It does this by applying the scheme to the history of art in general and to Michelangelo in particular.[6] In this reading, Michelangelo's

1 Vasari, *La Vita di Michelangelo nelle redazioni del 1550 e del 1568*, ed. P. Barocchi (Milan: Ricciardi, 1963) I, 3–4; *Life of Michelangelo*, trans. G. Bull (London: Folio Society, 1971), 325.

2 On the theoretical implications and philosophical underpinnings of the concept of aesthetic judgment in the Renaissance, see R. Klein, "*Giudizio e gusto* dans la theorie de l'art au Cinquecento," *La Forme et l'intelligible* (Paris: Gallimard, 1970), 341–52; D. Summers, *The Judgment of Sense: Renaissance Naturalism and the Rise of Aesthetics* (Cambridge: Cambridge University, 1987); A. Blunt, *Artistic Theory in Italy: 1450-1600* (Oxford: Clarendon, 1940), 91–94. On the concept of "*perfetta regola*" as elaborated in a decisive passage by Vasari in his Proemio to the 1568 edition of the Lives, see E. Panofsky, "The First Page of Giorgio Vasari's *Libro*" in *Meaning in the Visual Arts* (Chicago: University of Chicago, 1982), 207–8.

3 On Christian themes in Vasarian biography, see now C. Ginzburg, "Battling Over Vasari: A Tale of Three Countries," in *The Art Historian: National Traditions and Institutional Practices* ed. Michael Zimmerman (Williamstown, MA: Clark Institute, 2003), 47ff; G. Guercio, *Art as Existence: the Artist's Monograph and its Project* (Cambridge, Mass.: MIT Press, 2006), 28–29; on Vasarian astrology, see the indications in E. Kris and O. Kurz, *Legend, Myth and Magic in the Image of the Artist* (New Haven: Yale, 1979), 51–2; R. Klibansky, E. Panofsky, F. Saxl, *Saturn and Melancholy* (London: T. Nelson, 1964), 159, n. 105.

4 R. Wittkower, "The Divine Michelangelo," in *The Divine Michelangelo: The Florentine Academy's Homage on his Death in 1564 (A facsimile edition of "Esequie del Divino Michelangelo Buonarroti," Florence 1564)* introduced, trans., and annotated by Rudolf Witkower (London: Phaidon, 1964); Klibansky, Panofsky, Saxl, *Saturn and Melancholy*, 159.

5 E. H. Kantorowicz, "The Sovereignty of the Artist: A Note on Legal Maxims and Renaissance Theories of Art," *De Artibus Opuscula XL: Essays in Honor of Erwin Panofsky*, ed. M. Meiss (New York: New York University, 1961), 267–79. On Vasari's conception of the *terza maniera* see Panofsky, *Renaissance and Renascences in Western Art* (New York, 1969), 31–35 and "The First Page of Giorgio Vasari's *Libro*," in *Meaning in the Visual Arts*, 206ff.

6 Ginzburg, "Battling Over Vasari," 47. Panofsky also called attention to the synthesis between Vasarian teleology, which is based upon a "*perfetta regola*" or absolute standard, and a "second standard of valuation," according to which "the individual work of art, however far from perfection, appeared as, relatively speaking, meritorious. The standard of the perfetta regola came, inevitably, to be supplemented by the standard of the *natura di quei tempi.*" Panofsky, "First Page of Giorgio Vasari's *Libro*," 207–208 (strangely, overlooked by Ginzburg). On Vasari's teleological view of art history culminating in Michelangelo, see also S. Alpers, "Ekphrasis and Aesthetic Attitudes in Vasari's *Lives*," *Journal of the Warburg and Courtauld Institutes* 23 (1960), 190–225; L. Barkan, *Michelangelo: A Life on Paper* (Princeton: Princeton University, 2011), 174–5; K. Pomian, *L'Ordre du Temps* (Paris: Bibliothèque des histoires, 1984), 111–116; A. Blunt, *Artistic Theory in Italy*, 99–100.

artistic perfection, unprecedented in his own time and for all times, is strongly reminiscent of Christ's moral perfection: in both figures, divine and human natures, and hence also the absolute and the relative, converge. For Vasari, Michelangelo's art thus becomes the embodiment of the highest aesthetic truth human striving can attain: all other artists, even those reputed to be excellent in their own times, are erroneous when compared to it.

All of this makes it even more striking to recall that, particularly after 1550, Michelangelo was frequently associated by his critics with a specific kind of error: the unwarranted and capricious disregard of established rules. This is most evident in the reception of his architecture, and it begins very early, with that relentless enemy of both Vasari and Michelangelo, the artist, architect, and antiquarian Pirro Ligorio.[7] It was Ligorio, in the last decade of Michelangelo's life, who moved to the forefront of a tendency identifying his rival as the most conspicuous architect of his time to flout Vitruvian norms and ancient built precedents in pursuit of a wild, chimerical dreamworld. In Ligorio's wake, and at least partly due to his polemic, the idea that even the most celebrated instances of Michelangelo's architecture have something fantastic, extravagant, and fundamentally questionable about them became widespread in the period from 1550 to 1600. This much is clear from the writings of figures as diverse as Francesco de Hollanda, Vincenzo Danti, and even Vasari himself: resorting to euphemism, the artist's biographer warned Michelangelo's followers not to pursue his strange flights ("*bizarrerie*") since many of those who tried to emulate Michelangelo had failed, and declared that the danger of his approach lay in the incapacity of his disciples, not in the boldness of the master.[8] At a more basic level, Vasari was the first to claim that Michelangelo's *ingegno* and *invenzione* were so unique, and so inimitable, that those who tried to follow him had no choice but to fall into error—an error, to be sure, that could not be attributed to the master himself. Condivi agrees with Vasari on this point, arguing that in architecture Michelangelo followed nobody in the past or in his own time, implying moreover that nobody was able to emulate, much less equal or surpass him.[9]

At first, it might seem relatively easy to delimit the semantic field of error in Italian architectural theory and criticism when Vasari and Ligorio offered their divergent readings of Michelangelo. However, this task presents certain difficulties, since error is a complex concept, semantically rich and historically multilayered. Yet one thing is certain: both the Latin verb *errare* and its Italian equivalent signified "to stray from the right path" and, in the thematic area covered by the present study, a confusion regarding the means of basing artistic practice on valid theoretical knowledge.[10] This confusion took many forms, which only makes it harder to identify the meanings of error in the art, architecture, and critical languages of the Italian Renaissance. In the 16th century the term was often used to describe practices that broke with Vitruvius, a specific usage that could also apply to those who emulated the non- or anti-Vitruvian aspects of ancient buildings. In an emblematic passage, Serlio warns against this option, stating that when searching out the licentious inventions often found in the works of the ancients, "modern architects should

not err (by err I mean go against Vitruvian precepts)."[11] Serlio was not alone in upholding such a strictly Vitruvian standpoint, despite the license exemplified by the formal inventions in his Fifth, Sixth, and Seventh Books.[12]

When seen in conjunction with the way Michelangelo's unique mode of architectural invention was perceived and interpreted in its time, the ascription of error implies a related problem, which may be seen as error's "positive" aspect: that of the parameters of acceptable license. This, as Manfredo Tafuri has pointed out, is one of the central themes animating the search for new forms that characterized the humanist language, and is crucial for understanding the complex relationship between error and invention that emerged over the course of the 16th century.[13] What was at stake, in Michelangelo's time, in the effort to define these parameters can be formulated along the following lines: if the violation of accepted norms signifies straying from the truth, this is what the architect who follows *all'antica* principles must scrupulously avoid, in accordance with an aesthetic attitude that codifies stylistic limits in ways that permit only the most restricted margins of flexibility.

This attitude, which may be called "classicizing," formed the basis of the critical reception of Michelangelo's architecture in the second half of the 16th century. Evidence of its pervasiveness can be found in the writings of theorists and practitioners as diverse as Pirro Ligorio and Palladio, and, in the early decades of the 17th century, in a treatise on the errors of architects, *Trattato sopra gli errori degli architetti* (1621) written by the Sienese polymath and architectural critic Teofilo Gallaccini, a

7 On the enmity between Ligorio and Vasari, which led to a sort of "*damnatio memoriae*" in the *Lives*, in which Ligorio is conspicuous for his absence, see A. Schreurs, *Antikenbild und Kunstanschauung des Neapolitanischen Maler, Architekt und Antiquar Pirro Ligorio* (Cologne: König, 2000); D. R. Coffin, *Pirro Ligorio: The Renaissance Artist, Architect, and Antiquarian* (University Park, Penn.: Penn. State, 2004), 68ff; R. W. Gaston, "Introduction," to *Pirro Ligorio, Artist and Antiquarian* (Milan: Silvana, 1988), 1; and, in the same volume, "Pirro Ligorio, Michelangelo, and St. Peter's." The enmity between Vasari and Ligorio paralleled the adversarial relationship between Ligorio and Michelangelo, on which see *infra*, n.16. In 1567 Pius V, on the urging of Vasari, had Ligorio dismissed from his post as chief architect of St Peters, on the grounds that he refused to follow Michelangelo's design. R. De Maio, *Michelangelo e la Controriforma* (Rome: Sansoni, 1990), 223; E. Mandowsky and C. Mitchell, *Pirro Ligorio's Roman Antiquities* (London: Warburg Institute, 1963), 4.

8 Vasari/Barocchi, I, 59ff. In the 1568 edition, Vasari observes concerning those who misunderstand Michelangelo's inventions: "certain plebeian and presumptuous architects lacking in *disegno* have in our times produced all their monstrous things, worse than the German," i.e., the Gothic. On Vasari's somewhat ambivalent defense of Michelangelo's innovations, see the perceptive observations by C. Elam, "Tuscan Dispositions: Michelangelo's Florentine Architectural Vocabulary and its Reception," *Renaissance Studies* 19.1 (2005), 61–62.

9 A. Condivi, *Vita di Michelangelo Buonarroti*, ed. G. Nencioni (Florence: Studio per Edizioni Scelte, 1998), 53–54.

10 *Vocabolario degli Accademici della Crusca* (Venice: Appresso Giovanni Alberti, 1612), s.v. "errore," the following synonyms are given: *l'errare, lo 'ngannarsi, il fallire*. Lat. *error*. I have been unable to consult the *Vocabolario Toscano dell'Arte del Disegno* (Florence, 1681).

11 Serlio, *Tutte l'opere d'architettura et prospettiva* trans. V. Hart and P. Hicks (New Haven: Yale, 1996–2001), III, 69v.

12 On sixteenth-century codifications of Vitruvius, with reference to Claudio Tolomei and the Accademia Vitruviana, see P. N. Pagliara, "Vitruvio da testo a canone" in S. Settis, *Memoria dell'antico nell'arte italiana* (Turin: Giulio Einaudi, 1984), iii, 53ff on Serlio's complex reception of Vitruvius. See also M. Tafuri, "La norma a la programma: Il 'Vitruvio' di Daniele Barbaro," in Vitruvio, *I Dieci Libri dell architettura tradotti e commentati da Daniele Barbaro*, 1567 (Milan: Il Polifilo, 1987), xi–xil.

13 Tafuri, *Interpreting the Renaissance: Princes, Cities, Architects*, trans. with an introduction by Daniel Sherer (New Haven: Yale, 2006), chapter 1, esp. 3ff.

theoretician whose importance as an upholder of classical orthodoxy has only recently come to be recognized (in large part due to the innovative scholarly investigations of Alina Payne and James Ackerman).[14] Despite significant differences in principle and approach, these figures—the first two were friends whose artistic trajectories were shaped by a shared interest in Roman antiquities, the third a natural philosopher and architectural theorist with extensive knowledge of Palladio's architecture—elaborated critiques of Michelangelo's architecture that are among the earliest and most comprehensive judgments on this area of his output.

Michelangelo so greatly dominated the artistic scene in Italy in his lifetime, particularly after 1550, that it would be difficult to find contemporaneous architectural tendencies that were not affected by his achievement either implicitly or explicitly. Yet its problematic nature was recognized even by its admirers. As for his detractors, in their view Michelangelo's license was inherently subversive, and in any case completely unacceptable. Even the judicious Palladio considered Michelangelo's architecture to be traversed by error to a degree that may seem surprising to us now—and this despite the fact that his critique was entirely implicit, and was accompanied by an assimilation of some of the most daring aspects of Michelangelo's architectural language in his own. To be sure, it is only fair to acknowledge that Palladio's stance towards Michelangelo balanced criticism and emulation in a way that had no real parallel in his own time. In this, as in other respects, Palladio is closer to a contemporary perspective, according to which it is hard to imagine that any artistic style could be rejected *in toto* by identifying it as fundamentally flawed. But that is exactly what purists like Ligorio and Gallaccini did in their criticism of *Michelangelo architetto*. Judgments of this kind become understandable when seen in light of the aesthetic ideals and critical assumptions of the architects and theorists who upheld them.

Michelangelo's license offended the theoretical sensibilities of Ligorio the antiquarian and architect, who favored an approach emphasizing internal coherence and decorum, no less than those of Gallaccini, a theorist of medical anomaly, who saw in illness a model of architectural error, and adopted a more restrictive reading of decorum when elaborating his critique of Michelangelo's architecture. For diverse yet equally compelling reasons, Michelangelo was their *bête noire*.[15] Palladio's critical response was more measured, occupying an intermediate position between the rigid purism of Ligorio and Gallaccini and the intrinsically flexible attitude of Michelangelo himself. Although, in Palladio's view, Michelangelo's architecture initiated a clear break with classical principles, once it was purged of its excess—so that its more extreme propositions could be brought within acceptable limits—it could provide a legitimate model for *all'antica* practice and a deep source of artistic invention.

LIGORIO VERSUS MICHELANGELO: THE THREAT OF FRAGMENTATION

Among Michelangelo's contemporaries, it was Pirro Ligorio who condemned his errors as an architect with the greatest tenacity and explicitness.[16] There were, of course, others who raised serious objections, especially among the "*Setta Sangallesca*," the relatives and allies of Antonio da Sangallo who were furious about Michelangelo's takeover as chief architect, at both St. Peter's and Palazzo Farnese, after Sangallo's death in 1546. These were among the most determined enemies of Michelangelo; but their criticism, as far as it remains, it not very consistent.[17] Yet, within the period, Ligorio's censure stands out: it is uncompromising and has no equal in its stridency, depth and breadth. His rejection of Michelangelo's architecture is total—a clear-cut case of the critical identification of a given architect's style with error.

The sweeping nature of the denunciation is not surprising if one studies the biographies of the two artists, who can be called unusually devoted adversaries on the personal level in addition to being professional rivals. A sharp clash accompanied what would appear to be their earliest meeting, on August 15, 1543, which took place in the context of the controversial re-use of marbles and other building materials intended for St. Peter's excavated from the Roman Forum: Ligorio was incensed that such a practice was taking place, even with the explicit approval of Paul III.[18] During the excavations, the

14 For recent literature on Gallaccini, see *infra*, n. 50.

15 D. R. Coffin, "Pirro Ligorio on the Nobility of the Arts," in *Journal of the Warburg and Courtauld Institutes* 27 (1964), 92, underestimates the severity of Ligorio's criticisms of Michelangelo's architecture when he claims that his ire was reserved mainly for Michelangelo's followers, and that the critique of Michelangelo's designs and built work was "hidden." Actually, it is quite overt—more overt, arguably, than that of nearly any critic in the entire period, and every bit as sharp.

16 On Ligorio as critic of Michelangelo, see M. Tafuri, *Interpreting the Renaissance*, 361; A. Forcellino, *Michelangelo: A Tormented Life* (2005; Cambridge: Polity, 2009), 285; J. S. Ackerman, *Architecture of Michelangelo*, 163; H. Millon and C. H. Smyth, *Michelangelo Architect* (Milan: Olivetti, 1988); H. Millon and C. H. Smyth, "Pirro Ligorio, Michelangelo, and St. Peters," in Gaston, ed., *Pirro Ligorio*, 216–63d; Coffin, "Pirro Ligorio," 191–200; H. von Einem, *Michelangelo* trans. R. Taylor (1959; London: Meuthen, 1973), 219.

17 P. N. Pagliara, "Alcune minute autografe di Giovanbattista Sangallo," *Architettura Archivi* 1 (1982), 25–50; Tafuri, *Interpreting the Renaissance*, 361–2; C. Elam, "Tuscan Dispositions," 60; C. De Tolnay, *Michelangelo Sculptor Painter Architect*, tr. Gaynor Woodhouse (Princeton: Princeton University, 1981), 164–5; S. Meller, "Zur Enstehungsgeschichte des Kranzgesimses am Palazzo Farnese im Rom," *Jahrbuch des Preussischen Kunstsammlungen* 30 (1909), 1ff. On the criticisms and machinations of the "setta Sangallesca" more generally, see G. Vasari, *Le vite de' piu eccellenti pittori, scultori ed architettori*, ed. G. Milanesi (Florence, 1878–1885), VII, 232, 219, 228, 235, 238, 164–266; G. Miarelli Mariani, "La Critica del Vasari e la 'setta sangallesca'" in *Il Vasari storiografo e artista: atti del Congresso internazionale nel IV centenario della morte* (Florence: Istituto nazionale di studi sul Rinascimento, 1976), 567–85; De Tolnay, *Michelangelo*, 14; H. Millon and C. H. Smyth, "Pirro Ligorio, Michelangelo, and St Peters," 237 and n. 148 (with full bibliography).

18 D. Karmon, *The Ruin of the Eternal City: Antiquity and Preservation in Renaissance Rome* (Oxford: Oxford University Press, 2011), 111–112; H. Burns, "Pirro Ligorio's Reconstruction of Ancient Rome: The *Antiquae Urbis Imago* of 1561," in *Pirro Ligorio, Artist and Antiquarian*, 41–42. Although one should remain wary of oversimplifying the problem, one might observe that even if Ligorio was an important and accomplished artist in his own right, it is possible to detect a dimension his conflict with Michelangelo that pits the antiquarian trying to save the ancient marbles and their inscriptions against the zealous architect/sculptor in search of fine materials. This interpretation is corroborated by the language utilized in Ligorio's sharpest critiques, which is pervaded by tropes of destruction, fragmentation, and loss—tropes which have significant precedents in humanist antiquarian discourse since the early 15th century, in Poggio Bracciolini's *De varietate fortunae* (1447) and even earlier, in Petrarch's laments over the ruins of Rome.

fragments of the *Fasti triumphales et consulares* were located in the area of the Regia, and both Ligorio and Michelangelo—along with Palladio, Onofrio Panvinio, and a number of other artists and notable citizens—witnessed their momentous discovery.[19] (Here it is worth pointing out that if the Palladio in question is in fact the architect, and not Blosio Palladio the humanist poet, then this is the first, and perhaps the only, time when Michelangelo and Palladio could have actually met: it certainly coincides with the earliest trip Palladio took with Trissino to Rome in the summer of 1541.)[20] The two artists were at loggerheads from that point on. It was Ligorio who tried to thwart the realization of Michelangelo's design for the attic storey of St. Peter's, both when he was appointed site superintendent in 1555 and, with the connivance of the fanatical Paul IV, immediately after the architect's death in 1564, when he was appointed co-architect of the *fabbrica* alongside Vignola: quite possibly he succeeded in doing so, given recent attributions of this part of the building to his hand.[21] It was Ligorio who, using the extensive polemical resources at his disposal, attempted to undermine Michelangelo's reputation as an architect in Rome at every turn.[22] And it was Ligorio who called Michelangelo's religious orthodoxy into question, linking his willingness to break Vitruvian rules with a tendency to disregard the doctrinal authority of the Roman Church.[23] Yet one does not get very far if the focus is restricted to personal attacks, political intrigues, or biographical minutiae. For this reason it is to the theoretical underpinnings as well as to the substance of Ligorio's criticism of Michelangelo's architecture that we must now turn, and more precisely, to a mode of criticism which provides unique insight into an antiquarian's reverence for classical principle consistent with sixteenth-century opposition to infractions that adumbrate, and even pave the way for, its downfall.

Due to the frequent and conspicuous violations of Vitruvius in Michelangelo's architecture, Ligorio saw in it a threat of fragmentation and disorder capable of leading an entire generation into error. More specifically, it endangered the project of reviving antiquity to which Ligorio had devoted his entire career as artist and antiquarian.[24] In itself, this critical stance evinced a deep-seated anxiety about the dangers of rupture and discontinuity in Michelangelo's experiments with the classical legacy—experiments which, in reality, were crucial to its radical renewal. Such were the stakes of license in the second half of the 16th century: the "construction of rule" went hand in hand with the criticism of "*abusi*" through a continual process of codification that established a basic harmony with the sacred traditions of the Roman Church, then undergoing the first phases of the Counter-Reformation.[25] Ligorio's critique was directed mainly at what he regarded as the "breaking into little pieces" [*rompimenti di morselletti*] of architecture carried out by Michelangelo and his followers, who are also accused of "extravagant inventions" [*invenzioni stravaganti*].[26] Such a position obliged Ligorio to make his theoretical assumptions explicit—assumptions which in this case are most clearly revealed by the choice of metaphors that buttress and enliven the critical points he is making. In addition to the spatial metaphor of breakage, a temporal metaphor of loss also comes into play: for Ligorio, the era of the

ascendancy of Michelangelo and his disciples signals the onset of a "century of lost hope" [*questo secolo di perdutta speranza*].[27]

Yet the scope of his critique, along with its overheated rhetoric, does not stop there. Ligorio holds Michelangelo responsible for sowing disorder in architecture, ruining the orders and proportion, thereby undermining the authority of Vitruvius himself—in Liogrio's grotesque image, "bashing in the brains" of the Roman theorist—and all because he got it into his head that he was an architect, when in fact he was an enemy of true architecture bent on overthrowing its rules: "*vuole colui che sa piu de li disordini in Architettura e in Pittura essere adorato....et havendosi posto nel cervello d'esser Architetto ha rovinato quanti ordini et proporzioni si ritrovano nelle eccellenti opere antiche, e rompono la testa a Vitruvio.*"[28] In a passage which seems to refer to the licentious forms of the Porta Pia ***Fig.1***—although it is difficult to say whether this is in fact what Ligorio is attacking, since the Turin manuscript in which the criticism is found is undated—the Neapolitan architect singles out a "city gate" [*una porta alla citta*] where one can find "a grotesque mask in the middle of the gate that would be more fitting for a Temple of Bacchus or a Theater, something that is regarded as beautiful and praiseworthy, rather than what it actually is, which is truly dreadful, instead of personal emblems, the coats of arms of the Bishops, or some sign worthy of Justice, Equity, or the memory of the patron" ("*una maschera per mezzo, come fosse un Tempio di Bacco o un Theatro, et quanto piu la fingono spaventevole tanto piu reputano*

19 *The Fasti consulares*, carved by Augustus in 17–18 BC on an arch in the Eastern end of the Forum, listed in chronological succession the occupants of the rotating consular chairs of the Roman government. See D. Rosenberg and A. Grafton, *Cartographies of Time: A History of the Timeline* (Princeton: Princeton Architectural Press, 2010), 241; A. Grafton, *The Footnote: A Curious History* (Cambridge, Mass.: Harvard, 1999), 176–77 (with full bibliography).

20 R. Lanciani, *The Ruins and Excavations of Ancient Rome* (1897; New York: Benjamin Blom, 1967), 220–222. On Palladio's first trip to Rome with Trissino, see G. Beltramini, *Palladio privato* (Venice: Marsilio, 2008), 30. On Blosio Palladio, see *ibid.*, 34; De Maio, *Michelangelo e la Controrifroma*, 374–5. Ligorio made a sketch reconstructing the Regia with the inscriptions of the Fasti engraved on its marble walls and pilasters, reproduced in Lanciani, *Ruins*, 221. Michelangelo designed a marble frame for the Fasti, which in 1546 were inserted into the Palazzo dei Conservatori *cortile* in the wall opposite the entrance. In 1586, under the reign of Sixtus V, they were moved to the Sala dei Fasti Antichi. See A. Bedon, "La realizzazione del Campidoglio Michelangiolesco all'epoca di Sisto V e la situazione della zona Capitolina," L. Spezzaferro and M. E. Tittoni, eds. *Il Campidoglio e Sisto V* (Rome: Edizioni Carte Segrete, 1991), 76–83.

21 Forcellino, 285; Ackerman, *Architecture of Michelangelo*, 319; E. Mandowsky and C. W. Mitchell, *Pirro Ligorio's Roman Antiquities*, 1–6; G. C. Argan and B. Contardi, *Michelangelo* (London: Pall Mall, 2012), 325; A. Ciulich, "Nuovi documenti su Michelangelo architetto maggiore di S. Pietro," *Rinascimento* 23 (1988), 173–86.

22 Michelangelo was not alone in being excoriated by Ligorio, who was caught up in ceaseless polemics with the antiquarians of his day. See M. Daly Davis, "Introduction," to *Libro di M. Pyrrho Ligori Napoletano delle Antichità di Roma* (Venice, 1553; Heidelberg: Fontes 9, 2008), 3.

23 See *infra* notes 33, 34.

24 Burns, "Pirro Ligorio's Reconstruction"; D. R. Coffin, *Pirro Ligorio*; A. Schreurs, *Antikenbild*; Mandowsky and Mitchell, *Pirro Ligorio's Roman Antiquities*; Thomas Ashby, "The Bodleian Manuscript of Pirro Ligorio," *Journal of Roman Studies* 9 (1919), 170–201.

25 Tafuri, *Interpreting the Renaissance*, *Cit*. 173–4.

26 Pirro Ligorio, *Trattato di Pyrrho Ligorio Patrio Napolitano Cittadino Romano, di Alcune Cose, appartenente alla nobilta delle Antiche arti* (see partial translation in this volume), 150r; Tafuri, *Interpreting the Renaissance*, *Cit*. 174, 361.

27 Ligorio, *Trattato*, fol. 153r.

28 *Ibid.*

Fig.1 *Porta Pia, Rome (Michelangelo, 1561–65).*
Source: http://it.wikipedia.org/wiki/File:RomaPortaPiaFacciataInterna.jpg

essere cosa bella e laudibile, invece di sculpirvi le Imprese, li Episocipi, et qualche cosa bell ache ci mostri la Giustizia, la Aequita, o la memoria del conditore...").[29] In addition, Ligorio criticizes the use of double cartouches, one inside of the other, which break the rectilinearity of normative *modanatura*, so that curvilinear or drooping elements figure prominently. These have an equivalent in a number of different instances in Michelangelo's production, as for example the cartouches on either side of the central portal of the Laurentian Library ricetto or vestibule***Fig.2*** and similar inventions flanking the central portal of the city-side of the Porta Pia. ("*A questi ancora pare cosa degna di laude quando nell'architettura hanno fatto molti frontespitij l'uno dentro l'altro, chi rotto e chi intero....Li contorni hanno fatti strapiombare o cadere fuor del perpendicolare infuori, cosa contra la natura delle quadrature, et della decisione delle cose che si fanno ferme o stabili.*")[30]

Ligorio casts doubt on the theoretical justification for Michelangelo's radical departures from ancient rules, which, flying in the face of reason and common sense, are not only "devoid of meaning....fantastic, fragmented" [*interotto*], but also are "dreadful to look at" [*pauroso*], more appropriate to a "dream or Fury" or "madness" [*materie degne di un*

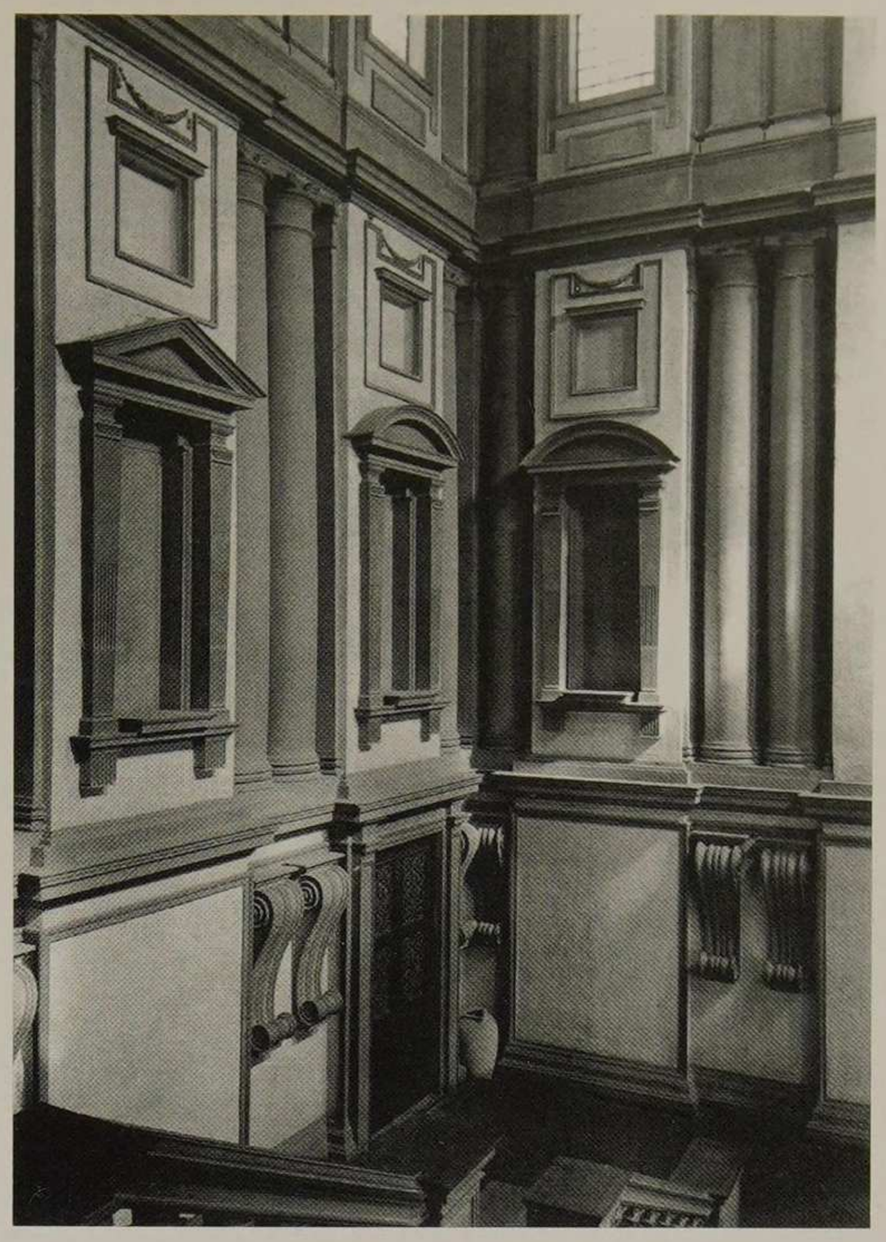


Fig.2 *Laurentian Library vestibule, Florence (Michelangelo, 1523–71). Credit: Hilde Lotz-Bauer*

sogno o del Furore, o della pazzia] rather than "to good sense or Religion" [*piuttosto che degne di significato o di Religione*].[31] This recalls Francesco de Hollanda's (clearly less negative) criticism identifying Michelangelo's architectural invention with a taste for "chimeras" [*chimere*], and, in a more general sense, Vincenzo Danti's own concept of the *chimera*, understood to be those architectural forms which "do not represent anything made by Nature, but whose parts do represent, however, this or that natural thing."[32] Calling the artistic coherence of Michelangelo's architecture into question, Ligorio implies that it is the product of a mind that is unstable, and of a spirit that is quite possibly heretical. The comparison of heresy in religion and defiance of Vitruvian orthodoxy was not unknown in the 16th century, before it captured more widespread attention through a *bon mot* of Bernini regarding Borromini, of whom Bernini said it was better to be a bad Catholic than a good heretic, in reference to his rival's conspicuous deviations from Vitruvian rule.[33] In any case it would have made tactical sense for Ligorio to resort to such an insinuation, given the fact that the Pope who opposed

29 *Ibid.*

30 *Ibid.*

31 *Ibid.*

32 Francisco de Hollanda, *Dialogos em Pintura* (1548), cited in D. Summers, "Michelangelo on Architecture," *Art Bulletin* 54.2 (June 1972), 151. For a contextualization of Hollanda's Dialogos, see R. W. Lee, "Ut Pictura Poesis: the Humanistic Theory of Painting," *Art Bulletin* 21 (1940), 197, n. 6 and E. Di Stefano, *Arte e Idea. Francesco de Hollanda e l'Estetica del Cinquecento* (Palermo, 1990); M. Tafuri, "Discordant Harmony from Alberti to Zuccari," *Architectural Design* 21 (1979), 41.

33 Tafuri, "Discordant Harmony from Alberti to Zuccari," 41. M. Carpo, *Architecture in the Age of Printing* trans. Sara Benson (Cambridge, Mass.: MIT Press, 2001); M. N. Rosenfeld, "The Mask and the Model," *Design Book Review* 34 (1994), 41–42. One of the earliest analogies between religious and architectural heterodoxy in the Renaissance is found in Serlio's treatise, in which critics of Vitruvius are called "eretici." Serlio, *Tutte l'opere*, III, 112r. For the passage in Domenico Bernini's biography of Gianlorenzo—"It is a lesser evil to be a bad Catholic than a good heretic"—see D. Bernini, *The Life of Gianlorenzo Bernini*, translated by F. Mormando (University Park, Penn.: Penn. State, 2011), 117.

Michelangelo and gave his ear to Ligorio, Paul IV, was also inimical to the reformist impulses of the *Spirituali*, the group of Catholic Reformers to which Michelangelo himself belonged. These included, above all, Cardinal Reginald Pole, Vittoria Colonna, Cardinal Giovanni Morone, and Cardinal Pietro Bembo, all of whom had enjoyed the favor of Paul III—the Pope who appointed Michelangelo as chief architect of St Peters, thereby drawing the jealous spite of Ligorio in the first place.[34]

Ackerman has observed that with Michelangelo architecture becomes a dynamic process, and is caught up, as in no other 16th century mode of practice, in the throes of constant metamorphosis.[35] This insight is reversed, yet in a sense also acknowledged, by Ligorio's strictly normative critique. By asserting that Michelangelo's architecture belongs to the tormented world of a dream or a fury, thereby placing it in a realm of aesthetic experience located beyond the conventional limits of form and meaning, Ligorio's assaults betray more than they know. In so doing they touch upon the dynamism which dreams, madness, and fury embody, a ceaseless movement defying the fixed boundaries of convention. One look at Michelangelo's exploration of this dynamism, for instance, in the Porta Pia, where the constitutive elements of the orders are fragmented and move around restlessly, or in the Laurentian Library *ricetto*, where the stair overflows, with titanic force, the limits of the space that tries to contain it ***Fig.3***, or in the door of the

Fig.3 *Laurentian Library vestibule stairs, Florence (Michelangelo, 1523–71). Credit: Andrea Jemolo / Scala / Art Resource, NY*

same project, which, when seen from the reading room, reads as the result of one structure (an aedicule, consisting of free-standing columns carrying an architrave and segmental pediment), penetrating, or passing through, another (the framed door) in two directions ***Fig.4***, is sufficient to convince us of the justness of the critique, as long as the signs are reversed, and the rigidity of the normative ideal is mitigated in favor of a more balanced reception of the flexibility of language.[36]

Fig.4 *Laurentian Library reading room portal, Florence (Michelangelo, 1523–71). Credit: Time & Life Pictures*

PALLADIO ON ABUSES: AN IMPLICIT CRITIQUE OF MICHELANGELO'S *LICENZA*

Manfredo Tafuri has suggested that Ligorio's critique of Michelangelo might be compared to similar passages in Palladio's chapter on abuses (*Quattro Libri* I, xx) directed at Michelangelo, but also at Giulio Romano and Serlio (a sequence implying a hierarchy of errors that, as we shall see, is significant in itself).[37] What distinguishes the two critical approaches, however, is not simply a more even tone on Palladio's part. There is an important difference in theoretical content as well: Palladio leaves the door open for free invention while shutting it to the more extreme abuses of syntax, structure, form and ornament. These errors drew his greatest degree of censure, which, to be sure, seems quite restrained when compared to Ligorio's total repudiation.

34 On Michelangelo and the *Spirituali*, see A. Forcellino, *Michelangelo Buonarroti: Storia di una passione eretica*, introduction by A. Prosperi (Turin: Einaudi, 2002); *Michelangelo: A Tormented Life*; R. di Maio, *Michelangelo e la Controriforma*; A. Nagel, "Gifts for Michelangelo and Vittoria Colonna," Art Bulletin 79:4 (1997), 648–88, subsequently developed further in the same author's *Michelangelo and the Reform of Art* (Cambridge: Cambridge University, 2000); M. Cali, *Da Michelangelo a L'Escorial. Momenti del dibattito Religioso nell'arte del Cinquecento* (Turin, 1980); W. Binni, *Michelangelo Scrittore* (Turin: Einaudi, 1975), 67–69. On the *Spirituali* in the context of reformist movements in16th century Italy, much has been written, particularly in relation to art. Some of the most important contributions are C. Ginzburg and A. Prosperi, *Giochi di Pazienza: Un Seminario sul 'Beneficio di Cristo'* (Turin: Einaudi, 1975); C. Ginzburg, *Il Nicodemismo: Simulazione e dissimulazione religiosa nell'Europa del Cinquecento* (Turin: Einaudi, 1970); D. Cantimori, *Eretici Italiani del Cinquecento* (Florence: Sansoni, 1939); M. Tafuri and A. Foscari, *L'Armonia e i conflitti. La chiesa di S. Francesco della Vigna nella Venezia del '500* (Turin: Einaudi, 1983); Tafuri, *Venice and the Renaissance; idem.*, "Giulio Romano: Language, Mentality, Patrons" in H. Burns, E. H. Gombrich, M. Tafuri, eds. *Giulio Romano* trans. Fabio Barry (Cambridge: Cambridge University, 1998), 99ff, and *idem.*, "Ipotesi sulla religiosità di Sebastiano Serlio," in *Sebastiano Serlio*, ed. C. Thoenes (Milan: Electa, 1989), 57–66.

35 Ackerman, *Architecture of Michelangelo*, *Cit.* 115, 251–6, 274–6.

36 Ibid., 274–6; J. Wilde, *Michelangelo: Six Lectures* (Oxford: Clarendon, 1978), 145–6; De Tolnay, *Michelangelo*, 135.

37 Tafuri, *Interpreting the Renaissance*, 361.

The theoretical question of how to deal with deviations from the rules—whether these are classified as structural deficiencies, formal anomalies, or errors affecting structure and form alike—and its corollary, the problem of the parameters of license, were well-established areas of architectural theory well before Palladio arrived on the scene. Vitruvius discusses these themes in different passages in *De Architectura*, as does Alberti in his chapter on license in Book IX of *De re aedificatoria*, where he affirms that such departures are more acceptable in private rather than in public buildings.[38] The determination of permissible exceptions depended largely on one's theoretical standpoint. Generally speaking, deviations that threatened *firmitas*, or structural integrity, were more easily classified as unacceptable errors than as merely debatable variations, which often depended, for their part, on aesthetic considerations. It is worth recalling, however, that structural and formal logic went hand in hand—as in the so-called "*pieno in asse*" (placement of a solid above a void) and in the case of the Vitruvian condemnation of the fantastic and precarious structures represented in Pompeiian frescoes of the so-called "second style."[39] In fact, the two areas tended to be so inextricably bound together that censure of one *ipso facto* meant censure of the other. In any case, it is clear that a strict Vitruvian, not to mention a figure like Gallaccini who sought to outdo Vitruvius himself in his level of rigor, was prepared to consider all deviations as errors, and none as acceptable exceptions to classical rules.

Palladio's critical strategy *vis-à-vis* Michelangelo took two forms: first, it was partly veiled, as the architect is not named, possibly for reasons of prudence, one of the recognized virtues of the humanist architect; second, though it can scarcely be doubted that the architect singled out for criticism is Michelangelo, given the nature of the "abuses" being analyzed, he also leaves ample room for interpretation to the reader, and the final judgment as well, though it is clear where the author stands on the issues raised. The problem of abuses of the rules of the ancients that Palladio isolated must be seen against the background of Vitruvian studies, given the fact that he was preparing the illustrations for Barbaro's translation of Vitruvius at the time that became acquainted with Ligorio.[40] Palladio had become friends with Ligorio during his final trip to Rome in 1554, where, along with Daniele Barbaro, he was introduced into the circle of Cardinal Ippolito d'Este, whose villa at Tivoli Ligorio was then designing and building.[41]

It is likely that in Tivoli the two architects had lively discussions about the complex relationship between the theoretical rigor of Vitruvius and the flexible attitude towards rule exemplified by the antiquities that both were seeking out and drawing. In this connection it is not insignificant that when studying the ancients Palladio frequently relied on the findings of Ligorio, whose celebrated renderings of monuments such at the Temple of Clitumnus, the Roman villa at Anguillara, and the Temple of Fortuna Primigenia at Praeneste Palladio borrowed and redrew. In exchange, Ligorio made use of Palladio's survey drawings of the Porta Aurea in Ravenna and the amphitheater in Verona, among others *Fig. 5*.[42] It is striking to note that among

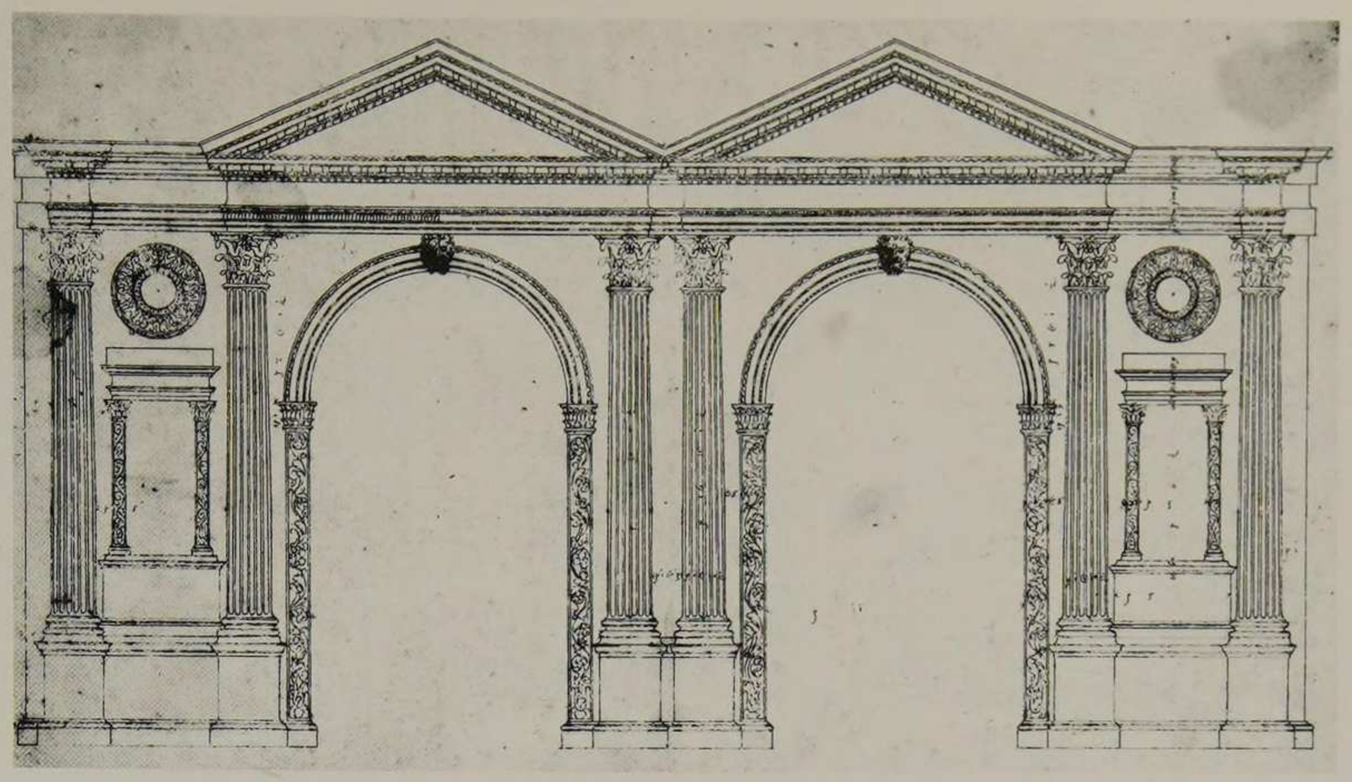


Fig.5 *Porta Aurea, Ravenna (drawing by Andrea Palladio).*

Palladio's villas, the Villa Barbaro at Maser, designed with an unusual amount of input from Daniele himself, is the only one that betrays a familiarity with the architecture of Ligorio (especially the Casino of Pius IV), especially in the elaborate stucco work in the nymphaeum above the fish pond at the rear of the villa; a similar approach would be adopted in the Loggia del Capitaniato in Vicenza in the 1570s ***Figs.6,7,8***.[43]

Thus, Ligorio's impact on Palladio's architecture was not inconsiderable. Yet it was clearly less than Michelangelo's, whose giant order was inventively adapted in Palazzo Valmarana and in the Loggia del Capitaniato, and in different ways in the Venetian churches. Interestingly enough, the Loggia shows a fusion of opposed tendencies: in this work Palladio combines the heroic scale of Michelangelo and the crowded relief style of Ligorio, the

38 Vitruvius, *De Architectura*, III, 3, 13; IV, III, 2; IV, II, 3-5; VII, V, v, 1–5; Alberti, *The Art of Building in Ten Books* trans. Robert Tavernor with an introduction by Joseph Rykwert (Cambridge, Mass.: MIT Press, 1988), IX:1, 293.

39 See *infra* n. 56.

40 Ackerman, *Palladio* (London: Penguin, 1991); Tafuri, "La Norma e il programma."

41 C. Occhipinti, "Daniele Barbaro, Pirro Ligorio e Andrea Palladio: incontri romani" in *Palladio 1508-2008: Il Simposio del Cinquecentenario*, eds. G. Beltramini and H. Burns (Padua: Marsilio, 2008), 109–112, and, in the same publication, F. Lenzo, "Roma 1545–1547. Ligorio, *Palladio*, e l'epigrafia," 113–114; Ackerman, Palladio, 27, 36; Tavernor, "Introduction," to A. Palladio, *Four Books on Architecture*, ed. Tavernor and R. Schofield (Cambridge, Mass.: MIT Press, 2002), ix; H. Burns, "Da naturale inclinatione guidato: il primo decennio di Palladio architetto," in *Storia dell'Architettura Italiana. Il Cinquecento*, ed. A. Bruschi (Milan: Electa, 2002), 385, 400; T. C. Blagg, "Ligorio, Palladio, and the Decorated Roman Capital for the Mura di Santo Stefano," *Papers of the British School at Rome* 47 (1979), 102–40.

42 R. Tavernor, "Introduction" to Palladio, *Four Books*, ix; J. J. Emmerich, *The Tempietto del Clitunno near Spoleto* (University Park, Penn.: Penn. State, 1998), I, 115.

43 Tafuri, *Venice and the Renaissance* (Cambridge, Mass.: MIT Press, 1995), 126; Ackerman, Palladio, 36–43; D. Battilotti, "Villa Barbaro a Maser: un difficile cantiere," *Storia dell'arte* 53 (1985), 33–48; H. Burns and G. Beltramini, *Palladio* trans. David Kerr (London: Royal Academy of Arts, 2008), 114–49, where the façade of Villa Barbaro is called "Ligorian" due to the dense stucco ornament in the central pediment; F. Barbieri, "Palladio in Villa" in *Architetture Palladiane: Dalla practica del cantiere alle immagini del trattato* (Vicenza: Neri Pozza, 1992), 152.

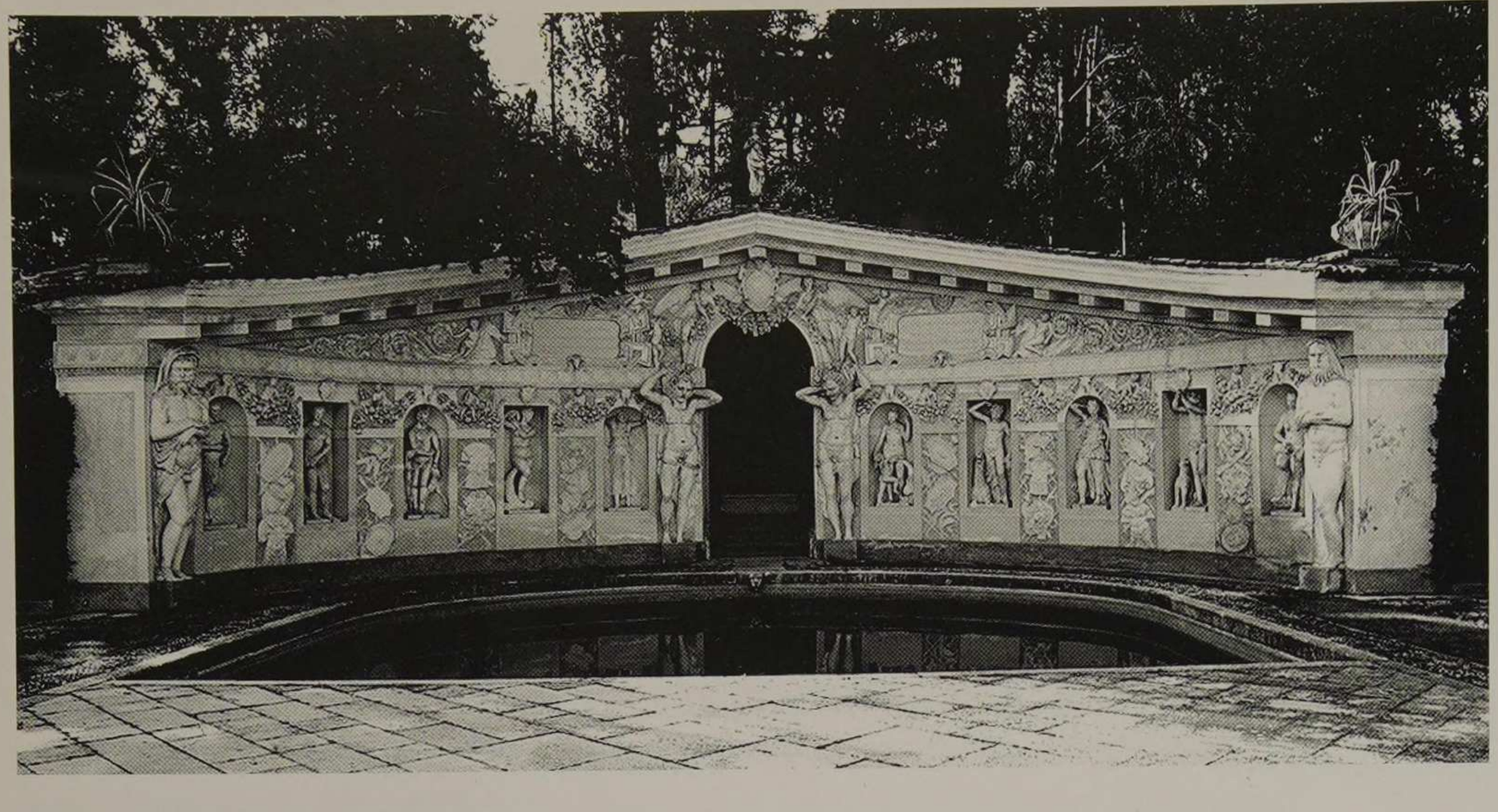


Fig.6 *Villa Barbaro, Maser (Andrea Palladio, c. 1560), nymphaeum. Credit: Hans A. Rosbach, Creative Commons 3.0. Source: http://commons.wikimedia.org/wiki/File:VillaBarbaro_2007_07_08_09.jpg*

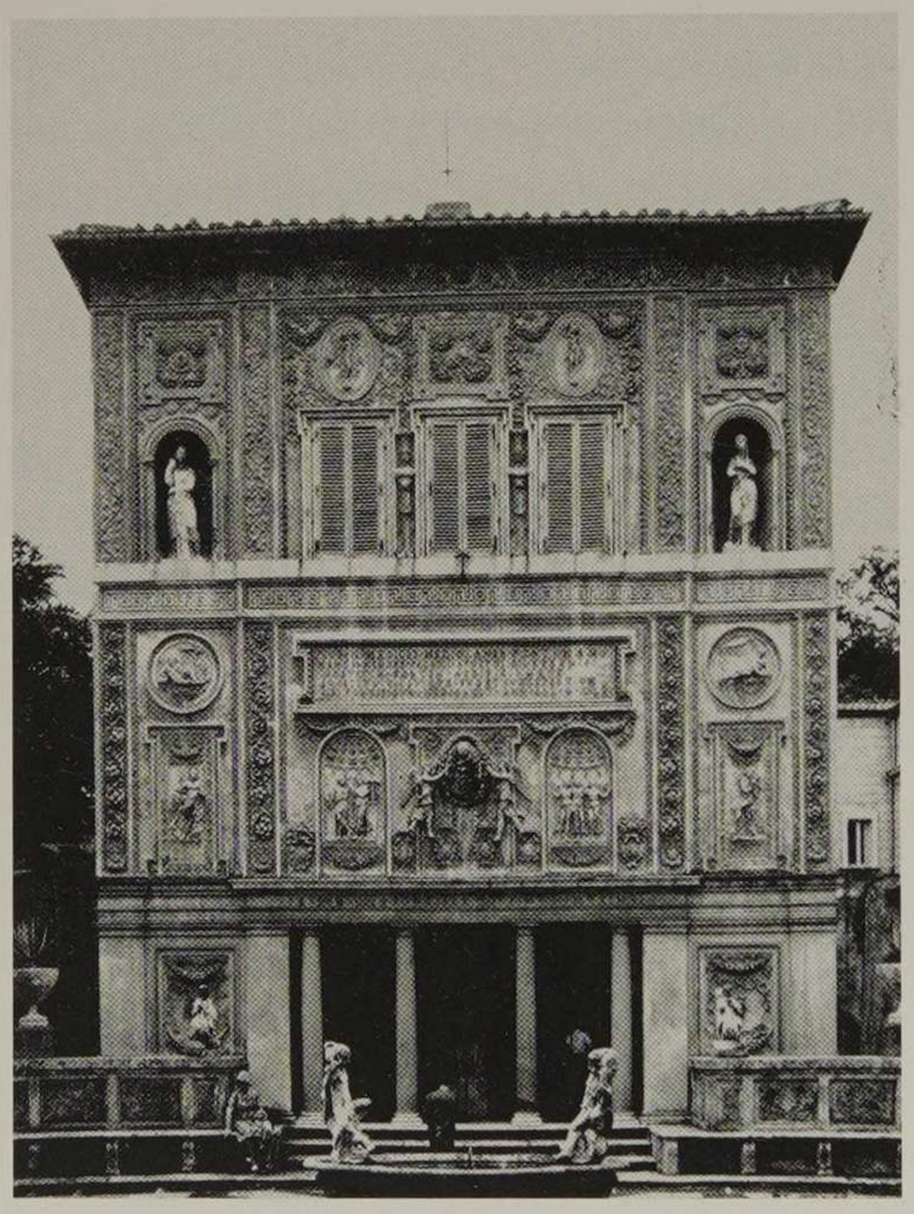


Fig.7 *Loggia del Capitaniato, Vicenza (Andrea Palladio, 1565–72). Credit: Marcok, Creative Commons 3.0. Source: http://commons.wikimedia.org/wiki/File:Palazzo_del_Capitanio-Vicenza_03.jpg*

Fig.8 *Casino of Pius IV, Vatican (Pirro Ligorio, 1559–62). Credit: J. Ganz*

latter marked by a characteristic *horror vacui*, with results that are perhaps not among the most successful in Palladio's output.[44] The essential thing to remember about Palladio's encounter with Ligorio in the circle of Cardinal d'Este, however, is that it exposed him to a milieu in which criticisms of Michelangelo's license were particularly intense. However, even if Palladio picked up the habit of criticizing Michelangelo's architecture, he tempered his criticism so that it never reached the polemical intensity of Ligorio's. It is fascinating to see Palladio navigating between the extremes of anti-Michelangelo sentiment and genuine interest in Michelangelo's practice, visible upon his return to Vicenza in the 1550s. In fact, he applied the giant order, pioneered by Michelangelo himself in the lateral apses of St Peter's and the Capitoline palaces, to the

Palazzo Valmarana (though it is also true that a form of the giant order was also devised earlier by Bramante in the parish church of Roccaverrano, c. 1515, now destroyed, a work that Palladio may have known) ***Figs.9,10,11***.[45]

Fig.9 *St. Peter's Basilica (Michelangelo and others, 16th c.), side apse. Credit: Vatican Photographic Archive*

Fig.10 *Palazzo Valmarana, Vicenza (Andrea Palladio, 1565). Credit: David Nicholls, Creative Commons 2.0. Source: http://www.flickr.com/photos/netnicholls/2426469162/*

Fig.11 *Parish church, Roccaverano (Donato Bramante, c. 1510), hypothetical reconstruction by D. Dalpozzo. Source: Manuel Morresi, "Bramante, Enrico Bruno e la parrocchiale di Roccaverano" in* La piazza, la chiesa, il parco, *ed. Manfredo Tafuri (Milan: Electa, 1991)*

44 On the Loggia see Ackerman, *Palladio*, 117–22; R. Wittkower, *Architectural Principles in the Age of Humanism* (New York: W.W. Norton, 1971), 86–87. On Palladio's reception of Michelangelo see A. Bruschi, "Palladio e gli architetti del suo tempo. Qualche brevissima considerazione," in *Palladio 1508-2008: Il Simposio*, 97; Burns and Beltramini, eds., Palladio, 202–7; Wittkower, *Architectural Principles*, 86; Ackerman, *Palladio*, 31, 38; H. Burns, "Da naturale inclinatione guidato," 396, n. 119. On the essential characteristics of Ligorio's language, which Lotz defines in terms of a commitment to archeological accuracy as he understood it even more than to the Vitruvian ideals defended in the unpublished treatise, see W. Lotz, *Architecture in Italy 1500–1600* (New Haven: Yale, 1995),107–110. One finds it difficult to disagree with Frommel, who calls Ligorio's heavily ornamented style "overlavish," and discerns a ludic propensity bordering on the grotesque that makes his attacks on Michelangelo's license seem all the more curious—or all the more understandable, given the intense rivalry he felt towards the Florentine artist and architect. C. L. Frommel, *Architecture of the Italian Renaissance* trans. Peter Spring (London: Thames & Hudson, 2007), 192–3.

45 Tafuri, *Interpreting the Renaissance*, 113.

Ligorio's rigorist criticism did not prevent Palladio from citing Michelangelo's architecture in his own more than once, especially in the Palazzo Chiericati (window pediments of *the piano nobile*, which support reclining statues derived from the Medici Chapel Tombs) in addition to the aforementioned use of the giant order in the Loggia del Capitaniato and the Palazzo Valmarana **Fig.12** (As Arnaldo Bruschi has pointed out, Palladio

Fig.12 *Palazzo Chiericati, Vicenza (Adrea Palladio, 16th c.), windows of piano nobile. Credit: MM, Creative Commons 3.0. Source: http://commons.wikimedia.org/wiki/File:VicenzaPalazzoChiericatiTimpanoFinestra.jpg*

could have not seen the giant order on the Capitoline palaces at the time of his visit in 1554, as they were not yet complete, and Étienne Dupérac's print of the entire piazza and its buildings had not yet been published; the Palazzo Valmarana, moreover, predates Dupérac). On the other hand, Palladio could have seen Luchino's print showing the apses of St Peters, with their giant orders, published in 1557 **Fig.13**.[46] It is consistent, however, with his

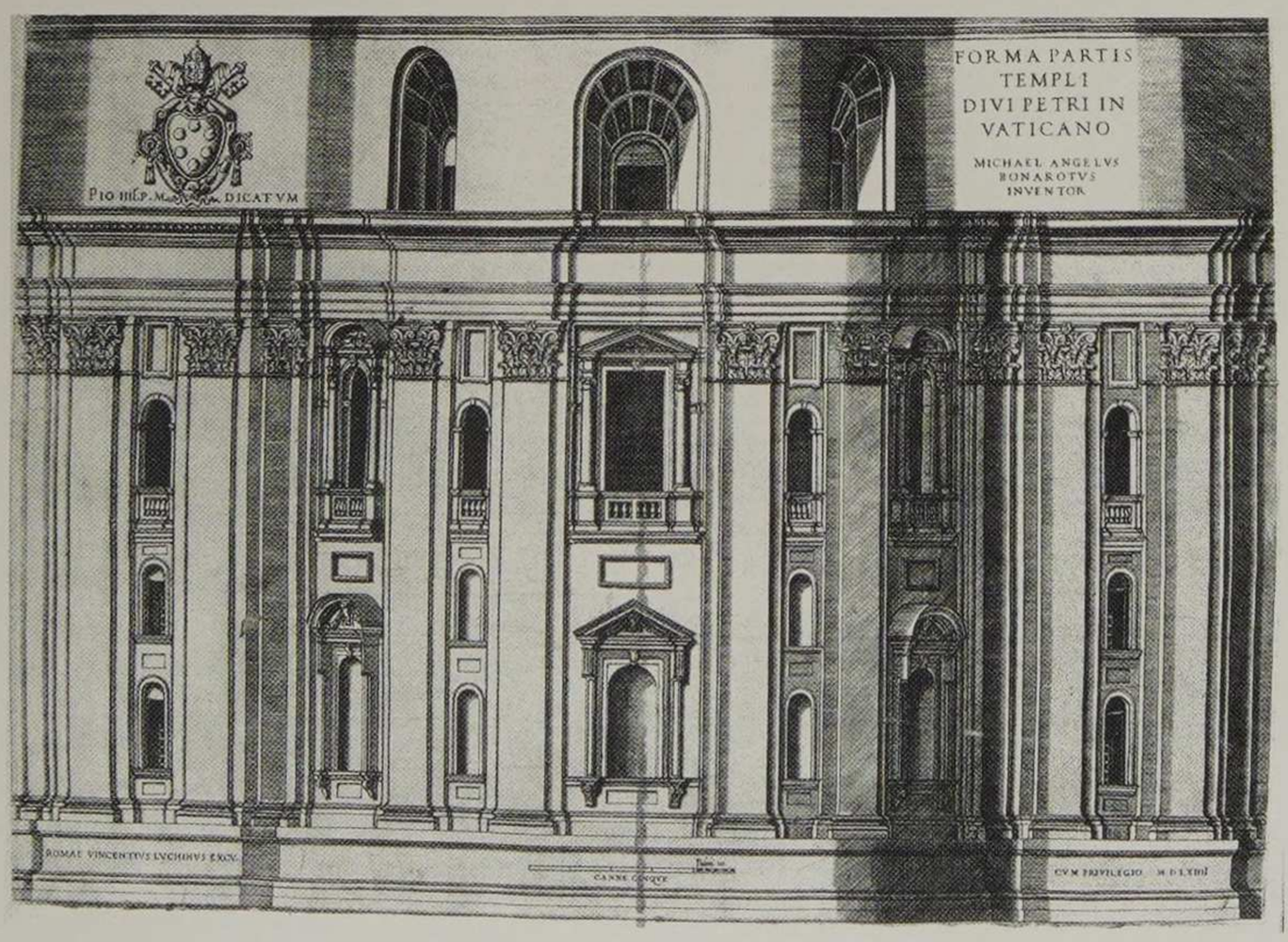


Fig.13 *Vincenzo Luchino,* Forma Partis Templi Divi Petri in Vaticano *(engraving of St. Peter's Basilica) (1564)*

theoretical strictures that Palladio steers clear of precisely those aspects of Michelangelo's approach that were singled out for criticism in his treatise. This suggests that he regarded some aspects of Michelangelo's innovations as licit and others as illicit or erroneous, and that more room was allowed for license in his own practice than in his theoretical corpus. But if Palladio thus adopted a complex posture, no such subtlety or nuance can be found in any other reception of Michelangelo from the same period—least of all Ligorio's.

In the *Four Books*, after stating that abuses in architecture were imported into Italy by the barbarians, and affirming that it is essential to identify them so they can be avoided—familiar commonplaces often evoked in the Renaissance treatises and in Raphael's *Letter to Leo X*—Palladio recalls the fundamental Vitruvian idea, which would seem to derive from the Stoic philosopher Posidonius, that architecture imitates nature, and, as a result, "cannot endure anything that alienates and distances itself from what nature permits."[47] For this reason, since trees are thicker at the base than they are at the crown, so too columns must follow suit, and in this sense all of the ornaments of architecture derive from similar considerations, especially those of gravity, which, according to the natural order of things, implies a base placed under all the different kinds of columns, not to mention the torus and scotia, whose forms make them seem to be crushed by the weight above them. Following this naturalistic logic, Palladio singles out the following inventions as abuses: 1) the placement of scrolls [*cartella*, also called *cartocci*] instead of columns and piers, whose purpose is to bear weight; 2) the practice of making these scrolls spring forth from cornices; 3) The splitting of tympanums in the middle for doors, windows, and loggias; 4) the gross abuse [*abusione*] of allowing cornices to project too far, "because when they extend further than is reasonably appropriate, apart from the fact that if they are in an enclosed space they will make it narrow and displeasing, they will frighten those who stand under them because they always look as though they are about to collapse"; 5) cornices which are incorrectly proportioned in relation to the columns, which must be avoided "since if you put large cornices on small columns, and vice versa, who could doubt that such a building would have a hideous appearance?" 6) and finally, "one should at all costs avoid making the columns look as though they are divided by putting rings and garlands around them which appear to keep them united and firm, because the more columns appear to be complete and robust, the more they appear to produce the effect for which they were put there, which it make the structure above look secure and stable."[48]

Although it is possible to discern many of these practices in the work of Palladio's immediate precursors or contemporaries, it is striking that all of them can be found in Michelangelo's architecture. Indeed, it is safe to say that Michelangelo is the only contemporary figure to commit the full

46 Bruschi,"Palladio e gli architetti del suo tempo," 97.

47 Palladio, *Four Books*, ed. Tavernor and Schofield, I, xx, 51. On Vitruvius and Posidonius, see Rykwert, *On Adam's House in Paradise*, 110–11. On the trope of the solecisms introduced by Goths, see Raphael, "Letter to Leo X," in E. G. Holt, ed. *A Documentary History of Art* (Garden City, New York: Doubleday, 1957), I, 289–96, esp. 293, 295.

48 Palladio, *Four Books*, ed. Tavernor and Schofield, I, xx, 51–2.

range of "abuses" identified by Palladio. Not even Giulio Romano enjoys this distinction: to the best of my knowledge, even if many of the other infractions are found abundantly in his works, and especially in the Palazzo Te, there is no instance of a cornice which is disproportionate to the orders beneath it in his *oeuvre*. Another way to say this is to observe that it is remarkable that every instance in Palladio's inventory of abuses has a more or less exact equivalent in Michelangelo's architecture, and, moreover, in works of Michelangelo that Palladio either saw first hand or reproduced in books or in prints, or could have seen, since they all predate the *Four Books*. To be sure, some of the errors in question are more blatant than others, as in the case of those enumerated in the fourth and fifth categories, which do, however, have a less than obvious correspondence in Michelangelo's oversized cornice for the Palazzo Farnese (less than obvious, as regards the fourth category, because the columns are not found on the outside, on the façade, but rather in the *cortile*).

What is more, in Michelangelo's case, many of the abuses enumerated by Palladio figure prominently in the works of architecture in question. One only has to recall the voluted double consoles [*cartocci*] in the Laurentian Library *ricetto* **Fig.2**, which invert the usual relation of load and support, or the broken tympanum above the portal at the top of the stairway in the same vestibule **Fig.3**—one of the very earliest, if not the earliest, of its kind, and clearly one of the most celebrated instances of this innovation in all of Renaissance architecture—to see that Palladio had Michelangelo in mind when drawing up his inventory of errors. Indeed, the fact that two of the most egregious infractions are found in the same work of Michelangelo only serves to strengthen the argument. It goes without saying, moreover, that one of the most glaring instances of the broken tympanum in Michelangelo's *oeuvre*, which is even more prominent because it adorns a public space, is seen in one of his more licentious works: the Porta Pia, in which this motif attains a kind of apotheosis **Fig.1**. As for cornices that project too far from their columnar support, no better example exists in Michelangelo's architecture than the exaggerated projection of the cornices of the transverse Corinthian columns in the Sforza Chapel, made even more emphatic by the diagonal orientation of the columns themselves **Fig.14**. One should also mention the garlands interpolated into the

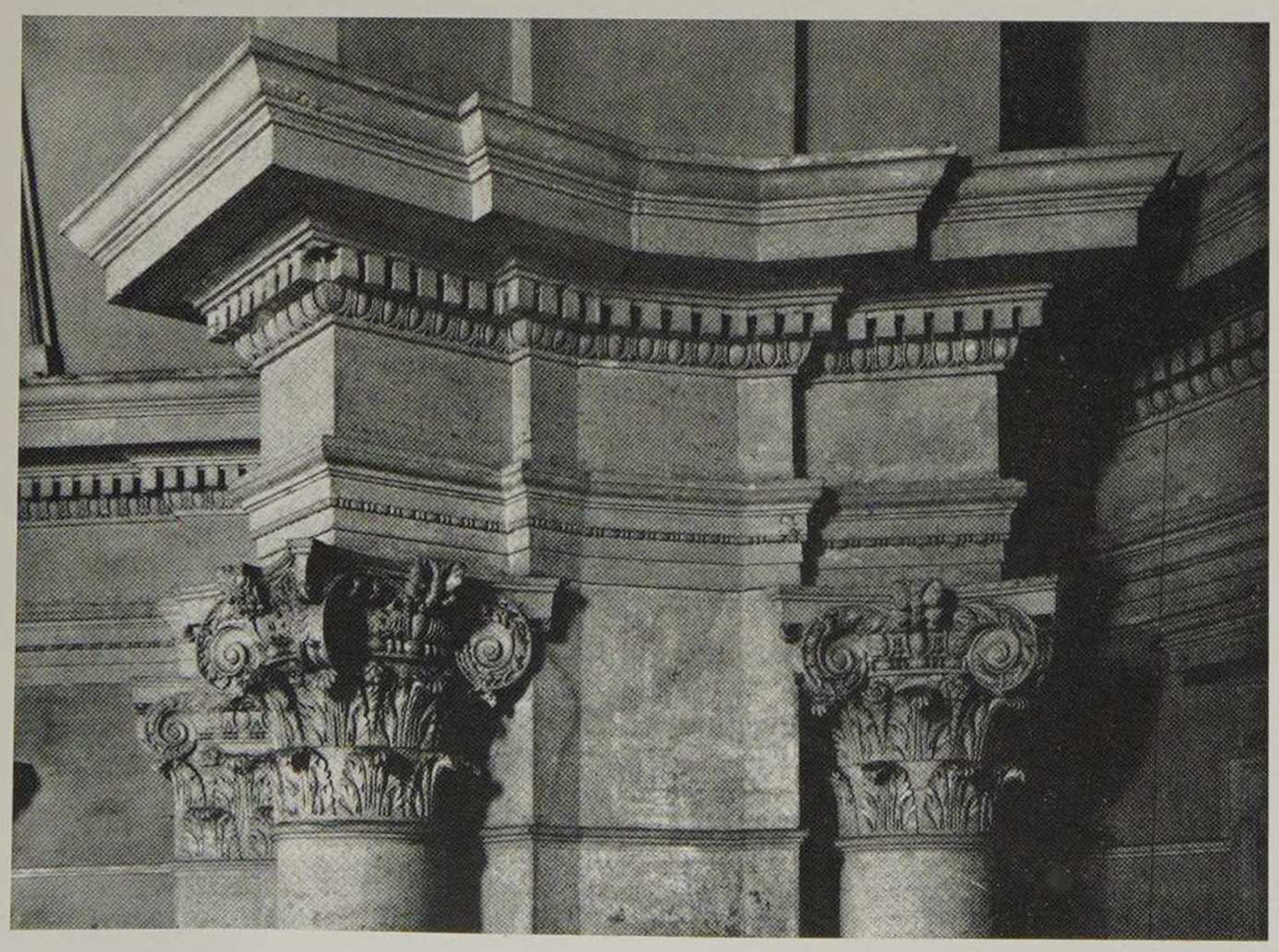


Fig.14 *Sforza Chapel, Rome (Michelangelo, c. 1560–73), columns. Credit: Anderson*

novel form of the Tuscan composite order found in the Medici Chapel *Fig.15*,

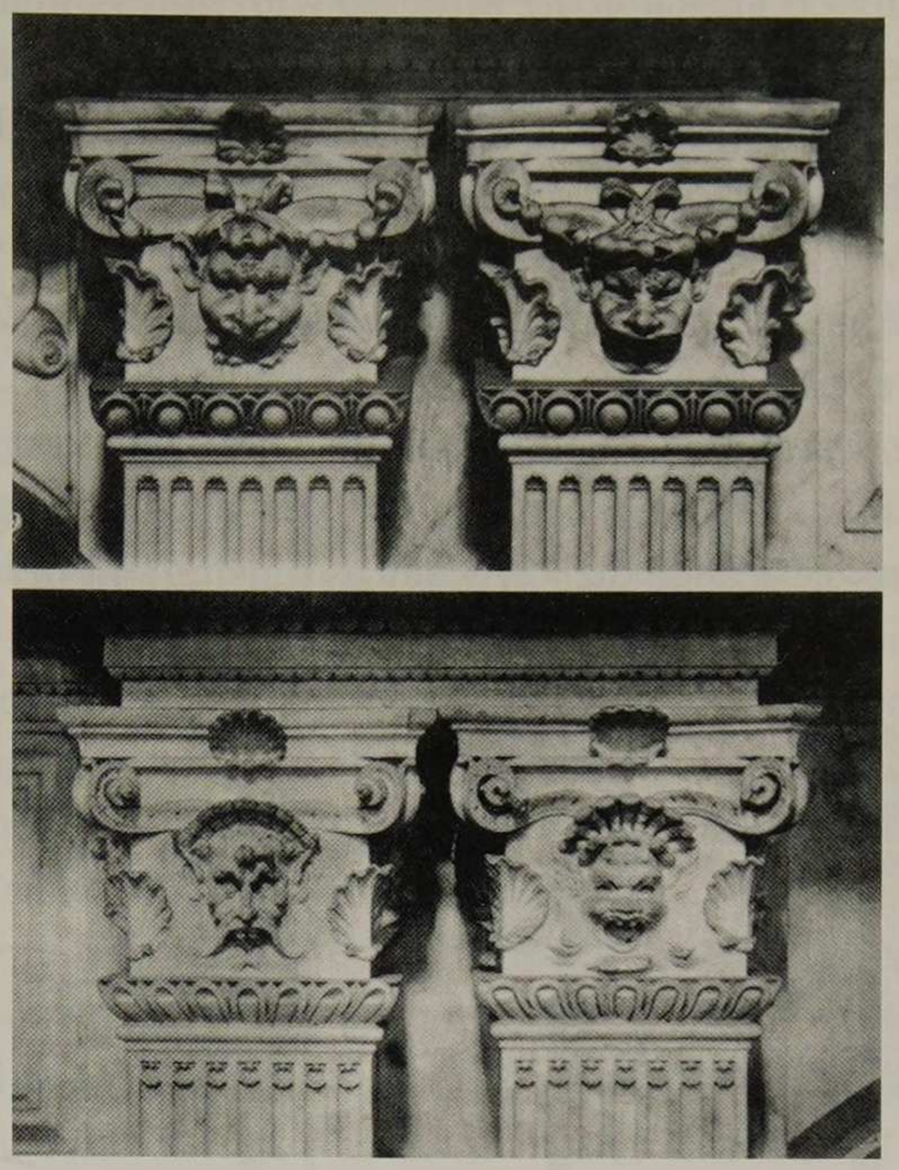


Fig.15 *Medici Chapel, Florence (Michelangelo, 1521–24), capitals on tombs. Tuscan composite order. Source: Caroline Elam, "Tuscan Dispositions': Michelangelo's Florentine architectural vocabulary and its reception,"* Renaissance Studies *19:1*

which clearly would count among the affronts to classical orthodoxy that fall under Palladio's sixth and final category of *abusi*.[49]

PATHOLOGIES OF INVENTION: *ERRORE* AND *LICENZA* IN GALLACCINI'S *TRATTATO*

Teofilo Gallaccini (1564–1641), professor of mathematics and philosophy at the University of Siena from 1621 to 1641, was a follower of Palladio who adhered to a stricter view of classical orthodoxy that anticipated the tenets of eighteenth-century neoclassicism.[50] Having studied medicine before writing the *Trattato sopra gli errori degli architetti*, completed in 1621 but not published until the mid-eighteenth century, the Sienese critic displays a unique sensitivity to the causes and effects of error in architecture, which he compares with defects of anatomy and physiology that lead to disease. Even if there is no evidence that, unlike his friend Giulio Mancini, he was actually trained as a physician, his architectural thought is informed by a period medical epistemology.[51] This much is clear from his credo that appears at the conclusion of the treatise, in which he draws a direct connection between

49 On this innovation as a novel form of the composite order, see now the perceptive observations in Elam, "Tuscan Dispositions," 47ff.

50 On Gallaccini, see A. A. Payne, "Architectural Criticism, Science, and Visual Eloquence: Teofilo Gallaccini," *JSAH* 58:2 (June 1999), 146–169; *idem., The Architectural Treatise in the Italian Renaissance* (Cambridge: Cambridge University, 1999); *idem., The Telescope and the Compass: Teofilo Gallaccini between Architecture and Science in the Age of Galileo* (Florence: Olschki, 2012); A. A. Payne, ed., *Teofilo Gallaccini: Selected Writings and Library* (Florence: Olschki, 2012); Ackerman, "Palladio: In What Sense Classical?" in *Origins, Imitation, Conventions* (Cambridge, Mass.: MIT Press, 2002), 242ff; G. Morolli, "Capitelli analogici, capitelli anagogici in un trattato inedito di Teofilo Gallaccini," *Quaderni della Società di Architettura e Restauro* 4–5 (1990–1); *Dizionario Biografico degli Italiani* (Rome: Istituto dell'Enciclopedia Italiana, 1998), v. 51, 509–12.

51 *Ibid.*, 512.

architecture and medicine: "For just as the purpose of the science of medicine is the recovery of health in bodies that are afflicted with illness, and the preservation of health in those that have already recovered, so too the purpose of architecture is to make buildings that are for the benefit of men, and for their preservation." [*Siccome il fine della Scienza della Medicina e il ricovrimento della Sanita dei corpi infermi, e il conservamento della Sanita dei riconquistati, cosi il fine dell'Architettura sono le Fabbriche, le quali si fanno a benifizio degli uomini, e il conservamento di essi.*][52]

In pursuing this approach in his Trattato, Gallaccini undertook a series of "diagnoses" of architectural error accompanied by striking visual examples ***Fig.16***.[53] However, despite their efficacy as illustrations of his

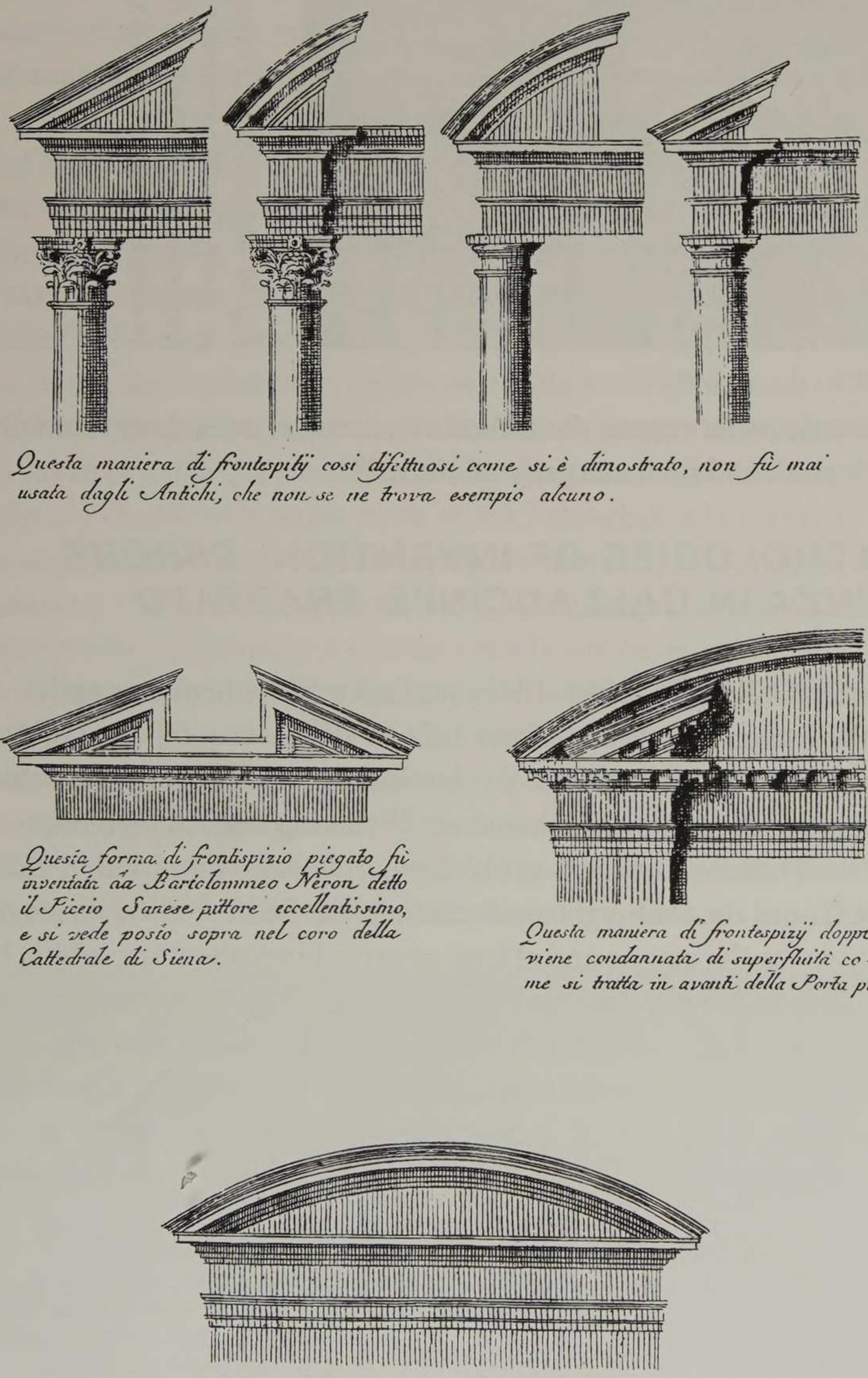


Fig.16 *Teofilo Gallaccini, illustrations of error in architecture from Trattato sopra gli errori degli architetti (Venice, 1767)*

theoretical stance, the *Trattato* had little or no effect on the architectural thought of its time. It did, however, contribute to the rise of neoclassical architectural theory in the circle of Andrea Memmo and Antonio Visentini, who edited and published the text with an extensive commentary and a new set of illustrations in Venice in 1767.[54] Nonetheless, along with Bellori's and Pope Alexander VII's critiques of Borromini's style identifying the latter as Gothic and "chimerical," the *Trattato's* condemnation of error can be seen as part of a wider tendency within 17th century criticism to repudiate the perceived excesses of the late Renaissance and the Baroque. This tendency championed a classicistic return to Vitruvian ideals and, beyond these, a narrow purism that created new rules where none existed either in antiquity or in the Renaissance.[55]

Enumerating three types of error, and associating them with three phases of architectural elaboration, Gallaccini subsumed the process of design and building under a broad temporal framework. In accordance with this scheme, whose pragmatic rationalism indicates an Aristotelian matrix shared by Scamozzi, he distinguishes between errors which may be committed before, during, and after building (*Trattato* I, i). Errors before building include the choice of site and materials but above all refer to flaws of design. Among the errors that can arise during construction, he is interested especially in a familiar Vitruvian theme: that of optical foreshortening, a special target of his critiques when the architect fails to take its requirements into account. According to Hanno-Walter Kruft, it is not numerically defined proportion that is decisive here, but apparent proportions based on optics.[56]

In this respect, Gallaccini moves within the same mental universe as another 17th century thinker, whose architectural ideas he would have otherwise disdained: Juan Caramuel de Lobkowitz, whose conception of "*architectura obliqua*" takes advantage of discrepancies between perceived and actual distances to generate a new kind of architectural obliquity, that exploits optical disparities to make ellipses in actual built form seem circular or the other way around. This leads to a deformation of all architectural members and to a denial of absolute proportions ***Fig.17***.[57]

And yet, at least on the theoretical level, Caramuel is a kind of Gallaccini in reverse: he adopts a rigorous, geometrical approach intentionally so as to produce distortion, which he calls "oblique architecture," rather than trying to identify its causes with the aim of eliminating all deformation. His is

52 T. Gallaccini, *Trattato sopra gli errori degli architetti* (Venice, 1767), III, i, 58. Gallaccini's analogy between architecture and medicine is in some sense anticipated by the comparison between the two disciplines put forward by the Florentine academician Benedetto Varchi in 1547, in the *"Disputà su qual si e la piu nobile fra le arti"* in *Due Lezzioni* (Florence, 1549), 16–17, where the same assertion regarding architecture's ability to safeguard health is cited. If Gallaccini knew this passage, he would still have had to come to terms with the fact that Varchi was, in sharp contrast to his own position, one of the foremost promoters of the "cult of Michelangelo" in 16th century Italy.

53 Gallaccini, *Trattato*, 43.

54 H. W. Kruft, *A History of Architectural Theory: From Vitruvius to the Present* (London: Zwemmer, 1994), 103–4; Payne, "Architectural Criticism."

55 Panofsky, *Idea*, 105–7; M. Tafuri, *Theories and History of Architecture* (London: Harper & Row, 1980), 141–43; Kruft, *History of Architectural Theory*, 102; R. Wittkower, *Gothic vs. Classic* (New York: G. Braziller, 1974), 88–89. It is interesting to note that Alexander VII owned a copy of Gallaccini's treatise. See *Dizionario Biografico degli Italiani, cit.* 512.

56 Kruft, *History of Architectural Theory*, 103.

57 Juan Caramuel de Lobkowitz, *Architectura Civil Recta, y Obliqua* (Vigevano, 1678), I, 6.

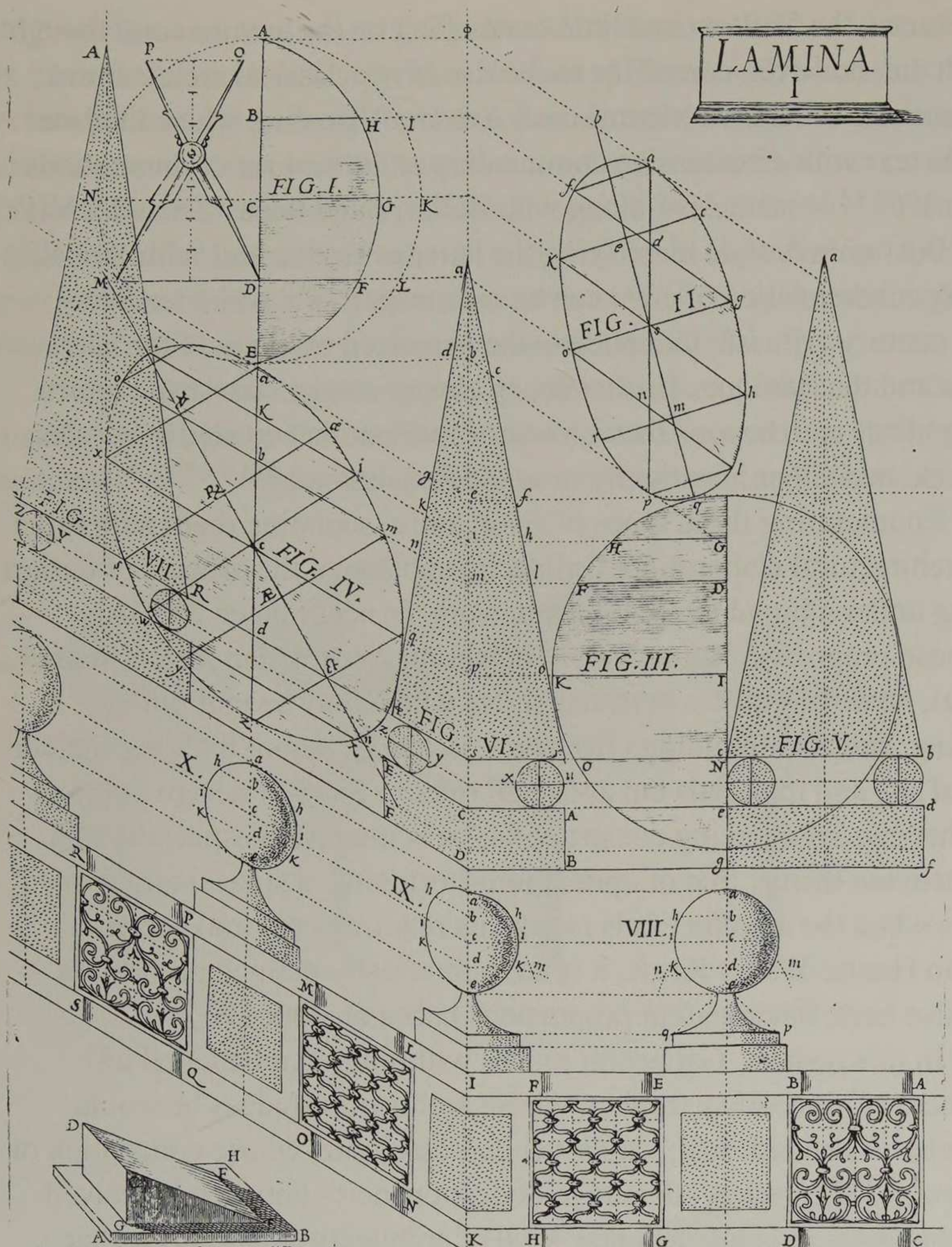


Fig.17 *Juan Caramuel de Lobkowitz, image of balustrade distortion from* Architectura Civil Recta, y Obliqua (*Vigevano, 1678*)

an architecture of willed error, whereas Gallaccini's idea of architecture aims at error's complete elimination. As such, Gallaccini, who is usually (and quite rightly) seen as part of the classicistic reaction against Baroque architecture, actually had an identifiably Baroque component—namely, an interest in optical distortions—in his aesthetic sensibility, though clearly the way in which this interest develops is not Baroque in the least.

Like Palladio and Scamozzi, and to some extent Ligorio, Gallaccini is especially critical of broken tympanums, which he sees as an affront to Vitruvian decorum. In general he is against anything that would compromise decorum, a central tenet of Vitruvian theory: nothing must be missing and nothing superfluous, and every member must be in the right place. For him, therefore, *decoro* constitutes the essence of architecture; all those who go against this cardinal principle do not deserve to be called architects.[58] And this is where his theoretical animus against Michelangelo has its origins.

Although Gallaccini claims to attack error in the interest of endorsing sound principles without naming names—*"Avendo dunque per le ragioni...di quanto giovamente fosse per essere la cognizione degli errori*

degli Architetti, non gia con animo di formare la censura contro di ciascuno, ma con volonta di'insegnare col messo di tal cognizione la buona e regolata Architectura" (*Trattato* I, i)—it is certain that Michelangelo is his main target. This much is clear, as he cites famous buildings by this architect, such as St. Peter's, the Campidoglio, and the Porta Pia, and, in more general terms, because of his anti-Florentine bias.[59] This leads him to pit Sienese artists and architects against Michelangelo himself, contrasting examples of their works as symptoms of diverse tendencies, almost as if they were "tissue samples" of healthy and diseased architectural styles, respectively. In Gallaccini's mental universe, Michelangelo's architecture is not simply a pathological case. It is, in fact, one of the worst—perhaps the very worst—not only for its own sake, but because it showed a particularly virulent capacity to spawn more errors in the works of those misguided enough to emulate it.

As such, Michelangelo's architectural idiom has dire implications, insofar as it exhibits a dangerous penchant for linguistic experiment and, more specifically, an unrestrained syntactic freedom. In his view these are symptoms of a grave architectural malady that could bring about the overthrow of all that was good in the discipline and the spread of much that was pernicious. Clearly Michelangelo is as much a negative exemplar for Gallaccini as he was for Ligorio. According to the Sienese theorist, the Florentine master indulged in unacceptable *licenze*. Though he mentions no names, he takes exception to the excesses of Michelangelo, in particular the Porta Pia and the Palazzi of the Campidoglio.[60] Projects such as these, which show no respect for "*la regolata architettura*," Gallaccini warned, led to the reprehensible license evident in the architecture of his own time (*Trattato* I, 16). This succinct and total condemnation finds an effective visual counterpart in his illustration of the Porta Pia ***Fig.18***, rendered so "as to show the errors clearly" [*facendone mostrare gli errori*], the errors in this case being misconstruals of ornament.[61]

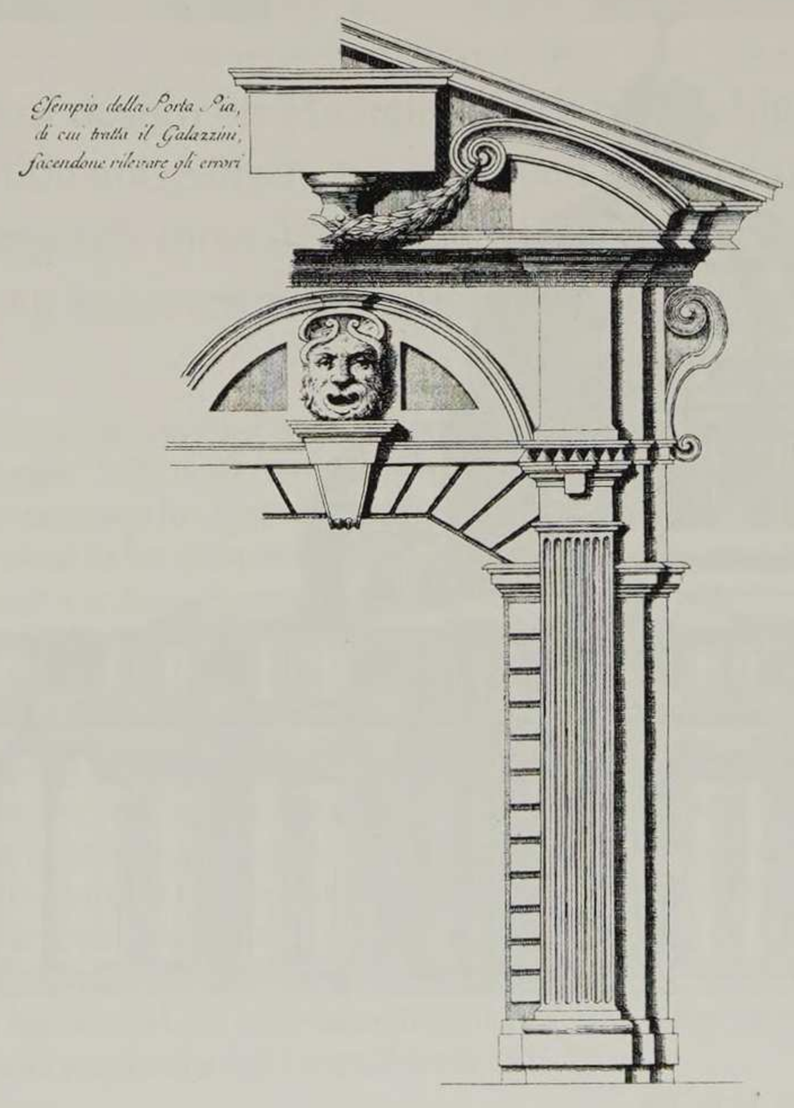


Fig.18 *Illustration of broken tympanum of Porta Pia from* Osservazioni di Antonio Visentini, architetto Veneto, che servono di continuazione al trattato di Teofilo Gallaccini sopra gli errori degli architetti *(Venice, 1771)*

58 Kruft, *History of Architectural Theory*, 103.

59 Gallaccini, *Trattato*, 49r.

60 Payne, "Architectural Criticism," 150; Gallaccini, *Trattato*, 78v.

61 Gallaccini, *Ibid. loc. cit.*

By maintaining such a rigid opposition between norm and error, Gallaccini seems to develop an aspect of Ligorio's critique of Michelangelo. Even if he did not know Ligorio's writings firsthand, his ideas are strikingly similar, though more disciplined from a theoretical perspective.[62] Both critics base their approach, either implicitly or explicitly, on the ideal of decorum; what is more, their tone is equally moralizing, as is always the case with architectural theories that, since Vitruvius and basing their assumptions at least partly on his, inveigh against the decadence of architecture, and the concomitant crisis of theoretical foundations, in a world caught up in the rage for useless novelties and strange experiments with form.[63] Yet important differences set Gallaccini's presuppositions apart from the theoretical assumptions of the late sixteenth century and from Ligorio in particular. In a perceptive essay, James Ackerman has observed that, while seeming to uphold tradition, Gallaccini actually abandoned the traditional theory of imitation which had dominated 16th century artistic and architectural thought in Italy.[64] At the same time he justified the classical rules, adding many of his own while claiming a new authority for classical precedent based on a rigid reading of norms.[65] The traditional concept of imitation allowed for certain deviations and always reserved a margin of license; Gallaccini's eliminated the margin, removing the possibility for radical experiment and, indeed, any experiment whatsoever. From this perspective it is easy to see how Michelangelo's license, and his practice more generally, could be identified as a pathology of architecture, and be seen as a "case" of formal invention run wild, rather than as an acceptable departure from the classical system of norms extending its reach in ways that were powerfully innovative, as is generally thought today.

Gallaccini was among the first to criticize Michelangelo's final version of the attic story of St. Peter's, which differs notably from his first version, as seen in Luchino's print of 1557 ***Fig.19***. [66] Henry Millon and

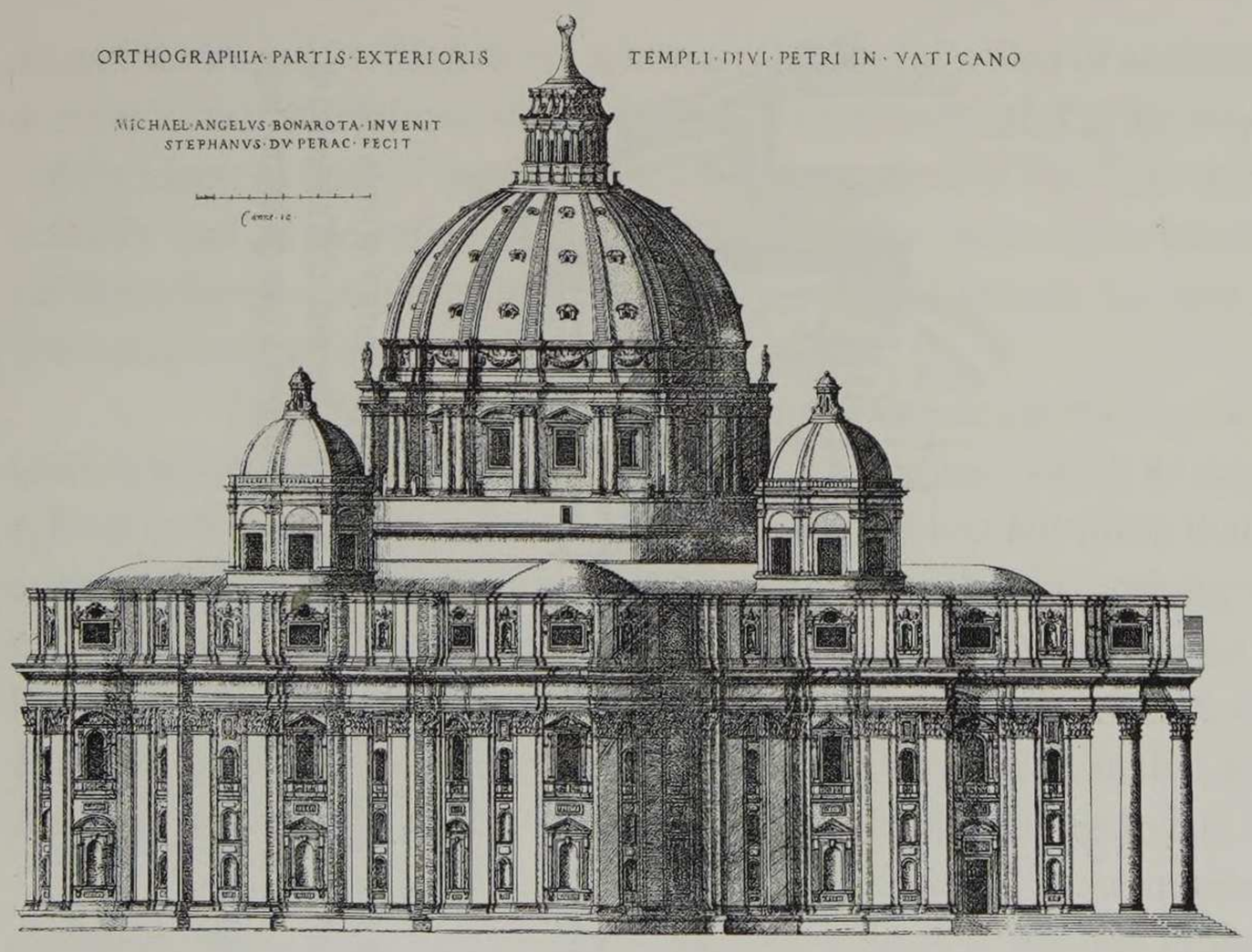


Fig.19 *St. Peter's Basilica (Michelangelo and others, 16th c.), apse elevation, engraving by Étienne Dupérac after Michelangelo (1569)*

Craig Hugh Smyth have argued that the version that was built is not by Michelangelo, but by Ligorio, and was added after Michelangelo's death in 1564, when Ligorio briefly was chief architect of the *fabbrica*, alongside Vignola as his co-architect.[67] If they are correct in their attribution of this part of St. Peter's, whose double cartouches correspond to precisely the same kind of error which Ligorio attacked in the Turin manuscript, and which bear more than a passing resemblance to the cartouches on the Porta Pia, then one cannot avoid the conclusion that Ligorio relied upon one of Michelangelo's most licentious works as a model for his own design for the basilica that he did everything in his power to prevent Michelangelo from completing *Fig.20*.

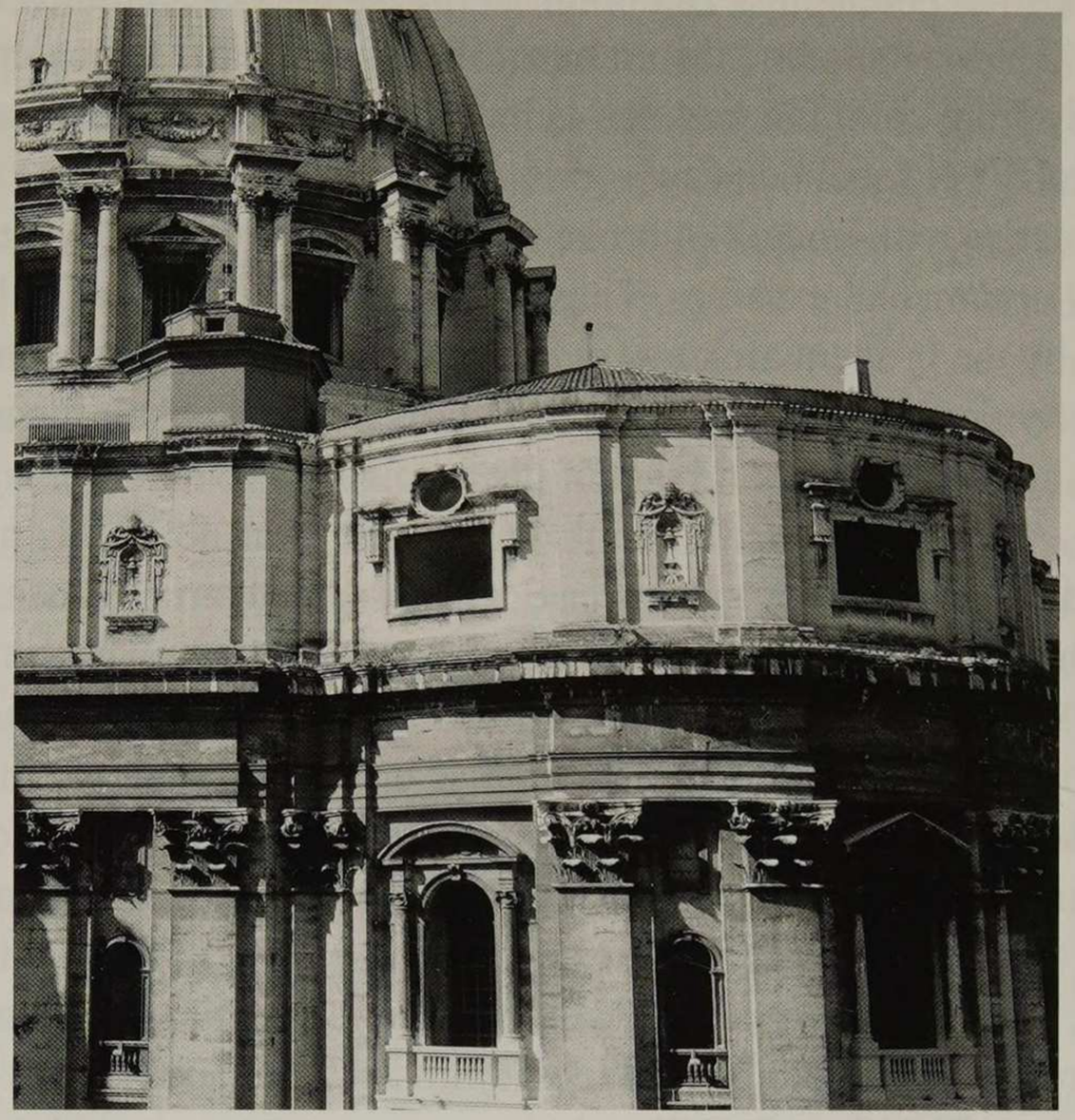


Fig.20 *St. Peter's Basilica (Michelangelo and others, 16th c.), attic story by Michelangelo and/or Pirro Ligorio. Credit: Richard Mortel, Creative Commons 2.0. Source: http://www.flickr.com/photos/prof_richard/7845340188/*

Since a change of design on Michelangelo's part is highly unlikely, and is rejected by Millon and Smyth, we are faced with a paradoxical situation in which Michelangelo's most determined 16th-century critic adapts a design that is, according to his own theoretical standpoint, among the most

62 According to Payne, "Architectural Criticism," 165, n. 47, Gallaccini may have been exposed to Ligorio's ideas, and in particular to his critique of Michelangelo, through his close Sienese friend Celso Cittadini, who wrote a commentary on Ligorio's unpublished Turin manuscript. Nonetheless, many aspects of their approach differ, and there is no doubt that Gallaccini was far more rigorous not only in terms of his approach to architecture but also in terms of mental habits conditioned by the emergence of the revolution in scientific method and overall epistemology that occurred in the seventeenth century (Payne also points out his exchange with Galileo).

63 The *locus classicus* of this kind of critique is found in *De Architectura,* VII, 5 which contains a sharp denunciation of the atectonic groteseques of Pompeian second-style wall paintings, in which "stalks instead of columns and curled leaves instead of gables….[which] neither are, nor can be" lead the Roman theorist to ask: "How can a reed sustain a roof or a slender stalk a seated statue?" On this passage see F. Granger, trans., *Vitruvius, On Architecture* VII, 5 (London: W. Heinemann, 1934), II, 105; E. H. Gombrich, *Norm and Form* (London: Phaidon, 1966), 86ff.; and *idem., Art and Illusion* (Princeton: Princeton University, 2000), xxxvi.

64 Ackerman, "Palladio: Classical in What Sense?" 242.

65 *Ibid. loc. cit*

66 Gallaccini, *Trattato*, 42v, 49r.

67 Millon and Smyth, "Ligorio, Michelangelo, and St. Peters," 216ff, esp. 222ff.

objectionable by this architect, to finish the most important project of the latter's late career. Stranger things may have occurred in the history of architecture, but this is certainly one of the strangest.[68] In any case, Gallaccini, in line with the theoretical strictures of Ligorio *teorico*, condemned this part of the building as an offense to Vitruvian decorum, despite the fact that it seems that Ligorio *architetto* actually committed the offense, inspired by another, equally "erroneous" work of Michelangelo's!

Ackerman has also observed that Gallaccini had no interest in ascertaining how far the ancients themselves departed from his own normative ideals, and, as far as one can tell, had no means at his disposal to do so.[69] As compared with Palladio's, his vision of the norm is exceedingly inflexible: one recalls that for Palladio "the architect is not prohibited from departing occasionally from common practice as long as the variation be pleasing and seem natural."[70] No such leeway is granted by the Sienese theoretician, who filled his treatise with images of broken pediments, solecisms in the use of the orders, and ornamental excesses. These were infractions that must be avoided at all costs by the prudent architect, a professional whose rigor cannot afford to be compromised by unwarranted departures from classical rule exemplified by Michelangelo's practice and that of his followers.

Alina Payne has shown that Gallaccini was not alone in looking to period medical epistemology in his critical approach to architecture. Drawing partly on the research of Carlo Ginzburg, Payne suggests a parallel between Gallaccini's rigorism and the diagnostic acumen of Giulio Mancini, the court physician of Urban VIII who wrote a treatise on connoisseurship in the 1640s that was the first to use diagnostic methods to detect fakes.[71] The comparison is not fortuitous, as the two men were close friends, and probably inspired each other to draw medical analogies in their respective fields of interest in the visual arts. Interestingly enough, Gallaccini dedicated his treatise on architectural error to none other than Mancini himself, who apparently read that text to the Pope.[72] Although Gallaccini's primary concern is with architecture and Mancini's is with painting, and although the former is broadly theoretical and aesthetic in scope while the latter is primarily interested in distinguishing between genuine and false works, the analogies they offer are suggestive, and can tell us much about the uses and limits of medical paradigms of perception as a basis for aesthetic judgment in early and mid-seventeenth century Italy.[73]

It is possible that Gallaccini was not interested in pursuing the diagnostic model in a more pragmatic direction, as his friend Mancini did, reading clues and details with an eye to exposing false architectural drawings or models, if only because in architecture the question of fakes rarely, if ever, arises, as compared with the fields of painting or sculpture.[74] In a sense, this makes the problem of the extension of medical epistemology to other disciplines, and more particularly the elaboration of analogies between the errors of architectural judgment and the pathologies of the human body, into a good measure of Gallaccini's originality. In fact, the Sienese theorist was the first to apply the medical analogy to architecture in a systematic way after Leonardo, who, working under a diverse set of scientific and critical assumptions, and

having no real interest in upholding any orthodox reading of the classical code, articulated more empirical judgments on architecture. Leonardo largely focused on questions of statics and structural relationships when pursuing the analogy between architectural and organic systems. For Leonardo, if a building was "sick", as was the case with the statically unsound *tiburio* of Milan cathedral, the architect, emulating the physician, could suggest specific structural remedies. No other theoretical considerations as to the overall pathology or health of the project or its style were necessary.[75]

Hence the question of forming our own judgment of what Ackerman has called Gallaccini's "narrow vision of the permissible" can be seen in a new light.[76] Once imitation is no longer considered to be a pertinent theoretical criterion, structural and formal traits can be seen on their own terms, without any reference to the actual demands of practice, the exclusive reliance on ancient precedents, or the interpretation of the rules (and, at a more basic philological level, the actual text) of Vitruvius. A good example is provided by Gallaccini's objection to columns that support nothing but projections from the entablature, a common feature of late sixteenth-century practice, sanctioned by Serlio. One of the earliest manifestations of this motive is found in the central portal of Michelangelo's Laurentian Library reading room ***Fig.21***.[77] As Ackerman observes, Palladio was more relaxed about this kind of infraction, as is demonstrated by the fact that he reconstructed Vitruvius's Basilica at Fano with such a combination, and even used it in the frontispiece for his own *Four Books of Architecture* ***Fig.22***.[78]

68 Although the theses of Millon and Smyth seem reasonable enough, they lead to conclusions that are difficult to accept. See the recent criticism, which nonetheless expresses methodological agreement with their approach, by H. Burns, "Building Against Time: Renaissance Strategies to Secure Large Churches against Changes in their Design," in *L'Eglise dans l'Architecture de la Renaissance* ed. J. Guillaume (Paris: Picard, 1995), 120ff.

69 This is not the case for Ligorio, who did not hesitate to condemn the errors of the Pantheon: see Millon and Smyth, "Ligorio, Michelangelo, and St Peters," 230. For other Renaissance critiques of the Pantheon, see T. Buddensieg, "Criticism and Praise of the Pantheon in the Middle Ages and the Renaissance," in R. R. Bolgar, ed. *Classical Influences on European Culture A.D. 500–1500* (Cambridge: Cambridge University, 1971), II, 259–67; Pagliara, "Vitruvio da testo a canone," 52; Tafuri, *Interpreting the Renaissance*, 123–5.

70 Palladio, *Four Books*, ed. Tavernor and Schofield, I, xx, 51–56.

71 Payne, "Architectural Criticism," 150, 151; C. Ginzburg, "Clues: Roots of an Evidential Paradigm," in *Clues, Myths, and the Historical Method* (Baltimore: Johns Hopkins, 1989), 108–110; Mahon, *Studies in Seicento Art and Theory* (London: Greenwood, 1947), 223; J. Hess, "Note Manciniane," *Münchner Jahrbuch der Bildenden Kunst* 19 (1968), 103ff.

72 Payne, "Architectural Criticism," 150.

73 Cf. Ginzburg, "Clues," 108.

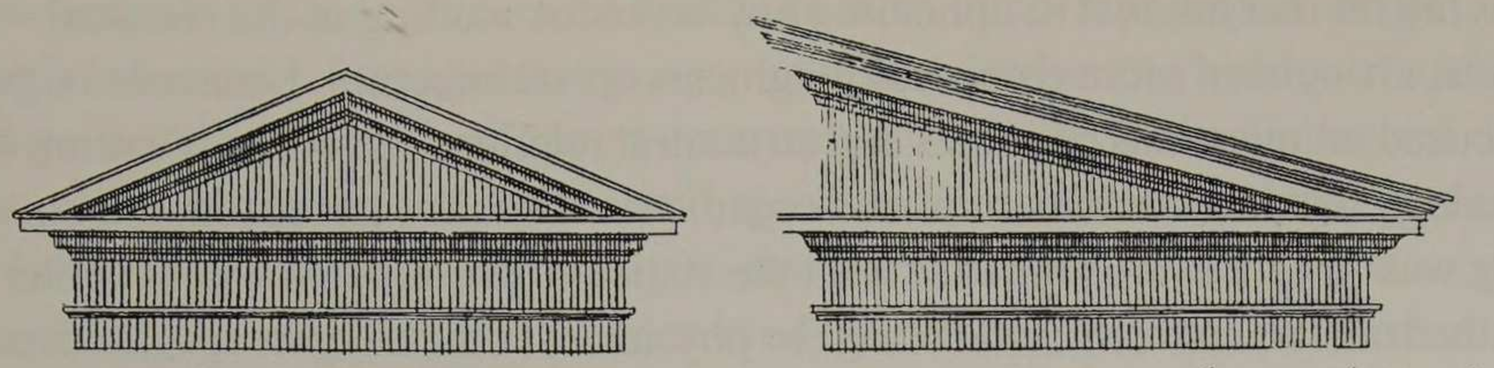
74 O. Kurz, *Fakes* (New York: Dover, 1967).

75 Leonardo, Codex Atlanticus 730r. On this passage see C. Pedretti, *Leonardo Architect* Translated by Sue Brill (New York: Rizzoli, 1985), 34–5; M. Kemp, *Leonardo da Vinci: The Marvellous Works of Nature and Man* (Oxford: Oxford University, 2006), 88.

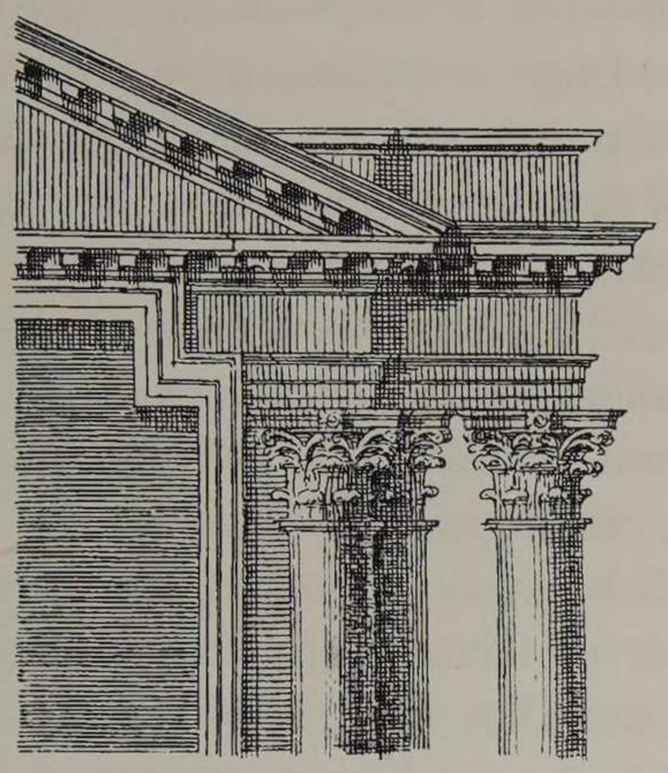
76 Ackerman, "Palladio: Classical in What Sense?" 242.

77 Gallaccini, *Trattato*, 56r: presented using a teratological metaphor, an error that is a "many headed monster," (*un mostro di più capi*).

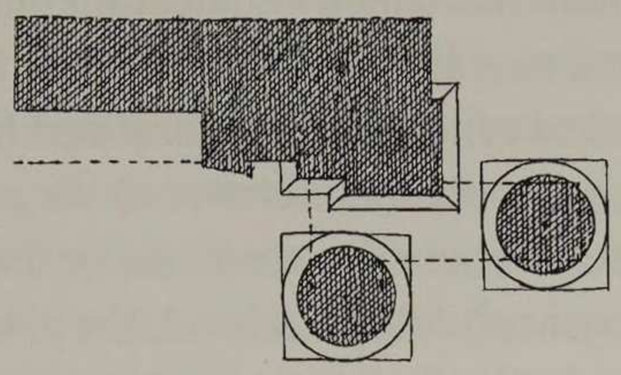
78 Ackerman, "Palladio: Classical in What Sense?" 242. See on the frontispiece of the *Four Books* C. Thoenes, "La '*Regola delli cinque ordini*' del Vignola," *Sostegno e Adornamento* (Milan: Electa, 1998), 95; R. Wittkower, *Architectural Principles*, 68–69.



Queste due forme de' frontespizij si vedono in Roma ne bagni di Paulo Emilio, ora detti Magnanapoli, e se ne vede il disegno appresso il Sorch.



Alzato della pianta in maestà, e mostra la cornice tagliata in Zanca, e serve per telaro alla pala, tali Zanche non si devono usare essendo false, in aria, e sgarbate



Pianta che dà à divedere il falso per le colonne fuor della drita linea delle con tra colonne ò pilastri, comesi è detto a C.

Fig. 21 *Teofilo Gallaccini, illustration of columns supporting entablature projections from* Trattato sopra gli errori degli architetti *(Venice, 1767)*

Fig. 22 *Palladio,* I quattro libri dell'architettura *(Venice, 1570), frontispiece*

Thus, for Gallaccini, what was alarming and pathological in Michelangelo's practice was for Palladio not only permissible, but under the right circumstances could even be exemplary. It is significant that both architects, despite considerable divergences, had one thing in common: Michelangelo's practice remained the ultimate test-case for the attempt to map the constantly shifting boundaries between invention and error in the period between 1570 and 1620. In other words, both Palladio and his strict Sienese disciple believed, like many other critics before and after them, that errors are something that can teach those who know how to learn from them. What must be learned in this case is the best way to avoid imprecision, excess and groundless deviations from the rules—impulses which compromise genuine invention and which, in the final analysis, add nothing to the language of architecture. This insight distinguished Palladio's and Gallaccini's critical attitudes from that of Ligorio: for even if the latter singled out Michelangelo's license as a singular case of error, there is no indication in any of his writings that he regarded it as anything but that rarest of aberrations, from which nothing can be learned except that it must be avoided at all costs.

ERROR VERSUS INVENTION: THREE MOMENTS IN MICHELANGELO'S CRITICAL RECEPTION

What can one learn from these episodes in the reception of Michelangelo's architecture? Surely not that, in the period under study, modes of criticism based on the identification and eventual elimination of error led invariably to a stable conception of artistic or theoretical truth; nor that it is always the case that one artist's error is another's invention, even if the determination of error depends on normative assumptions as much as on the presence of any objective flaw. Instead, despite their intrinsic differences, what these episodes underscore is the profound ambivalence that marked perceptions of Michelangelo's architecture in the second half of the 16th century and beyond—an aspect of reception tied, in Ligorio's case, and to some extent in Gallaccini's as well, to the idea of an equally profound disciplinary crisis.

This point can be clarified by specifying the actual object of this ambivalence: Michelangelo's radical exploration of the latent potentials of the classical language. Due to this exploration, architects and theorists became more sensitive to the power, and the risks, of flexible readings of the antique, and more acutely aware of the possibilities that could be unleashed by cultivating an aesthetic of the exception. Not restricted to architectural practice, the significance of this shift becomes evident in the wide spectrum of critical positions enunciated during and after Michelangelo's lifetime, all of which help us delineate the contours of his reception in the Renaissance and Baroque periods.

However, it is worth noting that in Michelangelo's time neither practice nor criticism could be said to follow any one "code" enabling a clear separation of the wheat of invention from the chaff of error. Clearly there were attempts at codification: and this is precisely what is at stake when we are confronted by the attacks directed at Michelangelo's architecture. In addition to making explicit the normative assumptions on which they were based, the critiques in question considerably furthered their theoretical elaboration. In this respect, the reaction—and, quite often, the over-reaction—to Michelangelo's perceived errors in the writings of Ligorio, Palladio, and Gallaccini helped consolidate the classicist position in architectural criticism from the late 16th to the early 17th century. In this sense Gallaccini represents, within architectural discourse, a stance comparable to the one upheld within art criticism by a theoretician such as Bellori, who championed such figures as the Carracci, Domenichino, and Duquesnoy, and opposed Caravaggio.[79]

Regarding the views of the critics just examined, one thing is clear: Palladio stands out for his even-handedness, which nonetheless remains partly obscured because Michelangelo is never mentioned by name. As for Gallaccini's stance, besides its links with medical epistemology, what stands out most about it is its dogmatic assurance: despite his diagnostic acumen, the 17th-century theorist had too rigid a conception of the classical language to give Michelangelo's invention any latitude whatsoever. The same holds true for Ligorio, whose views (which in any case were always colored by personal rancor and professional jealousy) were too narrowly antiquarian to allow the critic to come anywhere near an impartial judgment of the works in question, despite their author's formidable scholarly apparatus, archeological *acribia*, and discerning eye.

Yet, despite the fact that he was not as dogmatic as Ligorio or Gallaccini, Palladio had his own theoretical presuppositions (as does every critic, clearly). These made him condemn some of the most daring aspects of Michelangelo's inquiries without taking into account the larger contexts in which they appeared and the constraints which initially inspired them. One measure of the complexity of Palladio's position is that its manifest inability to accept what was most bold in Michelangelo's architecture was bound up with a lively interest in precisely those aspects of his invention that were amenable to his own approach. Here we confront an understanding that is at the same time a stance of partial exclusion—the tendency to exclusion that Carlo Ginzburg noticed as an essential characteristic of style—in the artistic tangency exemplified by Palladio and Michelangelo.[80] In fact, in Palladio's reception of Michelangelo, one can discern the outlines of a pivotal debate on the parameters of license and its corollary, the limits of error, in the humanist era, at a time which witnessed the most radical transformation of the classical language prior to its near-total reconfiguration in the Baroque period.

The scope of this transformations emerges with striking consistency when one tries to evaluate the singularity of Michelangelo's architecture in light of what later architects and critics saw in his approach. And in fact, due to its radical alterity—the result of a form of artistic understanding

that, significantly, Vasari called "*consapevolezza dell'errore*" (awareness of error), linking this idea to Michelangelo's inveterate *licenza*—Michelangelo's architecture proved itself to be unusually fertile for architects in search of unprecedented ways of breaking with convention.[81] Here one may recall Borromini, perhaps the most obvious example, but also less self-evident instances from Michelangelo's own era, e.g., Francesco Primaticcio's architectural production in France, or from the Baroque, the rather unexpected use which Pietro da Cortona made of Michelangelo's startling innovations.[82]

However one defines Baroque architecture, it is historically and stylistically inconceivable without Michelangelo. And it is no accident that "purist" theoreticians such as Gallaccini, who reserved their harshest criticism for the Baroque experiments of their own day, were unsparing in their attacks on Michelangelo. Indeed, accusations of stylistic error of the kind examined in this essay, inasmuch as they serve as signs of the groundbreaking novelty of the accused, can thus be said to offer reliable indications of the importance of Michelangelo for such decisive shifts as the rise of the Baroque in the period of its historical emergence. As such, they can help us assess the transformative effect of his innovations without at the same time compelling allegiance to any totalizing scheme of historical development, the prototype of which, in art historical literature at least, is provided by Vasari.

For even if no straight line can be drawn between Michelangelo's innovations and the groundswell of experiment unleashed by (or better, identified with) the Baroque, this does not mean that architects such as Borromini did not find inspiration in the new artistic freedom ushered in by Michelangelo's practice. When acknowledging the importance of this fact, it goes without saying that one must be on guard against any form of "teleologism." Only after having accepted this caveat can one propose the following hypothesis: if there is such a thing as artistic progress, as E. H. Gombrich has affirmed, in a nuanced endorsement of the traditional Vasarian (and Plinian) line, then there can be no doubt that Michelangelo has to be included

79 Panofsky, *Idea: A Concept in Art Theory* trans. Joseph Peake (Columbia, South Carolina: University of South Carolina, 1968), vii, 105ff; D. Mahon, *Studies in Seicento Art and Theory*, 34, 41ff; 154; Kruft, *History of Architectural Theory*, 102; Payne, "Architectural Criticism," 152.

80 Ginzburg, "Style: Inclusion and Exclusion," *Wooden Eyes: Nine Reflections on Distance*, trans. M. Ryle and K. Soper (New York: Columbia University, 2001), 109–38.

81 P. Berdini, "Experiencing (Michelangelo's) Architecture," *Design Book Review 34* (1994), 44–45. Since Vasari closely associates the "awareness of error" with artistic freedom—one that is not restricted, it should be emphasized, to any medium, as Berdini points out—it is possible to suggest that this usage of the term "error" captures an ambivalence, as well as qualities of striving and incompleteness, which could be marshalled as a counterresponse to the wholly negative meaning of the "errors" in his work ascribed to it by Ligorio and, subsequently, by Gallaccini.

82 S. Frommel and S. Bardati, *Francesco Primaticcio Architetto* (Milan: Electa, 2005), 100, 101; J. M. Merz (completing a monograph of Anthony Blunt), *Pietro da Cortona and Roman Baroque Architecture* (New Haven: Yale, 2008), 245–9. The most penetrating discussion of Borromini's reception of Michelangelo remains A. Blunt, *Borromini* (London: Allen Lane, 1979), 26–37; but see also Tafuri, *Theories and History of Architecture*, 19–20.

among its principal protagonists—even if such "progress," in the sense of an unbroken chain of innovations, if it exists at all, can only be recognized retrospectively, from the inherently mobile standpoints of successive generations of viewers.[83]

These, of course, are big "ifs," presupposing as many uncertainties as they resolve: but no more, and no less, than the vexed question of how to map the constantly shifting boundaries between error and invention in a period as rich in debate on this problem as the second half of the 16th century. Without such an attempt, it would be impossible to grasp the dynamic, constantly-evolving role played by architecture within the wider artistic culture of the Renaissance and Baroque periods, which in large part was predicated upon the assimilation of precedents as diverse and as variable as the strategies used to transform them. Basing his approach on these strategies, Michelangelo was acutely aware of the risks involved, which, in his view, were corollary to the interdependence of artistic truth and error and the dialectic of rule and license that this implied. This much is clear from an observation he reputedly made to Condivi (ascribed to Michelangelo's assistant Tiberio Calcagni, who serves as his mouthpiece) that the way to be a good artist lies in "constant variation: as it is better to constantly vary, and make an error, than simply to remain the same."[84]

Michelangelo's need to vary his approach offers an intriguing parallel, from the standpoint of production, to the successive reversals of artistic value that, from the standpoint of reception, enabled certain critics not only to identify error as the dominant feature of his work, but also to do so in ways that proved persuasive to many observers. Here we confront a process which stands at the heart of what has been variously called *Rezeptionsgeschichte*, *storia della fortuna critica*, or the history of critical response.[85] And since this process is dual, articulated both from the vantage of production and that of reception, we are obliged to return to the theme of Michelangelo's singularity addressed at the outset. This is the case insofar as one of the principal features of the process in question is a critical tendency, often identified as rigidly normative, to equate error with extreme individuality in architecture as opposed to sculpture.

This last consideration touches upon an area of inquiry that lies beyond the scope of the present essay, and which is among the most well-known *topoi* in Renaissance artistic theory: the *paragone*, or comparison between the arts.[86] A fresh look at this venerable *topos* can shed new light into the parameters of artistic "truth" and "error" in the period under study. For just as it goes without saying that singularity (or, if you will, extreme individuality) in one artistic domain has very different implications, critical as well as artistic, than singularity (or extreme individuality) in another, this is not only because diverse criteria are applicable in each field. It is also the result of a process that implied a diverse set of motivations that were religious as well as artistic. Indeed, despite the rise of the idea of stylistic individuality in architecture as a critical category in its own right, due in part to the innovations of Michelangelo himself, as an architect Michelangelo never managed

wholly to break away from accusations of sacrilege, imputations of error, and a widespread air of controversy that made themselves felt, on both the moral and the theoretical level, when the Counter-Reformation was at its height. This point can be made in a different way, from the standpoint of what Tafuri has called, in another context, late sixteenth-century "anti-canonism."[87] For to the extent that Michelangelo broke with Vitruvian canons in ways that were both radical and unforeseen, it comes as no surprise that he opened himself to charges of error from architects and architectural theorists both in his lifetime and afterwards—charges that were improbable, and perhaps even inconceivable, in the case of his sculpture.[88]

83 Gombrich, "The Renaissance Idea of Artistic Progress and its Consequences," in *Norm and Form*, 1–10; cf. *The Ideas of Progress and their Impact on Art*, Mary Duke Biddle Lecture at the Cooper Union (New York: Cooper Union, 1971). On Pliny as an inspiration for Vasari's conception of artistic progress, see Ginzburg, "Battling over Vasari," 47 (but the entire essay is pertinent). On Vasari's construction of the fame of Michelangelo, see S. Alpers, "Ekphrasis and Aesthetic Attitudes in Vasari's Lives,"; L. Barkan, *Michelangelo: A Life On Paper*, 174–5; E. Panofsky, "The First Page of Giorgio Vasari's Libro," 219–220; P. Rubin, *Giorgio Vasari: Art and History* (New Haven: Yale, 1995); Elam, "Tuscan Dispositions," 63–4; T. S. R. Boase, *Vasari: The Man and the Book* (Princeton: Princeton University, 1979); M. Baxandall, "Doing Justice to Vasari," *Times Literary Supplement* 1 February 1980, 111.

84 Condivi, *Vita di Michelangelo*, xli–ii, my translation. The passage is as follows in Italian: "*E vero, e se tu voi far bene, varia sempre e fa piuttosto male.*" Elam, "Tuscan Dispositions," 81, n. 107, translates this as "it is better to make a mistake than to repeat oneself."

85 F. Haskell, *Rediscoveries in Art* (Ithaca, New York: Cornell, 1980), which, though it starts with a consideration of changing attitudes towards architectural styles, (p. 1), admits that it does fully not do justice to this theme (p. 5). For a study devoted exclusively to architecture, see P. Collins, *Changing Ideals in Modern Architecture 1750–1950* (London: Faber and Faber, 1965) and Tafuri, *Theories and History of Architecture*, chapter 2.

86 On the *paragone* see C. J. Farago, *Leonardo da Vinci's 'Paragone": A Critical Interpretation with a new edition of the text in the Codex Urbinas* (Leiden, New York: E.J. Brill, 1992); I. A. Richter, "Introduction," to *Paragone: A Comparison of the Arts by Leonardo da Vinci* (London: Oxford University, 1949), 1–4; Blunt, *Artistic Theory in Italy*, 26–28.To be sure, any comparison of the criteria used to judge Michelangelo's architecture and sculpture may seem to be groundless, given the fact that these parameters were wholly different, and even unrelated, in the sixteenth century. The tradition of the *paragone* hinged most often on the contrast of painting and sculpture, eschewing any reference to architecture. The academic discourses of Varchi, in this regard, are the exception that proves the rule: Benedetto Varchi, *Lezzione….nella quale si diputa della maggioranza delle arti in P. Barocchi*, ed. *Scritti d'Arte del Cinquecento* (Turin: Ricciardi, 1977), I, 135. Michelangelo himself showed little interest in the *paragone*, claiming that it distracted the artist from the only thing that mattered: the practice of his art (though even the way he articulated his refusal shows his preference for sculpture). On Varchi and the paragone see L. Mendelsohn, *Paragoni: Benedetto Varchi's Due Lezzioni and Cinquecento Art Theory* (Ann Arbor, Mich, 1982); S. Parcell, *Four Historical Definitions of Architecture* (Montreal: McGill-Queen's University Press, 2012), 159–62. For Michelangelo's dismissive remarks on the *paragone*, see Mendelsohn, *Benedetto Varchi's Due Lezzioni*, 156ff.

87 Tafuri, *Interpreting the Renaissance*, 174.

88 Critiques of Michelangelo's architecture were far more intense than those which attended his sculpture in the same period, which, on the contrary, usually received the highest praise. On the other hand, it says something about the critical distance from accepted norms, especially those codified and handed down by Vitruvius, that Michelangelo's position as a sculptor afforded him as he began to practice architecture from 1516 onwards. In 16th century Italy, few written rules were available for sculpture, Alberti's *De Statua* (1450?) notwithstanding. Here one should recall that no single theoretical source passed down from antiquity in the domain of sculpture matched the normative mandate of Vitruvius in the domain of architecture, despite the fact that a canon of proportions informed both. See E. Panofsky, "The History of the Theory of Human Proportions as a Reflection of the History of Styles," in *Meaning in the Visual Arts*, 55–107; C. Grayson, "Introduction," to L. B. Alberti, *On Painting and Sculpture* (London: Phaidon, 1972), 5–7, 18–26; J. Gadol, *Leon Battista Alberti: Universal Man of the Early Renaissance* (Chicago: University of Chicago, 1969), 7, 13–14, 76; A. Grafton, *Leon Battista Alberti: Master Builder of the Italian Renaissance* (New York: Hill and Wang, 2000), 332–36.

This sharp divergence in fields and modes of critical reception is not only linked to the fact Michelangelo set a new standard for sculpture that would not be equalled until Bernini a half century later (and perhaps not even then). It is also connected with a less obvious reason: that during the humanist period, sculpture was a field relatively free of the multiple restrictions, the plural enunciations and readings of rules, and the proliferation of normative discourses that characterized the intellectual and practical worlds of the architects and theorists of architecture. In this regard, it is telling that no greater contrast can be imagined within the range of 16th century receptions of Michelangelo than that between Ligorio's positive assessment of Michelangelo's sculpture (and drawings) and the same critic's complete repudiation of his architecture.[89] One way to make sense of this striking disparity is to recall that the accusations of error that Michelangelo's architecture drew with increasing frequency after 1550, despite their diversity of theoretical orientation, all register a single fact: namely, that in that area Michelangelo proved himself to be original, so "licentious" with respect to the rules, that his artistic individuality could only be described as erroneous by those, like Ligorio, who were purists in theory if not always in practice.

Admittedly this last observation raises more questions than it answers. It has more than a merely heuristic value, however, as it serves to underscore the critical fertility of the comparative analysis undertaken in the present study. For when addressing the diverse receptions elicited by such a singular body of work as Michelangelo's, we enter a field of problems in which much remains to be done, given the fame of the artist and the fact that the significance of his architecture was sharply contested at the moment of its emergence and continues to be a subject of intense debate in our own time.

The author would like to thank Joseph Clarke for his critical observations and for tracking down out-of-the-way images; Fabio Barry for an insightful observation on the translation of Ligorio's treatise and for recalling the source of a bon mot *of Bernini; Roberto Dulio for making his remarkable library available at an opportune time; and the staff of the Archivio di Stato di Torino for their assistance.*

89 Pirro Ligorio, *Trattato*, 168r.

TREATISE ON THE NOBILITY OF THE ANCIENT ARTS

PIRRO LIGORIO

TRANSLATED BY DANIEL SHERER

The following text consists of excerpts from Pirro Ligorio's *Trattato* from the manuscript in the Archivio di Stato in Turin.[1] The treatise has been recently published; I have consulted the original.[2] It is undated, but according to David R. Coffin, it is likely that it was written between 1550 and 1570, most probably after 1567, when Ligorio had left Rome after being dismissed from his post as chief architect of St. Peter's and passed into the service of Cardinal Ippolito II d'Este in Ferrara.[3] Rather than offering a systematic analysis, the treatise ranges in desultory fashion over the theory of architecture and painting, fine points of antiquarian scholarship, and observations on the artistic styles and personalities of Michelangelo and his followers. Written from a sharply partisan perspective, Ligorio's text is a precocious instance of what Tafuri has called "operative criticism," offering a vivid glimpse into

1 Libri Originali di Pirro Ligorio, vol. xxix, fols. 13, 151–3, 168.

2 Published in A. Schreurs, *Antikenbild und Kunstanschauung des Neapolitanischen Maler, Architekt und Antiquar Pirro Ligorio* (Cologne: König, 2000), 402–435.

3 D. Coffin,"Pirro Ligorio on the Nobility of the Arts," *Journal of the Warburg and Courtauld Institutes* 27 (1964), 91.

a world of bitter artistic rivalries, competing aesthetic paradigms, and acute cultural tensions animating late 16th-century Rome. It is also the earliest piece of extended criticism of Michelangelo's architecture—more extensive than those by Vasari, Condivi, Giovanfrancesco da Sangallo, Francesco de Hollanda, Varchi, and Michelangelo himself. Interesting as much for its obvious bias as for an extreme moralism reflecting the religious attitudes of the Counter-Reformation, it gives the impression that Ligorio was the severest critic of Michelangelo's architecture during the artist's lifetime. Precisely because of its uncompromising character, the text affords unique insight into the critical use of concepts of rule and error at a decisive turning point in Renaissance artistic culture, refracted through the views and tastes of one of its most prominent architects and antiquarians.[4]

Treatise by Pirro Ligorio, native of Naples, Citizen of Rome, dealing with Certain Subjects pertaining to the Nobility of the Ancient Arts, and particularly Painting, Sculpture, and Architecture, and of the Good and Evil, associated with artists, as well as with those persons who are not artists, who speak too much, with recourse to learned opinions, of that which they know too little, and when speaking ill of others undermine themselves.

...To justify their extravagant inventions [*inventioni stravaganti*], with increasing frequency one sees artists resorting to the most illicit practices. In search of bestial forms, they try out endless variations that contain the most wretched abuses: abuses removed from any rule or proportion, born out of nothing, coming from nowhere, devoid of all meaning. In this they follow their master, who, having introduced much disorder into architecture and painting, is nonetheless adored by his disciples: as if the disastrous effects of his folly, among which is the breaking of architecture into little pieces [*rompimenti di morselletti*], deserve such renown! Ever since he got it into his head that he is an architect, he has done nothing but ruin the orders and the proportions found in the excellent works of the ancients. In this way, he and his followers bash in the brains of Vitruvius [*et rompono la testa a Vitruvio*]. Only the most pedantic grammarian, twisting the meaning of Priscian, would call this person an architect, painter, sculptor, poet, or artisan...and only those who know nothing of these arts would claim that he is any of these things. He pursues the good and the bad equally, not knowing how to distinguish between them: since all of his work is deformed, one can say that it is the very embodiment of Error [*coglie l'Errore*]. In fact it belongs to that class of error which talented artists would be ashamed to commit....

...Having none of the genius that he has claimed for himself, he acquits himself barbarously, no better, in fact, than an awkward foreigner.... And since his character is marred by boundless insolence, and his disciples hurl as many insults as possible at those who refuse to idolize him, one fears the imminent end of all good men....Containing a veritable infinity of strange fantasies, or one should say fantasms, his work shows that his invention is flawed and misguided. These lead him to paint such subjects as the pallor of Fury, and the vilest of demons, which, indeed, he does not know how to represent, as hard as he may try to capture them in all of their monstrosity and horror; what is more, he puts dreadful things of this kind where they should not be, instead of beautiful subjects appropriate for sacred places... he introduces...the strangest forms of ornament such as volutes filled with images of bizarre figures. These resemble him more than than they resemble the demons under the dominion of the Devil himself; moreover, he invents absurdities such as bats' faces—spooks and trifles to scare children—that have nothing in common with human faces. For this reason one may call him lord of the bizarre [*signore delle bizzarrerie*]....At present, and in accordance with his insane whims, he paints men, women and children even uglier than those which he had depicted previously; and this applies especially to the

4 In general, a detailed account of the manuscript material by Pirro Ligorio is found in A. Schreurs, *Antikenbild*, 22–27, 325–330, and in E. Mandowsky and C. Mitchell, *Pirro Ligorio's Roman Antiquities* (London: Warburg Institute, 1963), 130–139.

women and children, to whom he gives muscles fit for demons rather than human beings. Hence when he tries to paint an Angel, a devil emerges. The women he paints, so far from having that delicacy native to their sex, cannot be recognized as such: about these creatures it can be said that if they really had such brawny physiques, huge hands, overgrown muscles, terrifying eyes, and harsh mouths, they could only do violence to themselves. Alongside such hideous things, which are shocking in themselves, and the defects of these fantasms, which are similar to grotesques, one can add the shameful and lascivious subjects he has painted in the most sacred places, above all in the temples of God, things whose immorality would cause scandal even among those used to seeing such obscenities represented on fireplaces in bathhouses, without any consideration for propriety. In this he goes against the practice of the ancients, insofar as they, when adorning their temples, theaters, and xystae, would always include something appropriate to such places, depicting the rites of religion with a pleasant and harmonious aspect. Here I am speaking of the Romans, and not of the Greeks, who are known to have invented the most lascivious things. The former, indeed, would mitigate and purify the most disturbing rites of Bacchus by disguising his priests with masks, and in such guise they would run through the city....

...Our moderns, however, always in pursuit of licentious forms [*Ma i nostri moderni con licentiosi modi*], explore the most outrageous inventions, and end up representing the most dreadful and terrifying things, varying their conceptions just as nightmares or dreams succeed one another, each stranger than the next. They have filled our churches with certain outlandish ornaments in those areas where Angels should be seen, along with seraphs, cherubs, and the acts of the Martyrs, so as to call to mind the Divine Glory appropriate in such places. Their licence shows that they pay no attention to such things, making no distinction between the sacred and the profane: for this reason, as well, one finds in their works volutes, cartouches, monstrous faces, and grotesque masks, remote from the works of nature, as well as frightful demons and damned souls: in short, everything that results from a misguided judgment. One could say that such excesses are more suited to a temple of Venus, or Neptune, or Nereus, than to a Christian place of worship.... What is more, they represent certain involved and intricate ornaments contrary to ordinary use, belonging more to dreams, Fury, or madness [*materie degne di un sogno o del Furore, o della pazzia*] than to worthy or pious subjects, or to any work calling for noble forms of decorum, as for instance when they insert a grotesque mask in the middle of a gate, a feature which would be more fitting for a Temple of Bacchus or a Theater. In their eyes this kind of thing is beautiful and praiseworthy, rather than truly dreadful; and they do not hesitate to invent bizarre inventions of this kind instead of personal emblems, bishops' coats of arms, or some other sign worthy of Justice, Equity, or the memory of the patron; the image of Him who created the Heavens and the Earth; or anything worthy of Divine Glory. Instead they prefer fragments expressive of the conflicts and uncertainties of life, dubious things that have no business being there....

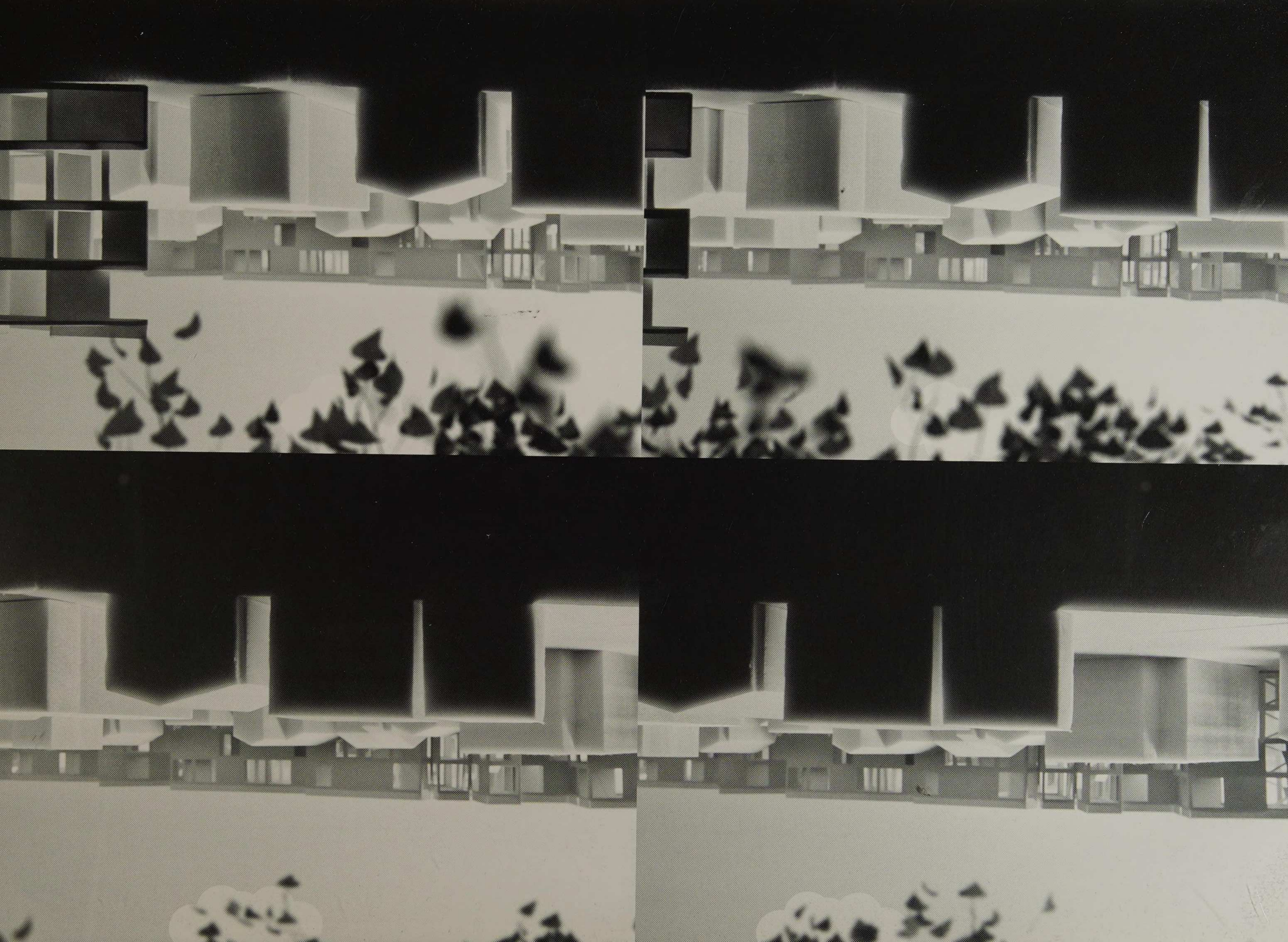
These are only some of the fine things that have come to pass in this century of lost hope [*questo secolo di perdutta speranza*], which may be compared to a garden filled with thorns, planted by Ignorance, mother of all evils, or a storm-tossed sea in which sailors are buffeted about in different directions by contrary winds: for at present Flattery reigns unchecked, and parasites grin with false smiles like wild beasts waiting for prey, or wasps ready to sting. One unfortunately finds artists nowadays who go around puffed up with pride at sumptuous tables filled with wine, wagging their tongues with all kinds of envy, occupied with infamy, men who do not hesitate to unfold their diabolical thoughts at every opportunity; and I am sure that such persons could not find a friend in a hundred years, so totally dominated as they are by arrogance and ignorance. I know three men in Rome who are completely false, who corrupt everything in the most outrageous manner, judging good things to be bad and vice versa, and who take pleasure in hearing calumnies; what is worse, they sound off like braying asses if you attempt to correct their mistakes, or make them listen to reason...expressing some foolish opinion to any who are willing to listen, they put forward false propositions regarding masks, cartouches placed within tympanums under other broken cartouches, and other similar absurdities now found in every palace, church, and indeed every new building, aware that by now there are many who follow this fashion for deforming architecture. In this way they have corrupted the young who are beginning to practice this art, putting them in grave danger by making them believe the most errant nonsense, since they are blinded by those who have a human face, but the heart of a beast.

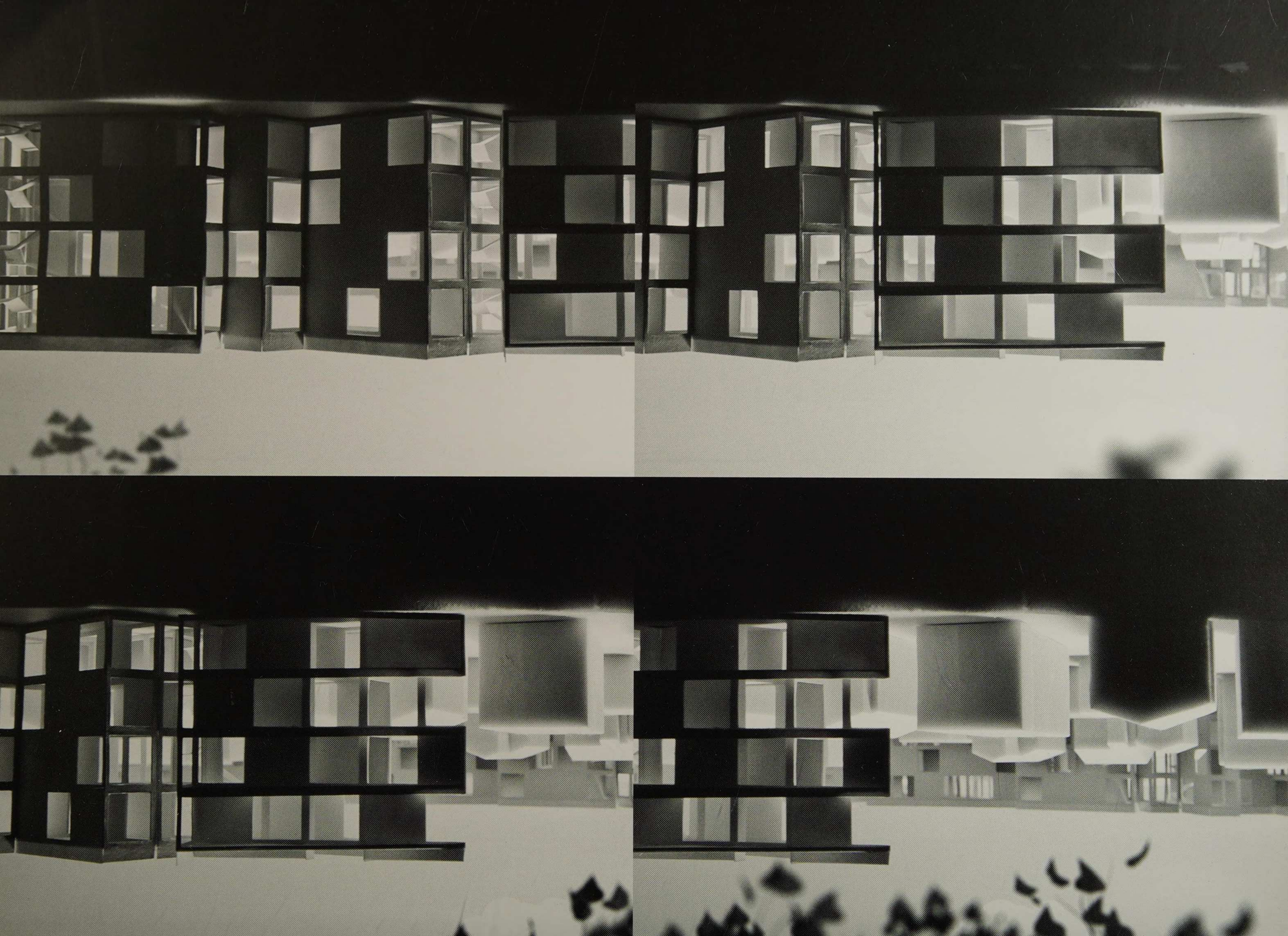
These artists cannot decide whether architecture is the brother or father of painting or sculpture; whether painting is based on things as nature has made them; whether architecture distorts all things, making them fall away from that perfection which is proper to them; or whether they can outperform nature herself, representing things without symmetry or rule. And since in their eyes the perfection of Nature herself is insufficient, they seek to find another perfection outside her realm; furthermore, they not only try to discover this new ideal, but even attempt to take by force that which nature refuses to give, exactly as thieves do when breaking the law. After having turned their backs on what nature most generously offers, they attack those who rely upon the ancients to show them the right path to morality with wondrous art, separating things pertaining to life and death. For this reason, they put broken things, which belong in tombs, in places where only whole things should be seen, that is, in churches dedicated to God, as, for instance, when they put broken tympanums in these sacred spaces.

By pointing out these errors I am entirely consistent: for I only praise those who do not speak with a double tongue; who deal forthrightly and honestly; who do not fill their bellies with impious pleasures and senseless distractions; and who denounce those who lead people astray, as false preachers; in sum, I am among those who stalwartly oppose those miserable men who are dishonest, and follow the ways of folly, of which there is a great abundance in our time....They put many tympanums together, one inside of the other, some whole, some broken, and fill both the Temple of God and private houses with these fragments, taken from ancient tombs, the source of many

absurd inventions. What is worse, they introduce variations upon these inventions everywhere, from the members themselves all the way up to the cornice, and even to the crown of the architrave.

...It is sickening [*cosa da vomitare*] to see how much ignorance has taken root in our time, especially as a result of those who affect the dress and ways of their master, imitating the hat, the boots covered with shoes, and the expressions and mannerisms of Michelangelo, the hangdog and emaciated look, to the point of letting their eyebrows stick out in front of their pulled-down hats in emulation of their teacher, so that they preen themselves as so many Michelangelo....Yet we must not despair when faced with the prospect of so much bad practice. We must keep before our eyes the examples of good practice, whether it is Vitruvius or Raphael in architecture or Michelangelo in drawing [*disegno*] and sculpture, always having before our eyes the exemplary productions of the ancients themselves....

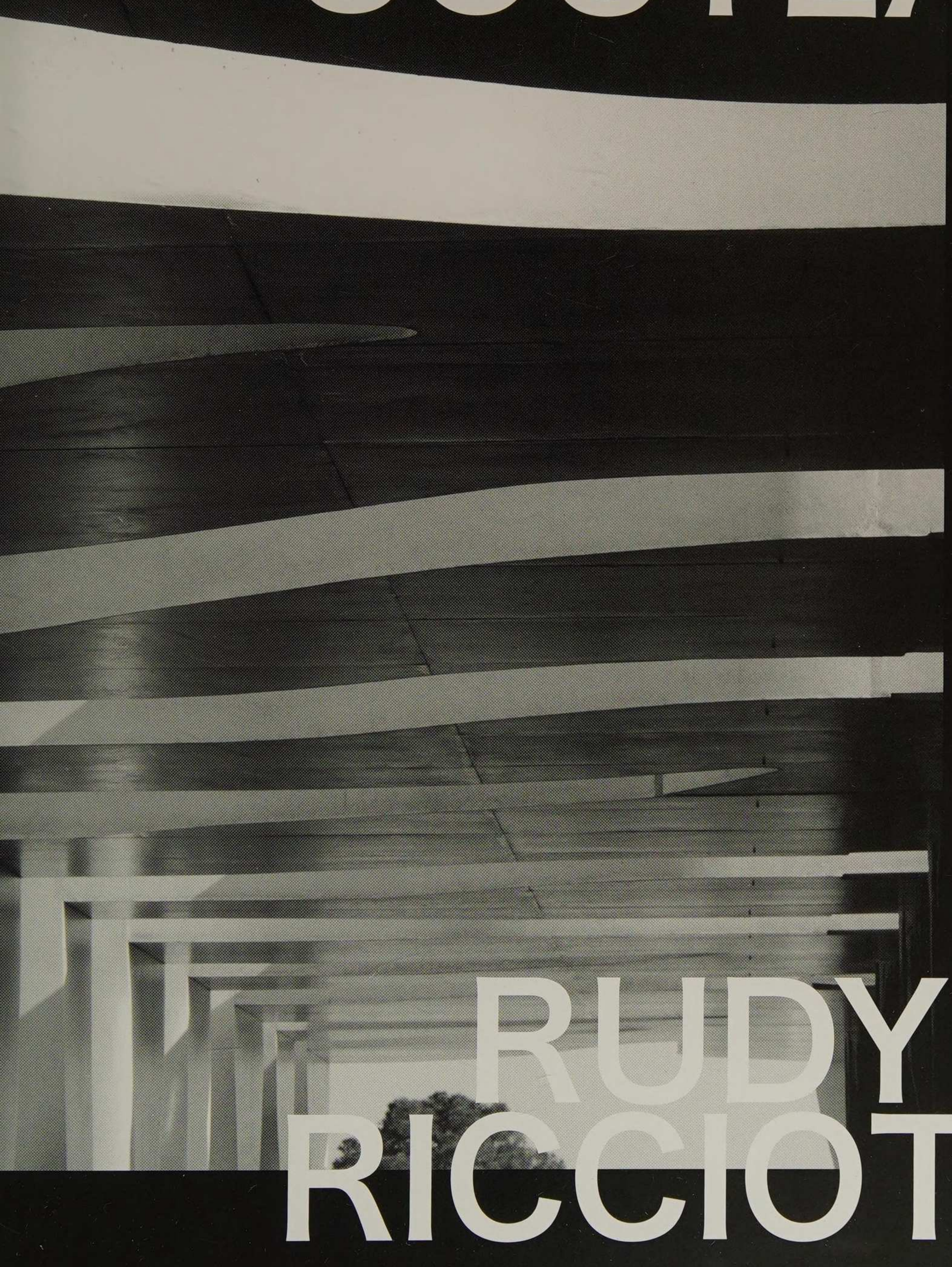




9. Nothing happened.

Play of shadows along the fragmented colonnade. Credit: Lisa Ricciotti

MUSÉE JEAN COCTEAU

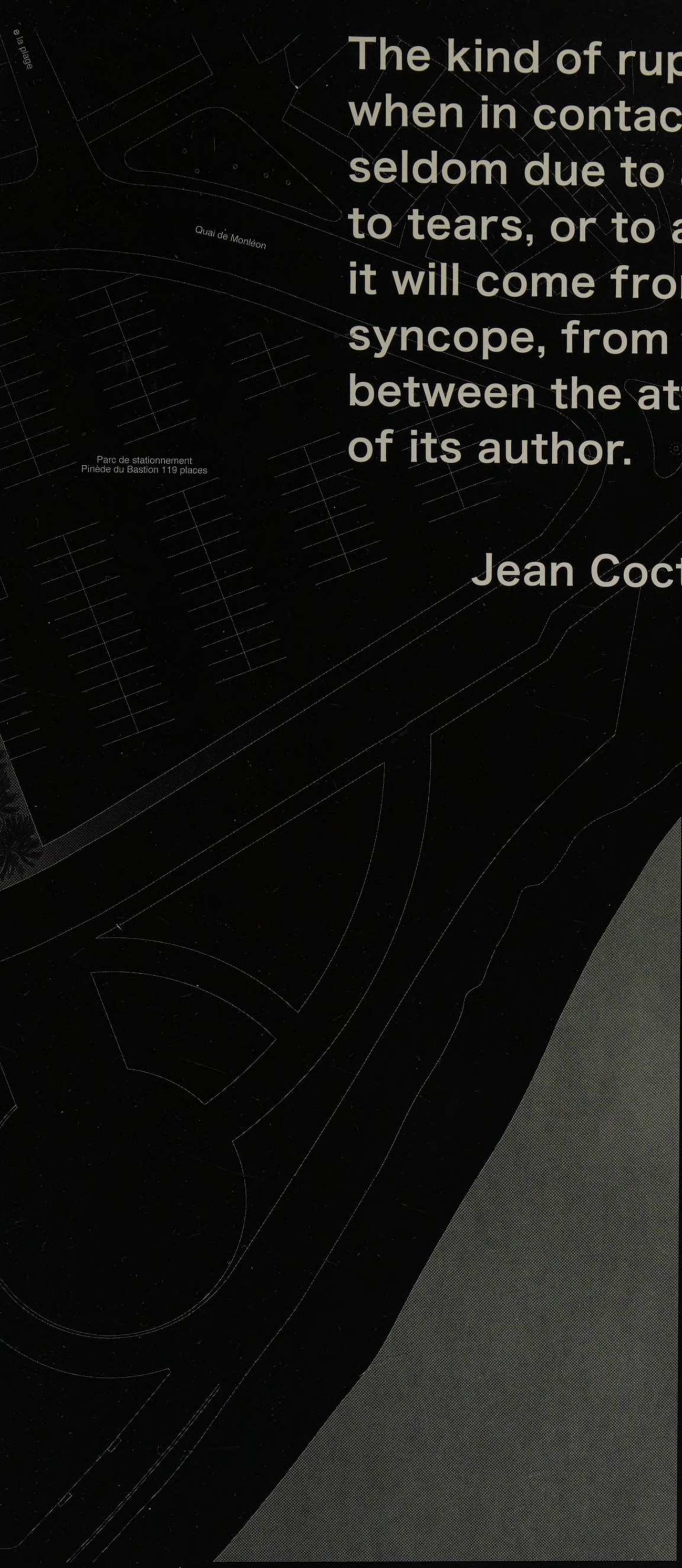


RUDY RICCIOTTI

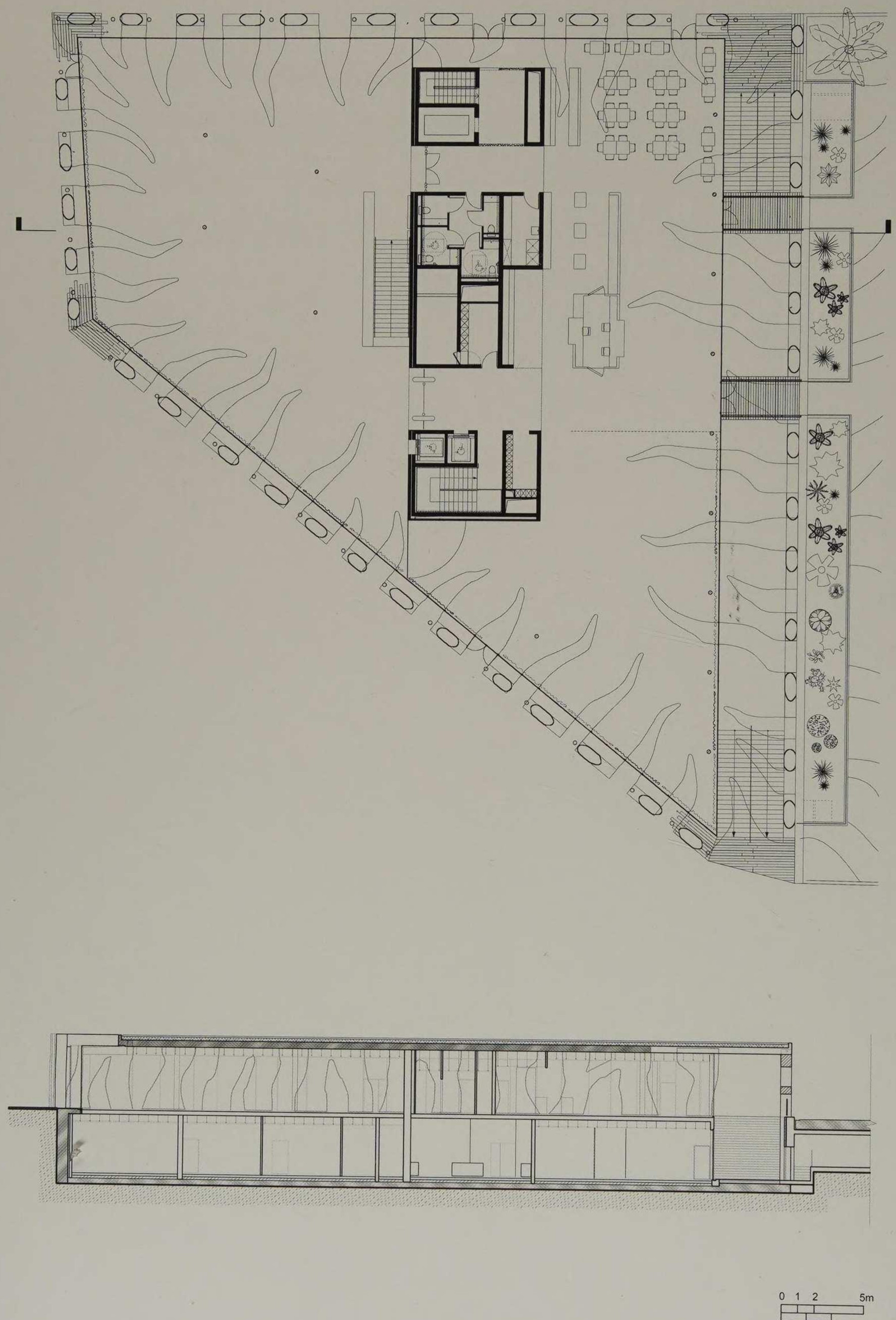
Site plan. Credit: Agence Rudy Ricciotti

The kind of rupture that transports us when in contact with certain works is seldom due to any attempt to move us to tears, or to any surprise effect... it will come from some error, from some syncope, from some chance encounter between the attention and inattention of its author.

Jean Cocteau[1]



1 Jean Cocteau, "On the Marvels of Cinematography" in *The Difficulty of Being* trans. Elizabeth Sprigge (New York: Coward-McCann, 1967), 49.



Ground floor plan and section. Credit: Agence Rudy Ricciotti

Shouldn't this building retain a bit of its mystery?—the mystery of its articulation between conception and production? The museum's image is a call to us. It thus brings to mind a journey to the underworld, a passage to a mirror-world of the living and the dead—a theme the poet, artist, and filmmaker Jean Cocteau often explored. It is also like a labyrinth, which, through the apparent disorder of the layout and the shifting transparency of mesh screens, suggests both the variety of the poet's creative vision and the unexpected continuities of his work.

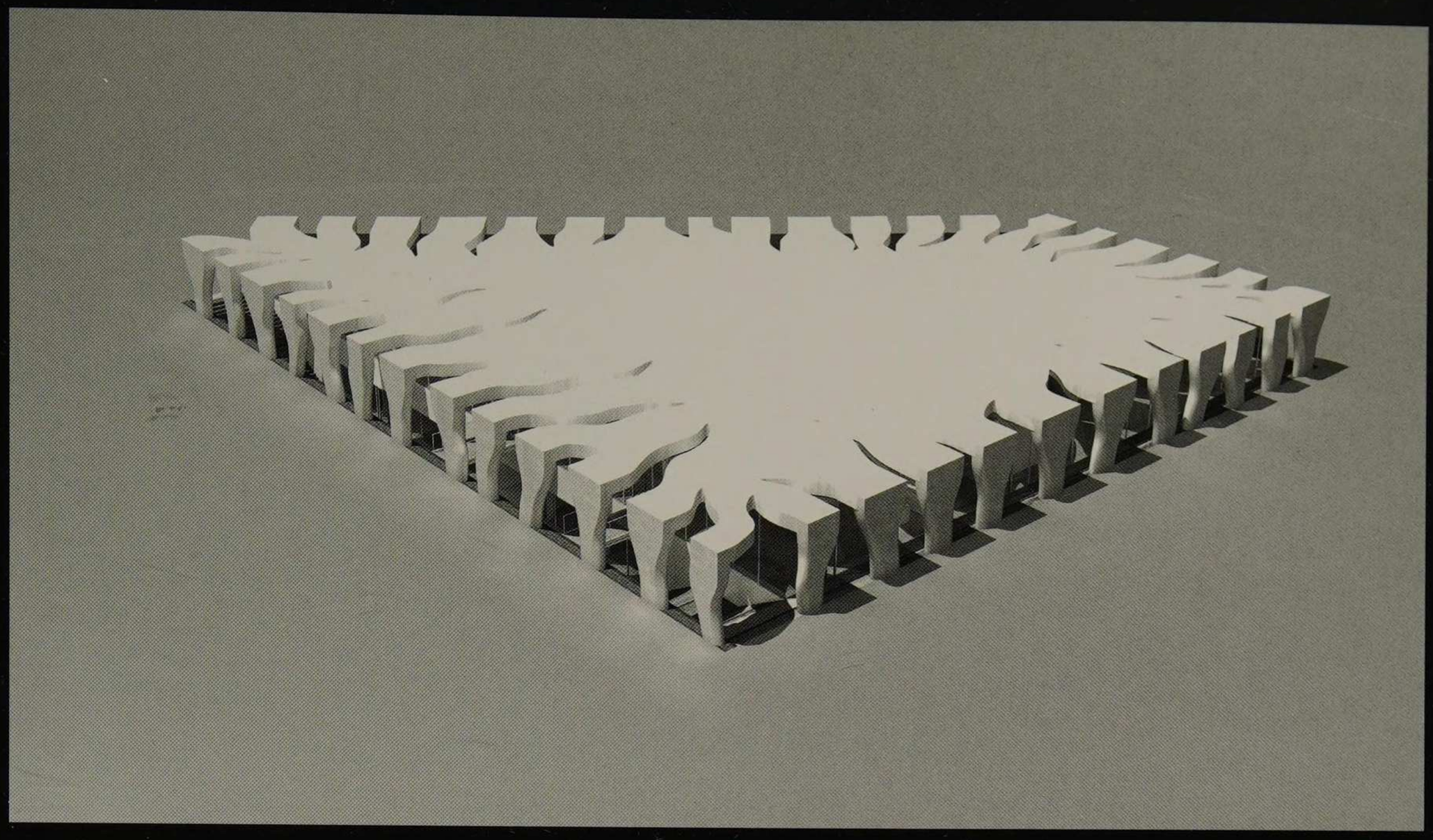
It was essential to create an atmosphere conveying the full force of diametrical oppositions between light and dark, a play of shadows pregnant with psychological significance. The starkness of contrasts ultimately reflects the contradictions in Cocteau's life and work. Black and white no longer serve as colors here: their interplay calls to mind both the artist's works on paper and the poet's personality, his zones of light and darkness, his enigmatic personal mythology fueled by contrasts.

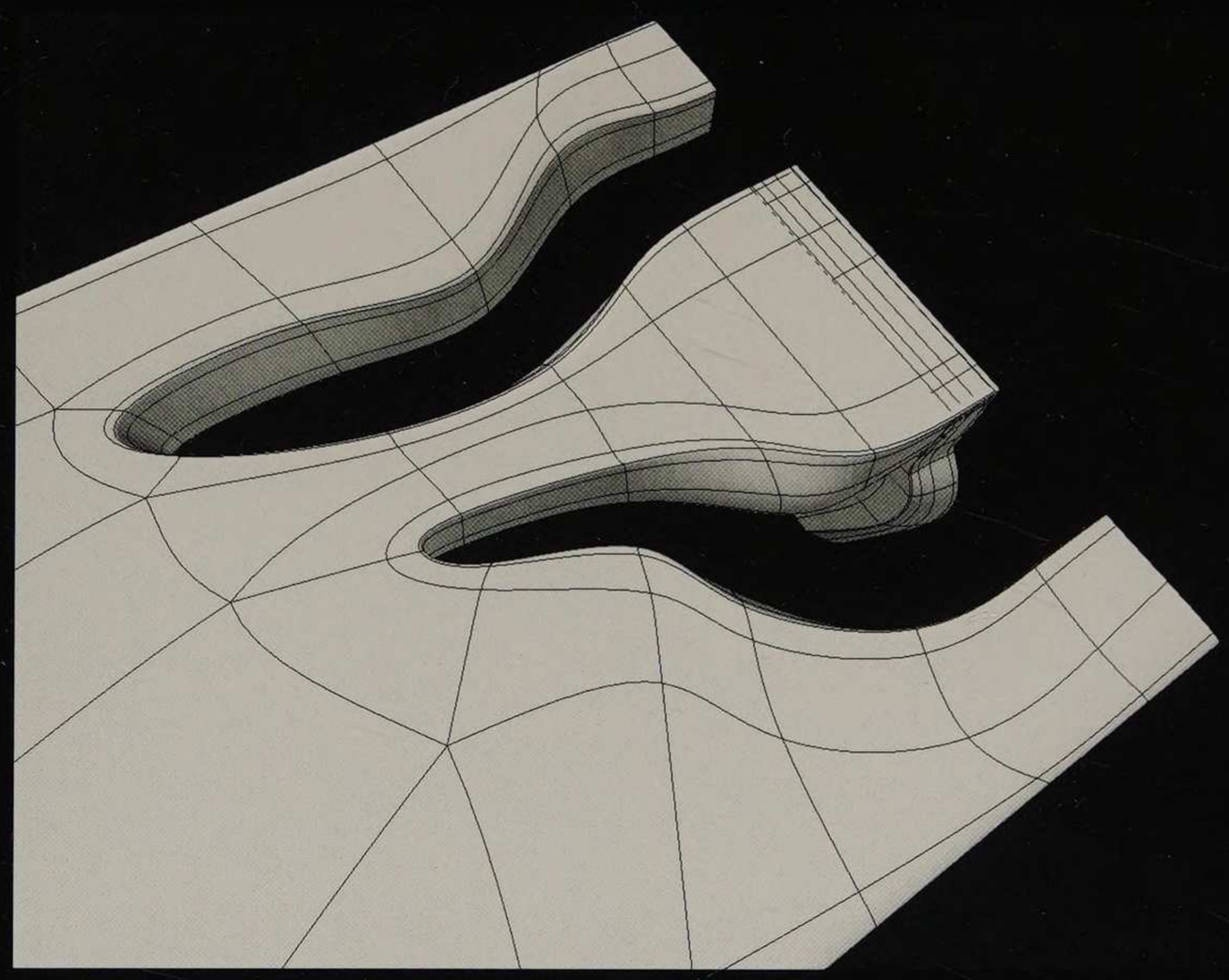
Cocteau wrote: "You have to do today what everyone else will do tomorrow." This means throwing off the yoke of a tyrannical modernity and daring to consider narrative, dreams, and drawing as a possible architectural escape.

—

Location—Menton, France
Completed—November 2011
Architect—Rudy Ricciotti
Project manager—Marco Arioldi
Landscape architect—Agence APS
General construction engineering design—Sudeco engineering
Site driver—Yohan Assouline
Lighting design—Lightec
Acoustical engineering—Thermibel
Front engineering—Van Santen & associés
Total surface area of the building—2,700 sq.m of usable floor area

Museum entry showing mirrored colonnade. Credit: Christophe Durand, Creative Commons Share Alike 2.0 license. Source: http://www.flickr.com/photos/39946027@N00/7094186453/



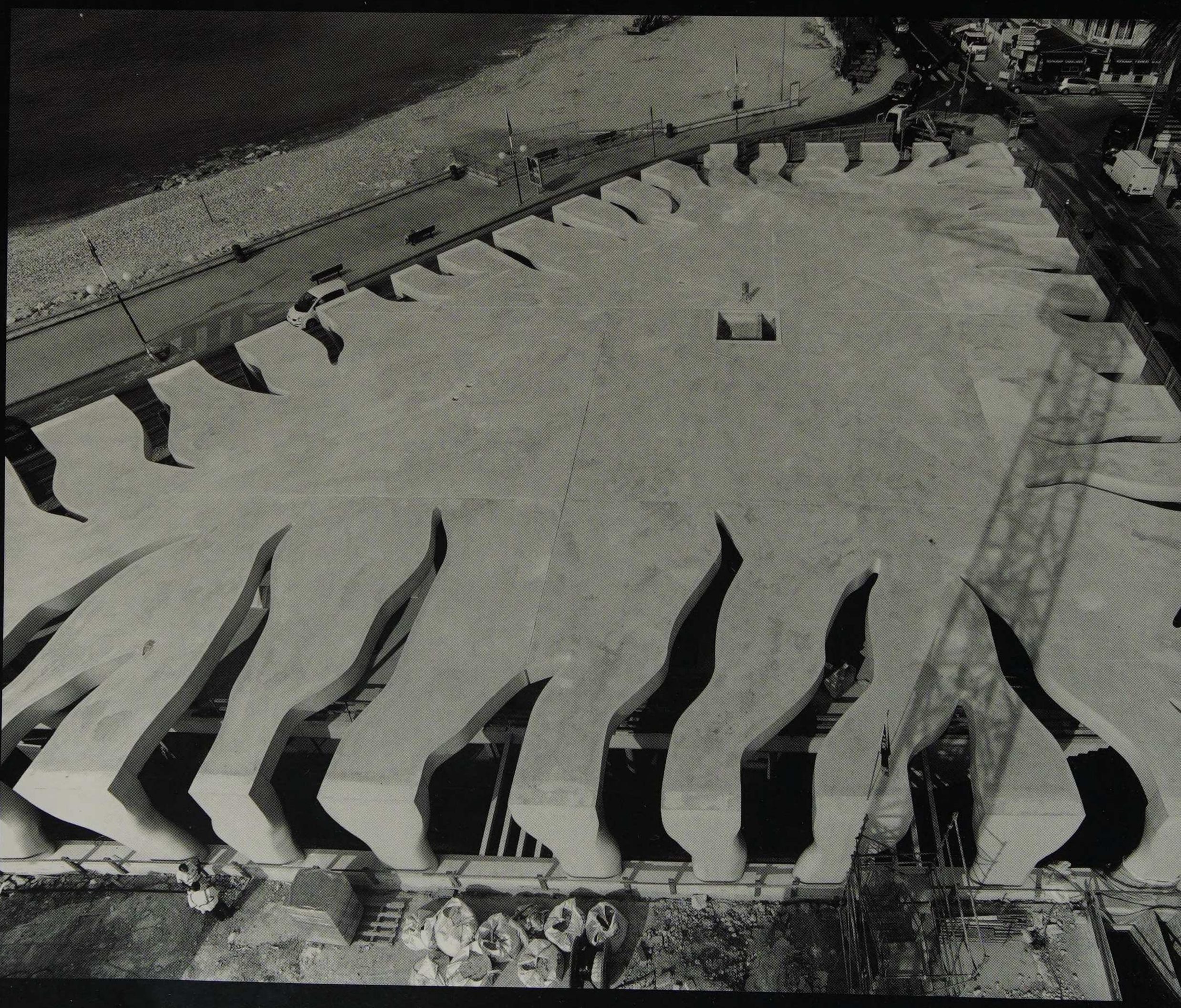


Above
Overall view.
Credit: Agence Rudy Ricciotti

Right
Digital model of fragmented concrete shell.
Credit: Agence Rudy Ricciotti

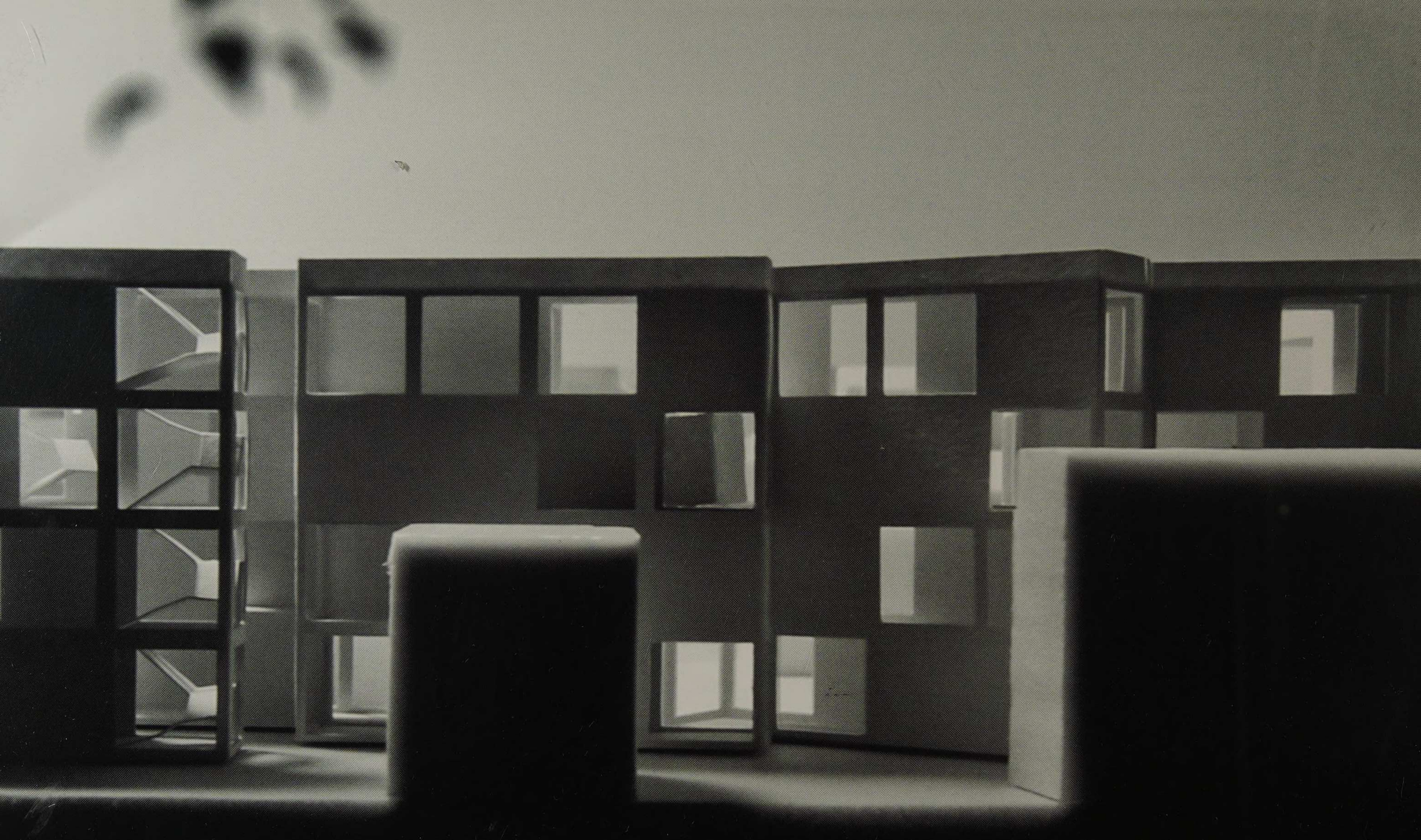
Corner detail. Credit: Lisa Ricciotti

RUDY RICCIOTTI

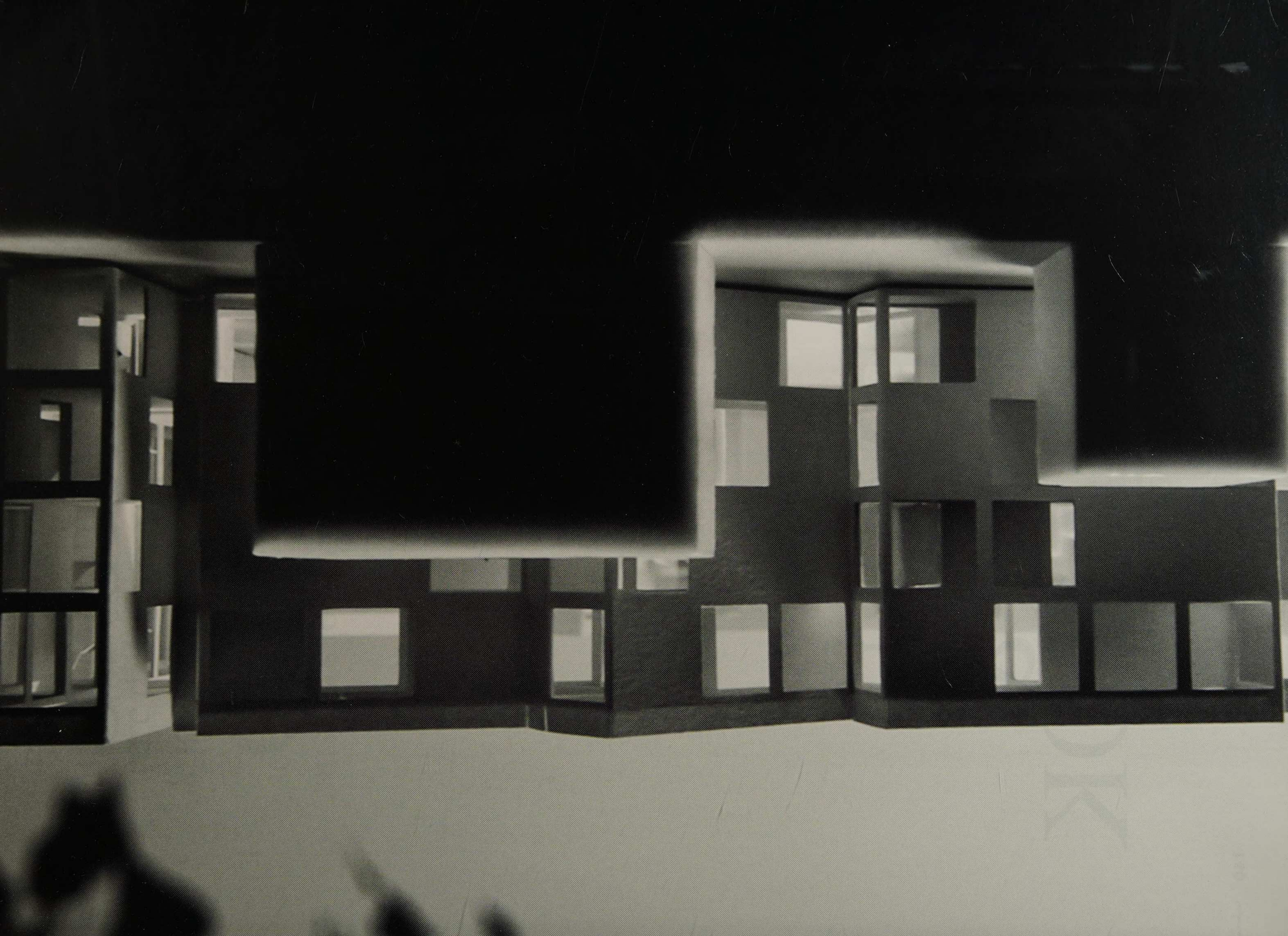


Above
View of Menton beachfront.
Credit: Jah Bernhard Kockoth
(Creative Commons License)

Left
The museum under construction.
Credit: Lisa Ricciotti



4. I suppose we expected something different, something like "ruins-in-reverse." The citizens [inhabitants] abandoned altogether the idea of something better. They chose quantity over quality. (Quality was too politically sensitive, Quantity was an easier subject.)



CLEARING THE COWSHED

BRYAN BOYER & JUSTIN COOK

"During the cold war, policy makers looked at the world as having secrets. Answers were difficult to come by, but there were known methods to discover them and the results were stable. In today's world those secrets have been replaced by mysteries, the answers to which are always best guesses."[1]

1 Nick Mabey, CEO of E3G (Third Generation Environmentalism) and former Senior Advisor to Tony Blair's Strategy Unit, speaking at Helsinki Design Lab Global 2010.

Cities are one of humanity's greatest accomplishments, and yet when viewed through the lens of climate change, the built environment is perhaps our most egregious error. In an urbanized world, climate change must be addressed by working on the city; cities are survival, as they have been since humans first decided to settle together.

Most architects are well equipped to work with form, but the other core dynamics of city-making such as finance, policy, and politics are often beyond our reach, if not avoided altogether. What matters is not the shape of the city *per se*, but how the city and its form shape us. Operating in three dimensions, at many different nested scales, and at multiple parallel time-scales, the sustainable city is a mysterious, even wicked problem. As this titanic issue becomes increasingly difficult to ignore, is the discipline of architecture capable of anything other than detailing the deck chairs?

The most difficult thing about today's large-scale challenges is the seeming impossibility of defining success. In the 1970s, Horst Rittel and Melvin Weber popularized the term *wicked problem* to describe challenges faced by social policy planners where interdependencies and incomplete knowledge made testing solutions impossible. Like a physicist studying a black hole, we can only observe wicked problems—and therefore judge the success of our attempts to address them—by detecting the distortions they produce in the world around them. Rising sea levels, accumulating greenhouse gasses, and carbon-fuelled growth are traces of the wicked mystery that has defined the 21st century thus far. These are a few among a mess of issues tangled up and labeled "climate change."

Having framed the challenge this way, we must come to terms with the impossibility of registering permanent success. We'll know whether we've prevented climate change when the climate doesn't change—or when it does change catastrophically. In the meantime, we accumulate small gains by devising new ways to fail differently, each attempt yielding clues to the mystery at hand. As the global community of professionals involved in shaping the built environment increasingly becomes focused on climate change as a central challenge of our time, interpretations of this mystery tend to result in an incidental simplification of the problem, often leading to work laced with error.

During the last significant flirtation with "eco-building" in the 1970s, the promise of energy-efficient construction was eroded by insufficient understanding of the thermodynamics and social dynamics at work inside buildings, and by a lack of rigorous methods. Now, through the combined efforts of leading practitioners in building physics and sustainable construction practices, we regularly see very sophisticated examples that address sustainability at the building scale. But what if the building is only part of the problem?

In statistics there are two canonical types of error, which are the inspiration for our analysis of the built environment. A Type I error is the rejection of a normative solution on the basis of unsystematic analysis or inconsistent operations. We might compare this situation with architects' fixations on what seem like good design tactics but cannot, in fact, be replicated. A Type II error is an unthinking adoption of a default solution, arising

from a failure to see critical relationships that exist between disparate phenomena. Likewise, architecture that does not take into account the totality of the building process, including human behavior, has a hard time fulfilling any meaningful definition of "sustainable." The way to avoid both Type I and Type II errors is by attempting to solve design problems with greater comprehensiveness and precision.

Systems theory introduces a third type of error which occurs when the model used to conceptualize a problem is itself flawed, yielding a correct answer to the wrong question. Such failures of appropriateness include the service of immediate needs in absence of long-term investments in social, environmental, and financial equity, thereby treating the symptom at the expense of the cause. This Type III error is also the downfall of some "demonstration projects" in *tabula rasa* non-contexts, such as Abu Dhabi's Masdar City ***Fig.1***. While such projects are comprehensive, they require a government

Fig.1 *Rendering of Masdar Development, Abu Dhabi, United Arab Emirates (Foster + Partners, 2007–2008). Credit: Foster + Partners*

that can provide an unencumbered site, effect regulatory change unilaterally, and even "migrate" populations as necessary. Lessons learned from these prototypes seem unlikely to be applicable to the existing built environment, particularly in the developed states of the Western world which now must contend with their own legacies of strong market and regulatory environments as they strive to meet new environmental standards.

The last time there was a culture of large-scale speculation within the architecture community was during the utopian postwar era. Those flirtations ended tragically for the profession with public refutation of massive urban redevelopment projects and low-budget interpretations of the International Style. The truly wicked problem today is to devise ways in

which thriving cities and the communities they support can transition to a growth model which is decoupled from fossil fuels. Doing so requires new levels of engagement with stakeholders in policy, finance, and other areas; it requires a degree of openness, reproducibility and knowledge transfer which is atypical to the architectural profession; and it must draw on the naked ambition of architects to change the world for the better.

As employees of Sitra, the Finnish Innovation Fund,[2] we possess the unique benefit of a behind-the-scenes view of the Low2No Sustainable Design and Development competition sponsored by our organization in 2009. The two-stage competition was designed to seek sustainable building strategies that balanced economy, ecology and society applied at the scale of a city block. As we attempt a taxonomy of architectural errors in efforts to address climate change, the competition will serve as a case study to demonstrate how such errors might be avoided in the future.

THE ERROR OF IGNORING REPLICABILITY (TYPE I)

The first challenge is to understand what success looks like and how it is distinct from failure. To replicate success we must first ask: what makes a building successful and *when* can we deem it successful? Moving beyond copy-and-paste solutions to our wicked problems, architects will need to return to problems encountered in earlier eras and develop well-calibrated steps to overcome them. This will require many forms of intelligence, not least of which is an understanding of the similarities to and differences from work that has been done before. By understanding the relationship between design intent and outcomes, the smart architect will be able to apply past experience and make better decisions in the future. Documenting this analysis in common and open ways expands the benefit from the individual architect to the profession at large by offering a learning system which helps us avoid errors of inconsistency (Type I), thereby instrumentalizing our successes and failures alike.

For most contemporary practitioners, the brief that reaches the office has already been shaped upstream by decisions about investment, regulations and political priorities. The brief may appear to be a product of unique or exceptional circumstances, and from a spatial point of view this is often the case. But in most situations, the strategic decisions that have shaped the brief have been made at tables entirely separate from those at which the brief was composed, and thus are much harder to change. The inertia of strategic decisions makes understanding these dynamics important to anyone who is interested in increasing the reproducibility of good architecture without tilting at windmills.

As a discipline, we know shockingly little about the lives of the buildings we design. Industrial design has gone through dramatic transformations in the past twenty years by incorporating new skills: by building a fluency for user interviews, observation, and other ethnographic activities,

it has transformed itself from a practice based on artistic intuition to one of evidence-based inspiration. Meanwhile the profession of architecture has done very little to make use of this kind of intelligence, leaving it instead to consultancies such as IDEO, Experientia, Ziba, (product design consultancies, ironically) and others who use these new skills to develop strategic insights that simultaneously shape the early direction of a project and command higher hourly fees. Applying these practices to buildings instead of products is not an easy task for many reasons, the least of which is that it's impossible to interview all of the future occupants of a building that will be around for 30–100 years; therefore, architectural design will always involve creative speculation. Nevertheless, the difficulty of this issue is exactly what makes it a pressing topic of research and development, and therefore a natural endeavor for universities and other non-professional entities to undertake.

Universities are not (to our knowledge) producing basic research that significantly bolsters the profession's ability to operate in the decision-making contexts of the contemporary world, nor making explicit the value of architectural practice beyond its "cultural contributions." Where is the robust dialog of post-occupancy analysis? Where are studies of the great architectural failures of the 20th century? Where is the careful analysis of the external factors contributing to those failures? The lack of work in this area hurts the profession by impairing the individual architect's ability to argue strongly for the value (financial and otherwise) of design decisions, thereby leaving those decisions as low-hanging fruit for value engineers. It also puts the profession of architecture into the difficult position of becoming the scapegoat for failures that are beyond the scope of architectural impact.

A project such as the Pruitt-Igoe housing complex in St. Louis, Missouri, may very well have included poor design decisions, but many of the failure points were questions of operations and maintenance as well as larger social dynamics that created a formidable trap that architecture alone could never resolve ***Fig.2***. The project was a strategic failure, yet the architecture

Fig.2 *Wendell O. Pruitt and William L. Igoe Homes, St. Louis, Missouri (Leinweber, Yamasaki & Hellmuth, 1954).*

2 Sitra is an independent fund which focuses on the quantitative and qualitative growth of the Finnish economy. The organization operates under the auspices of Parliament but with the tools and capacity to take a long term perspective on risk. http://www.sitra.fi

bore much of the blame. Pruitt-Igoe is the archetype of Type I failure within architecture. In a cruel twist of fate for a style of building that sought to escape symbolism, images of the dynamited carcasses of Pruitt-Igoe became a symbolic stand-in for larger systemic failures.[3] As this and other experiments conducted by ambitious architects, planners, and politicians began to fail, the architects were often left holding the bag—due, we might speculate, to the very visibility of their contribution to the process and to their inability to defend their design decisions as hypotheses informed by a basis of evidence.

If conducting post-occupancy studies is complicated because occupancy is so deeply intertwined with myriad social issues, collecting insights from attempts at *sustainable* building should be easier given that factors such as energy use, carbon footprint, and basic behaviors can be observed in finite terms. Although the market has been quick to take advantage of sustainability as a marketing tool, few of the claims have been verified in a public manner. This approach is implicitly supported by LEED, whose checklist design methodology subscribes to the professional definition of "architecture" as happening before anyone moves in. Proposals made for so-called "LEED Police" who might verify the sustained performance of accredited buildings put the emphasis on punitive protectionism.

Instead, we're advocating a role for universities and other neutral parties who may occupy an important position within the feedback loop to connect the work of professional offices with evidence-based reflections on performance. Most postulation that occurs in our architecture schools and professional studios is one-directional, capturing very few external signals of success or failure that might be used to inform the work of the profession at large. LEED has encouraged design decisions to be driven by point potential rather than the principles that undergird sustainable development's best practices. All this at a moment when the profession desperately needs mechanisms of open exchange that increase collective intelligence by enabling practitioners to support their claims with verified evidence of success. Advancement here means improving the perceived value of architecture as a class of services that can add value (social, economic, and environmental) to investment decisions.

One might claim that the learning that results from a particular project be considered the intellectual property of the office that designed it, but this protective position is taken at the expense of the profession at large. Large engineering firms such as Arup, consultancies such as McKinsey and IBM, and even non-architectural universities such as the London School of Economics are quickly developing sophisticated tools to measure and discuss most aspects of buildings and cities, with the exception of the last bastion of architecture: form. If left unchecked, the current trend will end with architects becoming decorators, designing within the limited envelope defined by a group of consultants who are able to translate social, economic, and environmental dynamics into highly defined bounding boxes for sophisticated clients. Shifting the focus of architectural inquiry from the phases of design and construction to full-spectrum development (from scoping, design, and occupancy

to decommissioning) is a natural way for the profession to begin to see the design phase as deeply entangled with long-term strategic questions. This will help architects occupy a position of greater consequence and develop an ability to contribute productively to strategic conversations.

Because Sitra is not in the business of property development, but instead is a key part of Finland's national innovation system, the Low2No project aspires to effect systemic change. The construction of the city block is a way to focus discussion[4] and action on topics including national and supranational energy policy, building codes, low-carbon materials and methods, smart systems, influencing user behavior, and financial tools to support large scale sustainable development. In real terms, this means that while the project will deliver new residences, low-carbon services and retail, and a new office building for Sitra, we will judge the success of the project by the ability of others to reproduce whatever positive effects Low2No can generate. Sitra sees the new knowledge and tools that are developed in the course of realizing our block as part and parcel of the development effort—artifacts that future project teams can pick up and improve on. We will be conducting post-occupancy analysis of our building and benchmarking it against the current Sitra headquarters and a baseline to study the impact of the architecture on our organization's operations, energy use, and carbon footprint. More importantly, we are pursuing the carbon-related aspirations of the project in an open-book manner that lays bare how we are accounting for carbon and gives a clear standard against which the everyday performance of the project can be measured. Making a commitment to measure and publish our ability to deliver on the ambition of Low2No is scary, but we feel that this is an important area where Sitra can seize the opportunity to lead by example.

Without measurement the architect does not have the replicable ability to help clients appreciate the value of design decisions. This leaves each act of design to be interpreted in inconsistent ways, creating a situation where design has little promise of future currency.

THE ERROR OF RETREATING FROM ENGAGEMENT & INTEGRATION (TYPE II)

To open the Low2No competition, Sitra asked first for qualifications that outlined the team structure, requiring, at a minimum, expertise in architecture, engineering, landscape architecture, and sustainable development. Additionally, the team's skill profile scored higher if it included complementary competencies such as integrated design, climate analysis, urban economics, business development, and energy policy. Submittals were also evaluated for evidence of working at a strategic level, such as developing scalable solutions, implementing large-scale innovations, etc. The purpose of orchestrating these dynamics up front was to ensure that teams could effectively engage the complex set of issues that drive urban development and deliver a more complete solution.

3 As explored by Charles Jencks in *The Language of Post-Modern Architecture* (New York: Rizzoli, 1977).

4 Sitra is investing 30+ million euros for a new headquarters and the privilege of starting a conversation about sustainable development in Finland. It just so happens that in the realm of sustainable development, the cost for sitting at the table is immediately in 8 figures.

Of the global responses to the Request for Qualifications, nearly 15% were led by engineering firms who had selected an architect as a sub-contractor, inverting the traditional role of architect and consulting engineer. Indeed, the winning entry was spearheaded by Arup's London office with Sauerbruch Hutton Architects providing architectural services and Experientia bringing contextual and user-based research and design to the table ***Figs.3,4***.

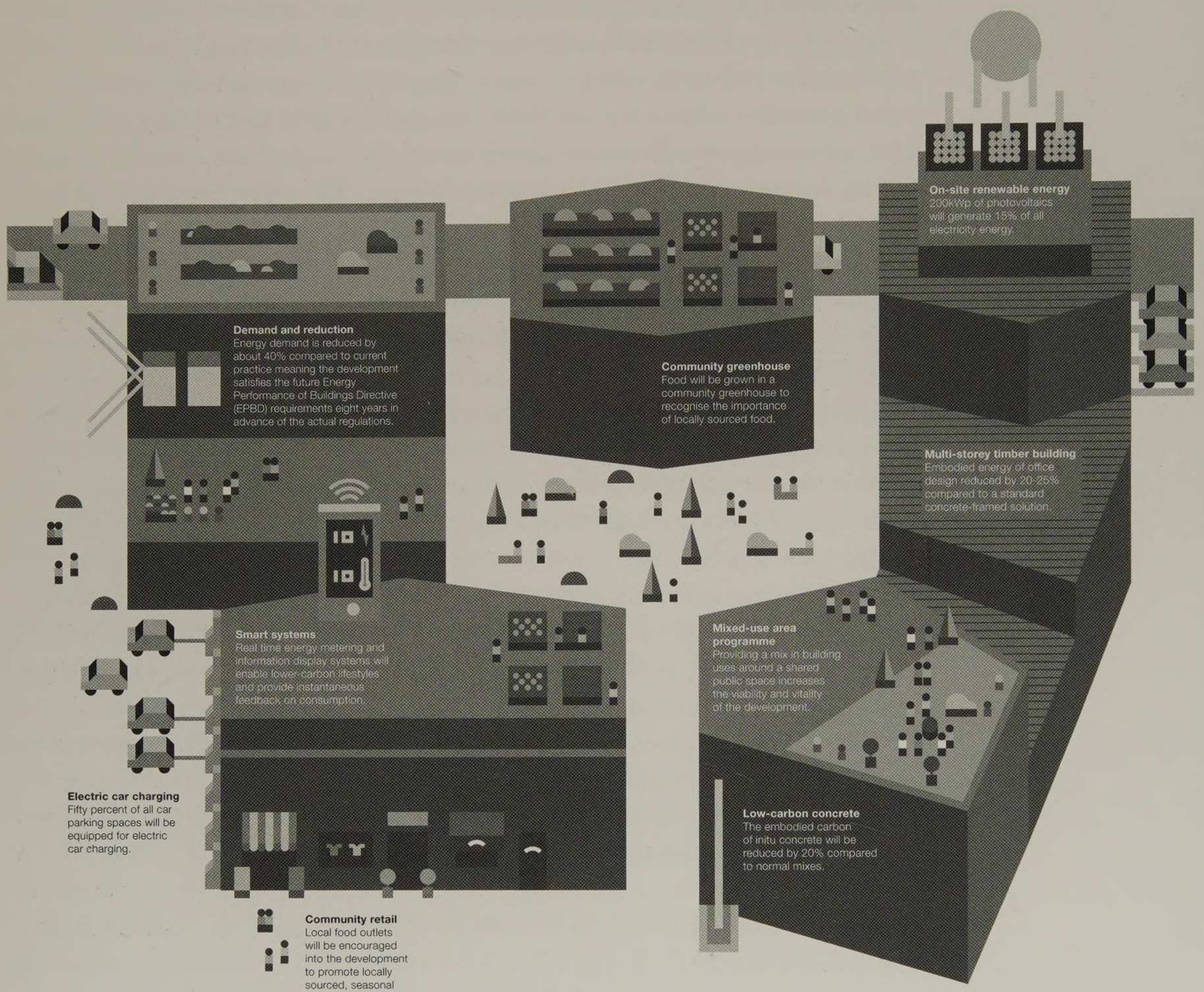


Fig.3 *Low2No infographic from Arup's 2011 Design Yearbook. Credit: Lamosca/Arup*

Through its sheer scale, Arup was able to muster a team of dedicated experts in the key facets of the built environment by tapping offices in Milan, Amsterdam, Sydney, Brisbane, and San Francisco to grapple with the broad scope of issues at play in sustainable development. Our competition fore-grounded one of the key questions of this particular wicked problem: in light of new climate regulations throughout the developed world, it is clear that architects will be working in increasingly integrated teams, but who will lead?

Being a leader means knowing what you are good at and when to ask for help. In traditional projects architects have often played the role of glue between different parties such as client and contractor. Now working in a more diverse context, architects are increasingly at risk of being marginalized

out of strategic conversations about what to build, and even what it means to build. Architects are losing their ability to act as the glue at early stages of this deliberation, instead being called in after the "what" has been decided and only needs to be executed. By being left out of these early conversations, the work of the architect is doomed to be incomplete and poorly matched to the broader political, economic, and regulatory context.

Fig.4 *Rendering of Low2No block.*
Credit: Sauerbruch Hutton

In recent decades, the academy and then the profession have retreated into questions unassailably within the domain of architecture. We as a discipline and profession have traded our mandate to think strategically about the built environment for the right to experiment in the sandbox of formalism where failure has few extra-disciplinary consequences. By excusing ourselves from the table in complicated, systemic discussions, we have given up our influence over complex decisions where politics, economics, and sociology intersect with the built environment. What must have seemed like a good bargain at the time is now showing itself to be a rotten deal as the ambitions of today's clients lead them away from architecture firms as the first stop for ambitious investments in the built environment.

Despite this historical abdication, we see signals of a re-engaged profession bubbling up, working to be strategically relevant again, and helping to shape the decisions that shape the built environment by speaking a language germane to those who make policy and set budgets. By humbly trying to re-engage in the strategic conversations that happen before today's architect is ever hired, architecture stands to gain recognition as a profession able to articulate the costs and benefits, in hard and soft terms, of spatial and material decisions. Doing so in a smart way will require the architect to work side by side with urban economists, financiers, community leaders, politicians and scientists just as fluidly as the best architects are able to do with the typical coterie of building-trade engineers and consultants. It's not an easy transition to make, but the reward for success is sustained relevance.

If a sense of civic obligation doesn't attract you and the threat of professional marginalization isn't scary enough to motivate action, consider that an engaged practice also stands to gain that most intangible of assets: respect. Architects able to hold their own in a conversation about balancing the often conflicting needs of a project (including the unfortunately taboo topic of budgets) stand to gain the respect and trust of the client. Having a relationship of trust combined with the ability to articulate the value of design ideas in the language and terms of all stakeholders yields a higher chance of having one's design proposals accepted. Engagement is an investment in freedom.

Integration, on the other hand, is an investment in relevance and durability of output. City-making is both complicated and complex. Environments are built from the interaction between new ideas and the legacy of existing buildings, transportation networks, regulations, financing structures, demand, and culture. As society continues to expect ever-higher levels of performance from the built environment—increased functionality, better financial returns, and smaller carbon footprints—the ability of buildings to meet these expectations increasingly implicates areas outside the traditional scope of architectural practice.

Sitra's first-order consideration for the selection of Low2No competition respondents was the mix of competencies that team leaders were able to assemble into a viable, integrated project team. Of the group of five respondents selected to continue in the second phase, two were led by engineering firms. They ranged in size from three to nine member consortia and each invariably cast its approach as based on a strategic rationale in which architecture was incidental to a broader set of desired outcomes. One group's submission announced their opposition to the signature building: "A new kind of 'signature' is required: signature *strategy*." Another proclaimed, "Whether entrusted to design a vastly scaled master plan, or a single building, we believe that any intervention has the responsibility to strategically optimize the effectiveness of all pieces in play." Reading between the lines, it is clear that these two architect-led teams were painfully aware of the discipline's frequent inability to convert investments in buildings into lasting returns for society, the environment, and the city. The Low2No competition response indicated that the best architects are already beginning to brand their activities as strategic practices that shape the built environment.

Today, practices that integrate themselves with the expanding list of disciplines implicated by city-building will find themselves in the advantageous position of having anticipated their clients' needs rather than reacted to them. Global organizations such as AECOM, Halliburton, and Arup attempt to collect as many disciplines under one roof as possible, so as to avoid needing to curate consultants. Without the resources of these global giants, young firms are exploring a different route. London-based Research Architecture 00 works by building alliances of ability that enable them to tackle challenges as diverse as redevelopment efforts in Poland and rethinking schools in small British cities. Being fluent in the professional languages of their collaborators enables Research Architecture 00 to spearhead complex space-making projects with a higher chance of avoiding errors of incompleteness (Type II).

Integrated practice is more than collaboration between disciplines or supporting a co-design process, however. Deep integration requires shared language and culture. As the Low2No competition transitioned into a design and implementation phase, contractual negotiations stretched to six months not only due to the natural complexity of a multi-client, multi-practice, international consortium, but more because of the disconnect that existed between what each firm understood as *design*. For Sitra's local partners and the non-designers in the team, it was self-evident that the design process was principally concerned with execution, whereas the international team expected (and were bidding for) a significant "phase 0" where ideas broached during the competition would be unpacked and reformulated into the project's guiding principles. Without a shared understanding of how design would unfold, the team could not function in an integrated manner. Sitra recognized this conflict early, perhaps because there were designers leading the process within the organization, and established a set of workshops geared toward establishing a shared language and culture between nationalities and disciplines. The error of incompleteness could only be avoided when this diversity of expertise and experience was brought into a careful—if precarious—balance.

THE ERRORS OF INAPPROPRIATENESS (ON AMBITION AND ITS FRAGILITY) (TYPE III)

Architecture as a deliberative and reflective practice is a luxury perceived by many outside the profession as being unnecessary or too expensive to indulge in, and thus, by default, entire swaths of the built environment are left untouched by the profession. With rare exceptions, what's left as a client base are those relatively wealthy clients who have during the past decade looked to the architect mostly as form-giver, but who are now being pressured by climate policies, risk adjusted *pro forma*, and depressed markets to ask for both form and performance. Architects must cultivate their ambition to do good by exploring strategies that include, but are not limited to, buildings.

Evident in the use of "greenwashing" in the marketplace today, ambition is all too easily flayed down to enthusiasm when principles are not shared. While enthusiasm might be able to sell products, we cannot enthuse our way out of wicked problems. This highlights the importance of addressing causes rather than treating symptoms, and it implicates the architect's move from tactical formgiver to strategic designer.

A number of individuals and organizations are pursuing, enabling, and promoting the role of the architect as non-profit worldchanger who aspires to "do good." Humanitarian contributions are important for every individual—not just architects—but the popularity of this body of work points to a developing anxiety about the declining influence of the profession. In blunt terms, humanitarian efforts are one way of finding a new client base and one that, because of its very humanity, is particularly easy to be enthusiastic about. Organizations such as Architecture for Humanity, The

Designers Accord, and The 1% promote avenues of practice that run counter to the starchitect culture of the 2000s. In our own research of strategic design around the world, these examples are often cited as leaders in the field because they are inevitably operating in difficult socio-economic contexts, and often in distant places.

However, we must delicately draw a line between strategic design, which seeks to improve outcomes by engaging issues that are decided upstream of the design of physical spaces and places, and "Good Samaritan" architecture, which seeks to insert architecture into unlikely settings and work with communities in need. To address acute needs in a successful manner is a true contribution to the lives of those who are served, but it only becomes strategic when it addresses causes rather than symptoms. Sometimes this will involve work on acute needs in parallel with more substantial systems-level considerations, but not always. As an example of a project that is both humanitarian and strategic, we point to the work of Elemental, who have been designing housing as an appreciable asset for some of Chile's poorest citizens for over a decade.

In addition to being good architecture executed within very tight constraints, the core of the proposal is one that translates middle-class real estate criteria into a viable strategy to lift families out of poverty. To a middle-class home buyer, location matters greatly and the house itself is seen as an investment that provides equity that can be leveraged for future needs. By accounting for the "sweat equity" of its future residents, Elemental is able to make smart decisions about where to dedicate scarce funds so that money is spent in places where the capital investment outweighs the residents' own realistic ability to self-build. The result is a home designed for expansion that features a full-size kitchen and bathroom but whose total volume is half the maximum allowed. As the residents save money, they are able to self-construct the remaining allowable volume of their property and increase the value of their property in doing so. By keeping construction costs low, Elemental is able to work with the residents to purchase more expensive land near city centers, increasing social and economic prospects. Elemental designs the home, but the residents build their own equity, and in doing so are better positioned to escape the grip of poverty. Building a house can be humanitarian, but the way Elemental approaches their work is strategic.

By staying alert for Type III errors, we are able to isolate more clearly the critical difference between a practice that is strategic and one which is not: the creation of equity. Whether for the richest clients or the poorest, successful strategic design pursues the creation of social, environmental, and financial equity as the overarching goal. A focus on equity puts the emphasis literally and metaphorically on creating design solutions that act as investments in the future. Understanding the ambition to produce equity and its relationship to strategy enables an architect to learn from diverse sources—an important opportunity since there are relatively few strategic architecture projects available to study. Looking at an example half a world away from Chile, we return to Low2No and the way Sitra is attempting to "future-proof" the project.

From the delivery of the Low2No urban block we hope to create a development model that is useful in transitioning existing cities to a low-carbon future. We see the act of balancing the three competing interests of economy, ecology and society as the only way to move forward, beyond demonstration projects, into territories with potential for significant and lasting impact. By seeking balance, we hope to avoid errors of inappropriateness (Type III) with a model that is adaptable to the complicated and complex realities of city-making, where ambition is browbeaten by budget and the nonstandard solution is bullied by regulatory incompatibility. Our gamble is that if Sitra can help design the model, Finland will build itself a more sustainable future.

While buildings alone may be weak tools for driving systemic change, their tangibility and visibility can make them powerful tools to organize and motivate ambitious work at the strategic level. The physicality of a building allows it to act as a pilot, translating abstract conversations about ambition into specific accomplishments.

Making good on the ambition of today's young architects will force the profession to make a strong case for their role, honing design ideas into durable propositions through engagement with relevant disciplines and, by building on evidence-based methods, increasing the chances for reproducibility. To retreat from the wicked problems we face today would be to spend what little accumulated capital we still have selfishly, both as a profession and—due to the significance of the built environment on the global carbon footprint—as a society. But by engaging our greatest challenges in an integrated and collaborative manner we will open a path toward the restoration of the architect's ethical position that was promised in the utopian mid-century era.

Not all attempts will be successful and indeed many will fail, but there is a significant difference between failure in today's informational vacuum and failure under the light of an ambitious, supportive, and considered profession. John Landau, former commissioner in the Australian Tax Office who initiated a program to integrate strategic design at the core of that most prosaic of government functions, described the gargantuan effort ahead of his organization like this: "we shoot for the moon and hope to clear the cowshed." Architects, too, must look beyond the building if we hope to do work that is relevant in light of today's challenges.

Low2No will break ground in 2013 with a new partnership structure. Sitra opted to transition leadership of the project to our development partners in 2012, meaning that VVO (a public housing developer) and SRV (a commercial developer) will carry it forward. Meanwhile, our interest in using the project to drive innovation at the systemic level has yielded a first flush of change. In 2011, the detailed design and development of Low2No exposed opportunities to rewrite Finland's fire code to enable large-scale, commercial timber construction that had been prohibited since the great fires of the 19th century. Sitra was able to assist the Ministry of the Environment in reviewing this opportunity and enacting a new fire code providing builders with a low-carbon alternative to concrete and steel while helping Finland's troubled forestry industry develop higher value-added products. Several large timber buildings have since been announced that take advantage of this new regulatory context.

3. After a long pause, Hilary whispered, “This place is like so many other places. It’s so American...a market-driven collection of discrete enclaves...an Archipelago of distinct lifestyles...simultaneously connected and disconnected by intricate hierarchies of roads and highways. The highway and archipelago produce each other. Within this system, the poor and lower middle classes are fundamentally excluded, assigned to a different enclave—the ghetto, the constituent alter ego of the lifestyle-enclave.” Nobody paid attention, it registered as another fleeting sound bite in the thick [thin] of the massive staticky crumble.

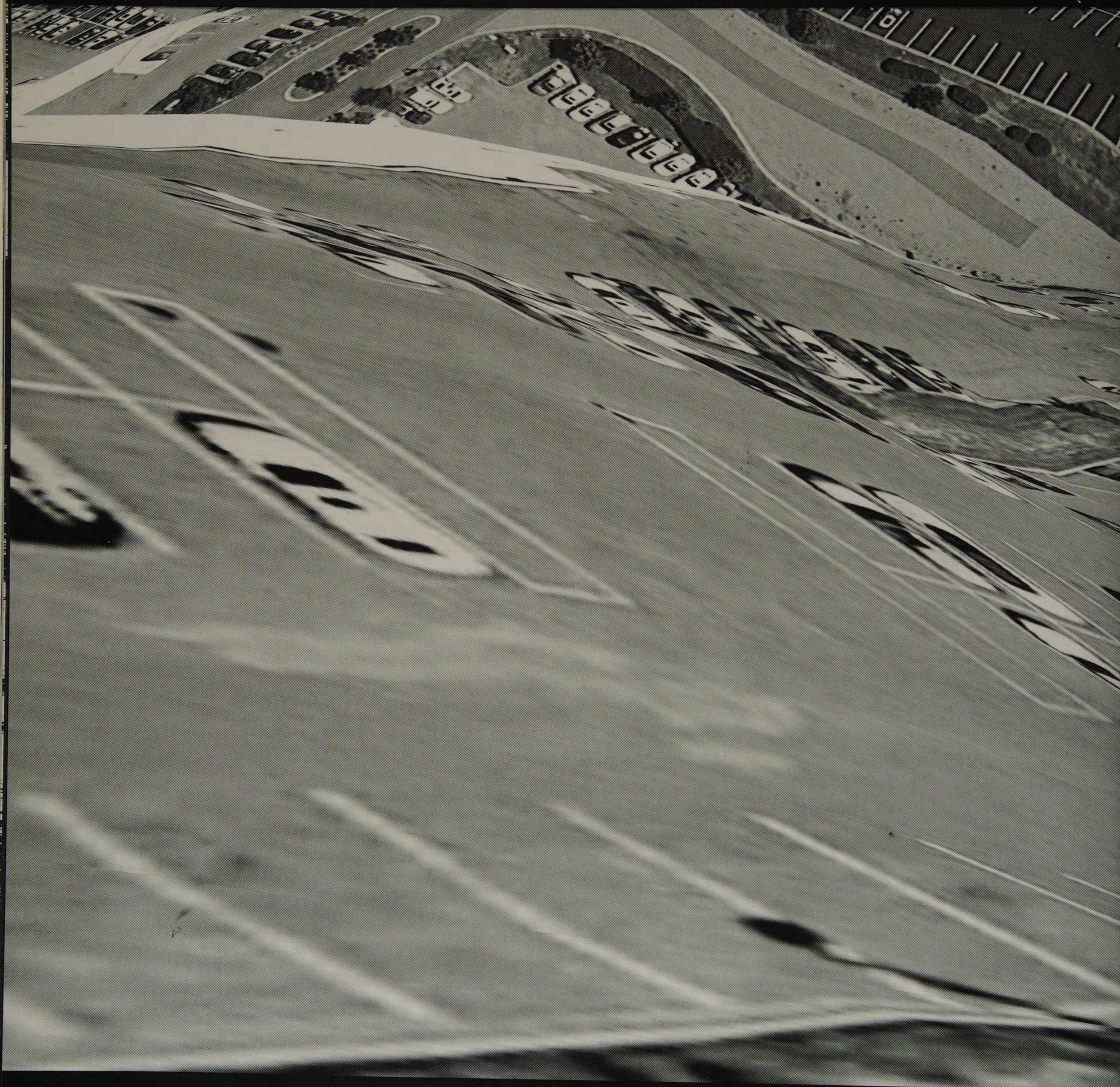
1. *Have you noticed, when someone is really looking at something they become paralyzed for a moment. For most people, there is nothing worse, nothing more embarrassing or humiliating, than being caught in this state.*

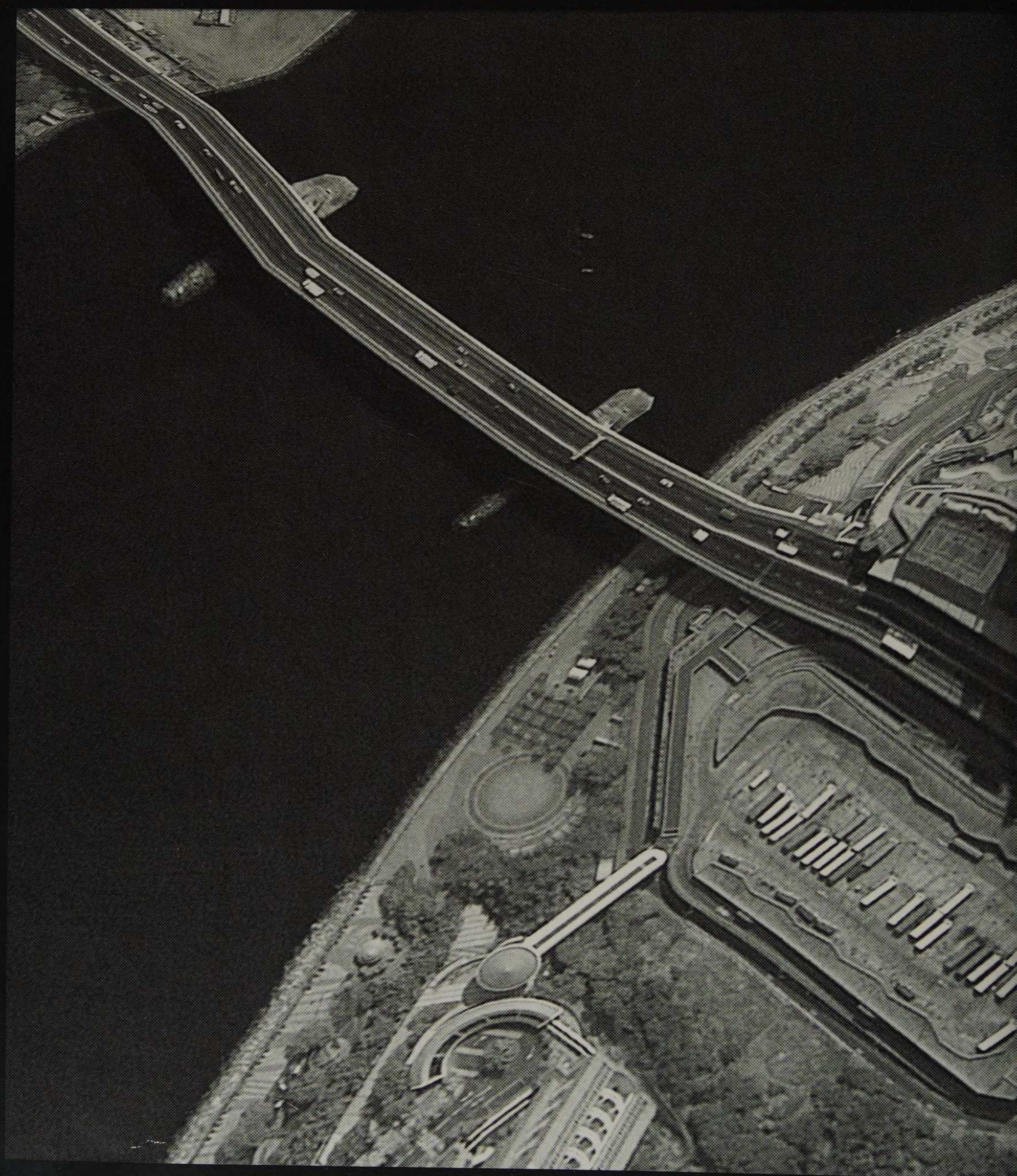
POSTCARDS FROM GOOGLE EARTH

CLEMENT VALLA

I collect Google Earth images. I discover strange moments where the illusion of a seamless representation of the earth's surface seems to break down. At first, I thought they were glitches, or errors in the algorithm, but looking closer I realized the situation was more interesting. These images are not glitches. They are the absolute logical result of the system. They are an edge condition—an anomaly within the system, a nonstandard, an outlier, even—but not an error. These jarring moments expose how Google Earth works, focusing our attention on the software. They reveal a new model of representation: not through indexical photographs but through automated data collection from myriad sources that are constantly updated and endlessly combined to create a seamless illusion. Google Earth is a database disguised as a photographic representation. These uncanny images focus our attention on that process itself, and the network of algorithms, computers, storage systems, automated cameras, maps, pilots, engineers, photographers, surveyors and map-makers that generates them.

CLEMENT VALLA





7. It seemed like a long pause, but eventually we overheard someone screaming on the phone that the over-professionalization of architecture lowers perceived risks, increases investment opportunities, and works counter to experimentation. Hilary whispered to Barry, “What happens when experimentation becomes professionalized? This happens now, with edgy expressionist designs all over Asia. It’s so quote un-quote experimental.”

APOPHASIS, WABI-SABI, AND THE ETHICS OF ERRANCY

STANLEY TIGERMAN

Apophasis

—Late Latin, from Greek *apophanai*, "to say no"; refers, in general, to "mentioning by not mentioning," i.e., to describe something by what it is not.

An *apophatic theology* sees God as ineffable and attempts to describe God in terms of what God is not. Apophatic statements refer to transcendence in this context, as opposed to *cataphasis*, which refers to immanence.

Wabi-Sabi

—A comprehensive Japanese world view or aesthetic centered on the acceptance of transience. The aesthetic is sometimes described as one of beauty that is "imperfect, impermanent and incomplete."

Errancy

—1. The state of erring or an instance of it.

—2. The tendency to be in error or the

capacity for being in error; fallibility.

—3. The holding of views at variance with accepted doctrine.

"To Err is human, to forgive divine."

—From *An Essay on Criticism* by Alexander Pope, 1688–1744.

As human beings, we err. Historically in the West, erring has at all times been thought a flaw. In Japan, however, errancy was always understood to be the inescapably natural, albeit imperfect, essence of any temporal object. While European and American architects have struggled to create that idealized condition defined by perfection and craved by Western civilization, little has been accomplished due to the errancy inherent in achieving their dreams. The problem is one of actualization: if ideas remained in a dream-like fugue state, arguably no mistakes would be made. The challenge for architects in the West is to contend with their inability to induce perfection into their work in an otherwise imperfect world.

This paper will argue that architects in the West could conceivably develop (and then deploy) an *apophatic* ethic of errancy, just as theologians and philosophers have done before them, by defining what such an ethic is *not*. I will also suggest that errancy needs to be brought under control without losing the open-ended research that could lead to new, radical forms never seen before.

Complications arose in the West when the descendents of the three faiths descending from Abraham deified an all-perfect albeit ineffable being—God. Perfection became an ideal for which we became committed to strive, and while such a state was predictably unreachable, the conceit of that ambition was aspired to in this life with the promise of it in the next. Yet, while Western tradition has historically judged erring as wrong—for example, in the idea of "going astray"—to not err might be progressively *more* wrong. To try inevitably is to err. Errancy is innate to being—particularly for beings who are less than perfect, i.e., less than God. The virtue of an apophatic ethic is the inclusivity that could embrace those conditions which have heretofore remained unreachable within the mandate of the Western pantheon of Beauty: imperfection, incompletion, and inexorable deterioration. Its uses would be wide-ranging from theory to practice and could enrich acts of creativity.

Wabi-Sabi is to Japanese culture as apophasis is to Western theology and philosophy. With respect to architecture, *Wabi-Sabi* refers tectonically to those quirks and anomalies that arise from the accidents inherent in nature as well as those that are discovered while in the process of actualizing dreams: architecture—buildings. This philosophy perceives impermanence as occurring naturally through wear and tear, thereby creating patina—a condition that is looked upon if not with admiration and compassion, then at least with understanding and acceptance.

According to the principles of *Wabi-Sabi*, erring is not a problematic condition that *a priori* requires fixing. On the contrary, asymmetry, asperity, and austerity are understood as desirable. *Wabi-Sabi* occupies approximately the same position in the Japanese pantheon of aesthetic values as do the Greek ideals of beauty and perfection.[1] But when those "Greek ideals of beauty and perfection" were held up as absolute values in the West, they were unattainable in this life. That inevitability created a state of melancholy and ennui. In fact, one of the few concomitant conditions in Eastern and Western aesthetic aspirations is a sense of spiritual longing, or *Sehnsucht*. In the East, that longing is nurtured by three uncomplicated realities: a) nothing lasts, b) nothing is finished, and c) nothing is perfect. In the West, that longing resides uneasily within the Romantic desire to return to that ideal state represented by the Garden of Eden. Such a desire cannot be fulfilled by temporal beings in the short time that we have on earth. The result: world-weariness, that incurable malady sometimes known as languor.

A lethargic response to erring lies in first denying and then correcting errors. I would submit that a bolder, more proactive architectural response is intrinsically embedded in the nature of resistance. As I once commented in a paper about the Chicago architect Daniel Burnham: "A society based on hope originates. A society based on despair reiterates." Later, in the same paper, I noted that "an architecture that reconciles suggests a need to recuperate, which, in turn, implies an illness."[2] Resistance may represent denial, but it belies recuperation.

In the same spirit, immediately after the 1871 Chicago Fire, the city looked towards a future marked by *action* precisely because it had no history. Visionary proposals abounded for the next century. Then, when Chicago "came of age," those same visions receded into a distant past precisely because Chicago—and its architects—had *lost their edge* as they became mired in the pragmatism of reality.

In 1984, when former Yale president A. Bartlett Giamatti wrote *Exile and Change in Renaissance Literature*,[3] he observed that there was a

1 Leonard Koren, *Wabi-Sabi for Artists, Designers, Poets and Philosophers* (Berkeley, California: Stone Bridge Press, 1994).

2 "Burnham: Paradigm or Pariah?" in Stanley Tigerman, *Schlepping Through Ambivalence: Essays on an American Architectural Condition* ed. Emmanuel Petit (New Haven: Yale University Press, 2011).

3 See A. Bartlett Giamatti, *Exile and Change in Renaissance Literature* (New Haven: Yale University Press, 1984).

general cultural malaise in the Renaissance—the reification of Christianity notwithstanding.

During that epoch ambivalence permeated many things, even extending to sexuality, where, for example, male roles in Shakespeare's plays were enacted by persons of either gender. It appears as if the entire purpose of the Renaissance was to virtually embrace all of Western history in pursuit of reifying Christianity: ergo, there was no perceived need to engage in intrinsically structural innovation other than to refine what was already extant in the arts. Nevertheless, the work of Alberti, da Vinci, Michelangelo, and countless others dramatically expanded upon Greco-Roman antecedents to great acclaim. Renaissance society, by looking backwards over its collective shoulder, made a colossal error by reinforcing the past at the expense of adventurously imagining what an unknown future might become. Unfortunately, a copy can never become an original.

While ambivalence represents a difficult position to inhabit, it is one Western response to *Wabi-Sabi* that overrides perfection. As Voltaire said: "Uncertainty is an uncomfortable position, but *certainty* is an absurd one" (my italics). Uncertainty and ambivalence represented a more studied, perhaps even more sophisticated position to assume than simplistic responses suggested by certainty.

The quantum physicist and Oxford University professor David Deutsch sees ambivalence containing opposite conditions simultaneously.[4] Even the controversial 19th-century musical composer Richard Wagner is now understood to be more complex precisely because he instilled uncertainty and certainty simultaneously into his music. Harold Bloom believes that "... we define ambivalence strictly as a contradictory stance mixing love and hate towards a particular object"[5]—a rather more complicated attitude requiring a more thoughtful response than that with which one might respond to certainty.

Upon the selection of the New York architect Raymond Hood's neo-Gothic design proposal for the 1923 Chicago Tribune competition, Louis H. Sullivan dispiritedly declared that "the [1893] Columbian Exposition will set the course of architecture back a full half-century." This tragic hero despaired of a future built upon innovation (as he understood newness emanating from the creative process), sensing that most of those architects hired to work on that World's Fair were more interested in interpreting the past than in inventing a possible future. Perhaps Sullivan would have been more persuasive in his belated argument (Sullivan's aphorism was uttered in 1922—two years before his death, yet 19 years after the Columbian Exposition) if he had *resisted* Daniel Burnham's offer to design the Transportation Building at the Fair in the first place.

Clearly, Sullivan's ethical posturing didn't take into account his own error of judgment in accepting the commission for a project whose architects' aspirations he vehemently opposed. Sullivan knew full well that the other architects selected by Burnham and the landscape architect Frederick Law Olmstead to design "The White City" (principally Richard Morris Hunt,

Charles Follen McKim, Peabody and Stearns, George B. Post, and Henry van Brunt) were all sycophants of, and would therefore pay homage to, the Beaux Arts-inspired classical language of architecture.

A state of errancy is implied in the Biblical text wherein God is said to have uttered, "For as the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts" (Isaiah 55:9). When biblical scribes deposited those words into God's mouth, they endowed a divine being with an ineffable sense of perfection, not thinking that we mere mortals might be condemning ourselves to a life of erring because we were not able to reach that critical, albeit unreachable state of grace.

Yet, when those same biblical scribes reported that God had uttered "Lech Lecha" (Go Forth!), first to Abraham (Genesis 12:1), then to Ishmael (Genesis 21:18), and finally to Moses (Exodus 33:1), one interpretation might be that God was offering the rewards of the unknown to those who had the audacity to discover those benefits that could only be found in an uninviting, alien place. Such a place was the land of heroes. Unfortunately, erring was also inherent in going forth into the unknown. Mistakes are only natural for those removed from a familiar context where habituation—repetition—is the order of the day. Moreover (according to Harold Bloom), "...Christians are doomed to a Kirkegaard-like eternity of true repetition."[6]

On the other hand, success—as opposed to innovation—can be understood generally as the result of staying home, which is to say that accomplishment comes about more readily in a place where cynicism displaces innovation by *clipping coupons* on invention. One example of this behavior might be those American architectural acolytes of Mies van der Rohe, a generation of which emulated the great German *maestro* without substantially adding to the language of architecture that he first invented and then employed. Such a place suspends the obligation of advancing the meaning as well as the syntax of language: it is a place where utility displaces dreams and where the vocational aspects of architecture are *über alles*. Familiarity is a place typically equated with home, where the chance of erring only comes about in the rare case of sudden or unanticipated change.

In his celebrated novel *The Name of the Rose*,[7] the eminent medievalist, philosopher and student/scholar of semiotics Umberto Eco pointedly describes 14th-century Cistercian monks painstakingly at work in the *scriptorium* atop their monastery as failing to copy illustrated Biblical manuscripts accurately before the invention of the Gutenberg press. The point of the exercise, Eco advises us, is that faith transcends erring. If the monks that Eco describes erred in any way, it was because they were engaged in *acts* of meticulously copying the Bible, thereby making it accessible to others. In their self-imposed monastic commitment to God, the Cistercian monks' unwavering faith underpinned a life-long *apophatic* ethic that overcame whatever errors they might otherwise make as a part of their devotion.

4 Rivca Galchen, "Dream Machine: The Mind-Expanding World of Quantum Computing," *The New Yorker*, May 2, 2011.

5 Harold Bloom, *The Breaking of the Vessels* (Chicago: University of Chicago Press, 1982), 58.

6 *Ibid.*, 45.

7 Umberto Eco, *Il Nome Della Rosa* (1980), published in English as *The Name of the Rose* trans. William Weaver (New York: Harcourt Brace Jovanovich, 1983).

As Eco described them, the Cistercian monks of his imagination were not merely studying the Bible. They were doing something with it and, because of the innately flawed nature of humanity, they erred in the process of *doing*. Ergo, the monks were making an error of *commission*.

On the other hand, if all one ever did was to ponder the nature of existence, life in its entirety would be nothing more than a monumental exercise in committing errors of *omission*. As Alexander Pope reminds us, because God is all-forgiving and would absolve us all the same, we can rationalize our approach-avoidance with respect to acting rather than observing. Unquestionably, ruminating about existence is the safer path to travel since the certainty of erring is surely in the doing more than merely being a witness to existence.

In the 1930s, while he was first President and later Chancellor (1928–51) of the University of Chicago, Robert Maynard Hutchins (1899–1977) proclaimed, "My idea of education is to unsettle the minds of the young and inflame their intellect." A firm believer in René Descartes' ubiquitous platitude "*Dubito ergo cogito, cogito ergo sum*," Hutchins felt that an action-oriented field like architecture might conceivably entice scholars out of Plato's cave" into the light of life, where erring and the vocational aspects of doing (rather than thinking) loomed threateningly.[8] And yet, in the context of the sacred writings of the three faiths that descended from Abraham (The Old Testament, The New Testament, and The Qur'an), it appears that life under God is about nothing if not *doing*.

According to Karen Armstrong, the distinguished student and scholar of those three religions, "Scripture was not just a text but an 'activity'; you did not merely read it—you had to do it."[9] Furthermore, she goes on to say, "...religious teaching was what the rabbis called *Miqra*. It was essentially and crucially a program for action. You had to *engage* with a symbol imaginatively, become ritually and ethically *involved* with it, and allow it to effect a profound change in you."[10] Muslims are not exempt from "the five pillars of Islam [which] are...a summons to dedicated *activity*: faith, prayer, fasting, almsgiving, and pilgrimage" (my italics). She concludes by saying that "in the Qur'an, faith is something that people do."[11]

It is further relevant to mention the ancient Christian principle of *lex orandi, lex credendi*, i.e., that theological doctrine proceeds from the activity of liturgical worship and not the other way around.

Of course, by doing or acting—creating, as it were—you subject yourself to erring. Because humankind is flawed—unlike God, who is ineffably perfect—the human species make mistakes; we stray. But what is the nature of an ethic that can accommodate erring if it is not inherently apophatic?

Historically, Western philosophers have long deliberated about absolute over and against relative ethics. While there are arguments on behalf of both positions, the tendency prior to the 20th century has been to favor absolute ethics. Expectedly, most Western architects have favored the *absolute* position because of their desire to gain proximity to an ideal, the exemplar of

which is God. Thus, they have aligned themselves with that formal mechanism that seeks ideality, *classicism*, over and against *romanticism* because the former is more readily replicable through interpretation, whereas the latter is idiosyncratic and difficult to imagine in any meaningful, reiterative way. Walter Benjamin's apocalyptic interpretation of Paul Klee's 1920 watercolor painting *Angelus Novus* comes to mind.[12]

The desire to return to the ideal state that one's mind equates with the Garden of Eden can be overwhelming.[13] The notion of "return" suggests that we have gone astray; i.e. we have erred, and if we return to the ideal state that we once knew in Eden, in our mind we will be free from making further errors. However, such an assumption is false since we are flawed beings for whom erring is as natural as being.

Erring be damned, the aspiration of the discipline of architecture is firmly grounded in our mandate to expand knowledge by venturing courageously into uncharted territory. Just as all parents say to their children "...go forth and multiply," when God whispered "Lech Lecha" to Abraham (Genesis 12:1), He understood that flawed humanity would err in the process, but the benefits for those who would be so bold as to try would far outweigh the terror of erring.

While a visiting professor at Chicago's Spertus Institute, the internationally renowned, albeit controversial, rabbinic scholar Rabbi José Faür[14] told me one evening over dinner that the reason he admired architects was because "...they created something out of nothing." Rabbi Faür went on to explain that, within the spirit in which God created the world, His will was grounded in humankind's action, the creation of things, arguably never seen before. Reinforcing Karen Armstrong's call to action, Rabbi Faür felt that studying Torah was merely the first step in a journey that, at the end of the day, stimulated action. From an ethical point of view, a higher order of being is to do, to act, to create something where nothing existed before the fact.

In his book *In Pursuit of the Good*, the St. John's professor of philosophy Eric Salem further reinforces Rabbi Faür's view when he reminds us that, for Aristotle, "...a definition that did not include some notion of activity could not be ultimately satisfying."[15]

Evaluating the inevitable imperfection of buildings occurs not at the moment of conception but increasingly over time as the initial idea moves

8 Robert Maynard Hutchins' philosophy of education was based on "secular perennialism," the Great Books course, and early admission to college. Much of what Hutchins believed is still extant at the University of Chicago, where he was president from 1929–1945 and chancellor from 1945–1951.

9 Karen Armstrong, *The Case for God* (New York: Anchor Books, 2010), 96–97.

10 *Ibid.*, p 321.

11 *Ibid.*, p 99.

12 In Paul Klee's watercolor *Angelus Novus* (1920), Walter Benjamin sees an angel who, while looking backwards toward the past, is swept away in a storm that is thought to be "progress."

13 For example, Yale Professor of Law and Humanities Paul Kahn observed that: "We want to return to that 'image of God' that we were at creation. We must recover Eden." Paul W. Kahn, Out of Eden (Princeton: Princeton University Press, 2007), 1.

14 Rabbi José Faür was formerly affiliated with The Jewish Theological Seminary in New York City and is currently a Professor of Law at Netanya Academic College 30 km north of Tel Aviv in Netanya, Israel.

15 Eric Salem, In Pursuit of the Good (Philadelphia: Paul Dry Books, 2010), 35.

uncertainly forward towards realization. In some measure this transpires, at least in part, because increasing numbers of people become involved in the ultimate physical manifestation of the original idea, thus compounding the initial errors made by the individual involved with its creation.

Wabi-Sabi is not the only source that addresses mankind's flaws. In the first century before the Common Era, when the Roman poet Lucretius wrote his epic poem *De Rerum Natura,* he lyrically presented the case that only atoms last; everything else deteriorates and is subject to the whim of nature. In *Wabi-Sabi* errors are interpreted as "flawed beauty," the natural by-product of the imperfect quality of an object due to unpredictable conditions or changing usage, the limited mortality of any object.[16] Like *Sehnsucht*, both *Wabi* and *Sabi* suggest sentiments of desolation and solitude, but in the Buddhist view of the universe, these can be interpreted as representing liberation from a material world and transcendence to a simpler life, whereas in the West such sentiments are perceived as Romantic and beyond resolution.

When John Dymock Entenza, the founder of the seminal modern architectural journal *Arts and Architecture*, came to Chicago to assume the directorship of the Graham Foundation for Advanced Studies in the Fine Arts, he told me that the reason he was reluctant to publish finished buildings was that "...they lost so much in translation,"[17] which is to say that actualization reduced poetic content. In the spirit of perceiving errors as inevitable in the built realm, it is well within the province of those who build to identify imperfection. The architect must balance exceptional miscalculations and failure with a commitment to innovation but also to welfare: in a word, *ethics*.

In Chapter XXVI of the initial 1190 CE publication of *The Guide for the Perplexed*, the pre-eminent medieval polymath (rabbinic scholar, philosopher, and medical doctor) Moses Maimonides apophatically pointed out that "...in relation to God, what we consider to be a state of perfection is, in truth, the highest degree of imperfection."[18] St. Thomas Aquinas took apophatic theology further in his *Summa Theologica* when he set out to prove the existence of God by disproving negative theories denying His existence.[19]

Apparently, God's level of perfection is so unutterable or indefinable—ineffable—that only by the use of an apophatic or negative theology can one even begin to comprehend God's perfect state.

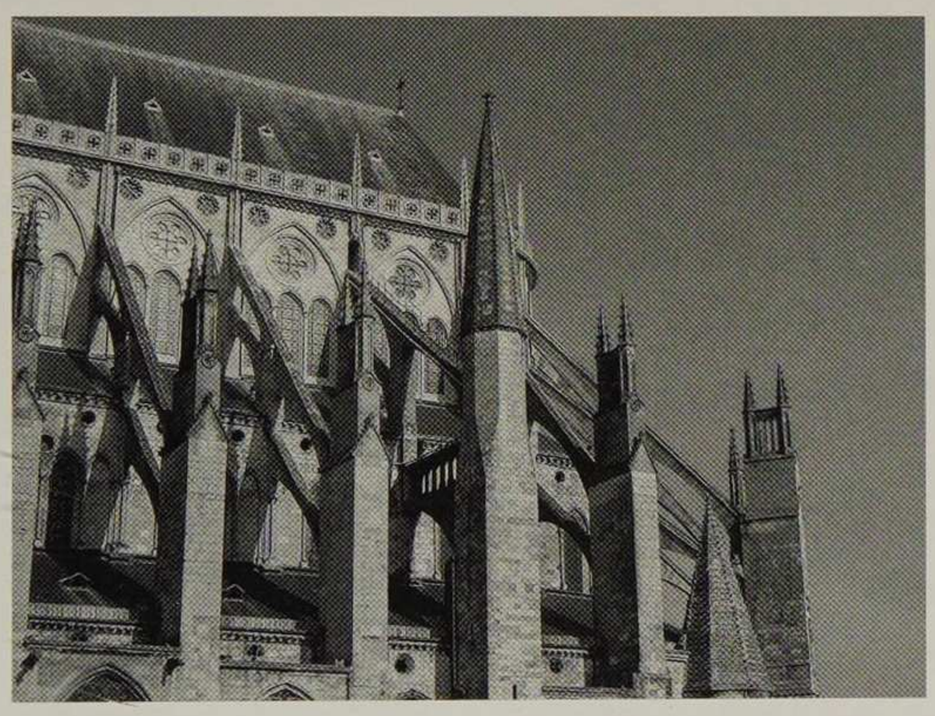
Given that as imperfect beings we err, it is important to understand the nature of our mistakes so as to evolve an ethic that can contend with them. Extending these ideas into the realm of architecture, the structural failures connected with the design of the earliest Gothic Cathedrals are examples of the discrepancy between what is ideal and what is possible. In the Dark Ages, that discrepancy stretched the art of the possible to an extreme, the ethics of which have never been researched, let alone clarified.

What was the ethical position in the Dark Ages, for example, when in the early Gothic period of the 12th century Cistercian monks and

the architects and builders working alongside them attempted to design and construct increasingly spindly heaven-seeking Cathedrals? How did these builders resolve the structural challenges of excessively tall bearing wall structures since they only came upon the solution empirically through *trial and error*, ultimately by vectoring the cathedral's laterally vectored compressive loads through the seminal invention of the flying buttress and the segmental arch?[20] Cistercian monks and their architects and builders who were connected with those empirical explorations were more interested in creating ideal structures that sought heaven than in hoarding against any loss of life that their experiments might engender.

When such cathedrals were built, there were many structural failures with the associated collateral damage to life and limb. Example: the cathedral at Amiens (1220–1270), where the original flying buttresses around the choir were placed too high to properly vector diagonal forces into the vertical plane. The structure was only saved when, centuries later, masons placed a second row of more robust flying buttresses that connected lower down on the outer wall. A more dramatic example of structural failure was the cathedral at Beauvais. It was begun in 1225 and first collapsed in 1284. Extended in the 16th century, it was badly damaged in the collapse of the central crossing in 1573. It was never completed and is still subject to chronic structural problems.

Nevertheless, inspirational soaring structures as Ste. Chapelle in Riom, Auvergne ***Fig.1***, the apse of Notre Dame de Paris ***Fig.2***, and numerous



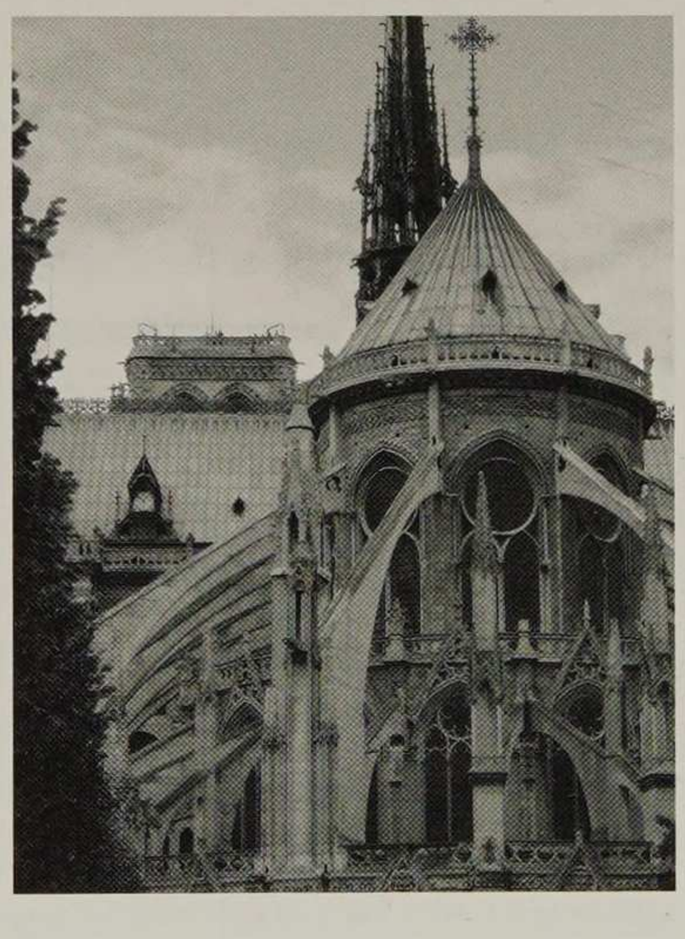


Fig.1 *St. Chapelle in Riom, France (14th century), longitudinal view. Credit: Delius / iStockPhoto*

Fig.2 *Notre Dame de Paris, France (completed 1435), apse. Credit: Kiwiboy121 (Creative Commons Attribution 3.0)*

16 Taro Gold, *Living Wabi-Sabi* (Kansas City: Andrews McMeel Universal, 2004).

17 John Dymock Entenza re-enlivened the trade publication *California Arts and Architecture* when in 1938 he re-cast it as *Arts and Architecture*, transforming it into an avant-garde journal in which he published largely unbuilt architectural designs.

18 Moses Maimonides, *The Guide for the Perplexed*, Arabic text 1190; English trans. M. Friedlander (Barnes and Noble Library of Essential Reading, 2004) with an introduction by David Taffel, 65.

19 Thomas Aquinas, *Summa Theologica*, Part I (London: Burns, Oates & Washburn, 1920–1924), e.g. question LXV, first article, 179–180.

20 See Ken Follett, *Pillars of the Earth* (New York: William Morrow, 1989) for a fictionalized version of the trial-and-error development of the flying buttress and the segmental arch, i.e., the evolution of the Gothic Cathedral.

other Gothic cathedrals with side aisles, crossings and apsidal chapels in France, Germany and Great Britain are today cherished as breakthrough buildings. The emergence of towering cathedrals from the squat Romanesque churches that were their immediate antecedents was nothing if not revolutionary, not only from a tectonic point of view but in the context of developing a *Zeitgeist* that came to pass as a result of those empirical experiments.

Remembering that Gothic cathedrals evolved as a result of overcoming errors that were made initially, it behooves us to reconsider the negative implications associated with errancy. In other words, if (collectively speaking) an entire culture is unwilling to experiment because of the possibility of erring, such a culture would not fulfill its destiny in the larger sense of affecting civilization such that it moved us ever onward. So don't the Gothic cathedrals prove Harold Bloom wrong—that Christians are not in fact doomed to an eternity of true repetition?

The development of towering Gothic spires was not the only architectural innovation in Western history involving empirical explorations about the intrinsic nature of structure. In the 20th century at the depths of the Great Depression, Philip Johnson and Henry-Russell Hitchcock's seminal 1932 *International Style* exhibition of modernist architecture at the Museum of Modern Art continued a trend first established in Europe that has continued unabated in the United States ever since. The exhibit showcased (mostly European) architects' attempts to design reductivist buildings, each one sleeker than the one preceding it, as if neither the force of gravity nor lateral forces existed. For Johnson and Hitchcock, architectural form not only didn't follow function; it was fundamentally about itself. "Architecture-for-architecture's-sake" came into its own as structures appeared to levitate.

Strangely enough, it was not even in the tradition of a Shaker aesthetic for the provisional condition of fragility and improvisation to hold sway. The Amish *Ordnung* (rules) was also suspicious of "art," declaring that art-for-art's-sake is "*worldly, wasteful and unacceptable*" (my italics).

Because of his expressionist tendencies towards revivifying natural materials, Frank Lloyd Wright was marginalized in the International Style Exhibition at MoMA while the groundbreaking Austrian architect Rudolf Schindler was omitted entirely because he expressed materials in a somewhat natural state and his buildings were structurally animated as well. However, the more "modernist" Austrian architect Richard Neutra was included, one could argue, because his architecture repressed the exposition of structure in favor of projecting a lustrously sleek, white, planar appearance. It was as if the expression of the most reductive parallelepipeds would unlock a future to benefit all who could suspend disbelief.

On the face of it, Mies van der Rohe's German Pavilion in the 1929 World's Fair in Barcelona, Spain exemplified the abstract qualities that Johnson and Hitchcock were seeking in proposing a new *Zeitgeist* that would come to maturity in the middle of the 20th century. No modern architect was

more doctrinaire about the exposition of structure than Ludwig Mies van der Rohe. Still, after so much elapsed time it seems churlish to point out that, hidden from view, Mies utilized conventional wood framing within the roof structure of that remarkable pavilion, beneath which levitated the ostensibly unsupported white plastered plane of the ceiling.

The pursuit of perfection that led inevitably to the failures associated with the 1976 John Hancock Tower in Boston's Back Bay ***Fig.3*** was not

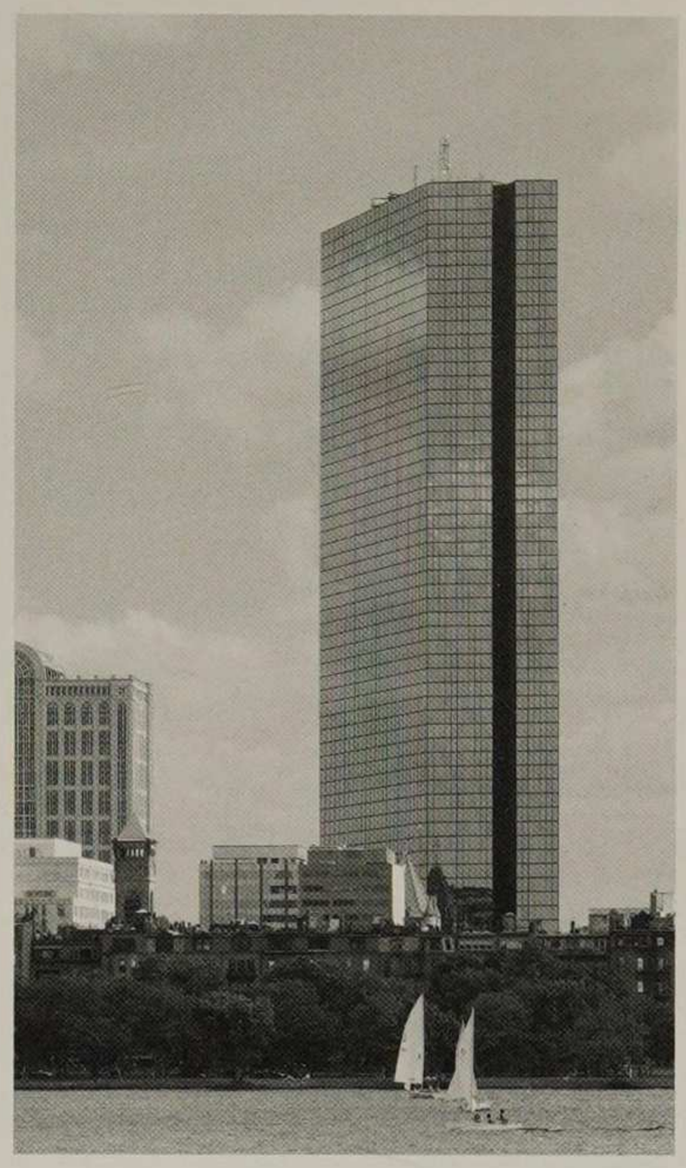


Fig.3 *John Hancock Tower, Boston, Massachusetts (I. M. Pei & Partners, 1976). Credit: Tomtheman5 (Creative Commons Attribution 3.0)*

only the expression of the building's structure—the figural quality of its rubber gasket window mullions was suppressed to achieve the most reductively minimal expression possible for a rectangular parallelepiped. Even the configured window mullions that Mies used to express verticality in his glass towers were too overwrought in the context of the Hancock Tower's sleekly abstract aesthetic.

Lateral wind forces in tall buildings sometimes exceed gravity-determined loads. In the case of the Hancock Tower, the rubber gaskets holding the glass curtain wall were insufficiently sized to restrain sections of glass from popping out of the building's leeward side when subject to extreme lateral wind forces on the structure's windward side. While the transparent panes that flew over Boston from time to time were aerobatically mesmerizing, the solution to the problem suggested that a different kind of structure would be more suitable.

The solution transformed the building from a flexure structure to a rigid one. By placing a dead load on the tower's roof greater than lateral wind loads, the engineers rigidified the entirety. The inherence of lateral wind loads is ostensibly denied by causing the gravity load to be the predominant structural force. Hence, the architects utilized an apophatic ethic to present a building that was not what it appeared to be, thereby allowing them to experiment more freely.

Then there is the case of Frank Lloyd Wright, who consistently pushed the structural envelope far beyond even the most liberal safety factors that were in place at the time. Without even considering the spectacular double cantilever of the lowest level of Wright's stunning 1935 Fallingwater ***Fig.4***,

Fig.4 *Fallingwater (Kaufmann Residence), Bear Run, Pennsylvania (Frank Lloyd Wright, 1935). Credit: Figuura (www.wright-house.com)*

many of the roofs of earlier Wright-designed Prairie Houses overhang dramatically, e.g., the west-facing main cantilever of the roof of the famous 1909 Robie House on the campus of the University of Chicago ***Fig.5***. Unfortunately,

Fig.5 *Frederick C. Robie House, Chicago, Illinois (Frank Lloyd Wright, 1908–1910). Credit: Dan Smith (Creative Commons Attribution 2.5)*

over time more than a few of those cantilevers have suffered from *fatigue*, sometimes becoming irritatingly flaccid in appearance, suggesting an embarrassing structural error. Today, in the spirit of the appearance, if not the fact of perfection, Fallingwater itself is now supported by an all but invisible dark steel structure just above the waterfall at the base of the building.

And yet, if Frank Lloyd Wright and others like him hadn't pushed the envelope, 20th-century civilization wouldn't have reaped the benefits of extraordinarily awe-inspiring structures. There must be some intermediate position between rampant radicalism and mind-numbing conservatism that could be the stance for those to take who seek to evolve an ethical foundation by which errancy can be brought under control without losing the adventurism

of those who would expand the boundaries of the architectural play pen.

For example, the Dutch architect Winy Maas designed the 10-story WoZoCo apartment building for the elderly in Amsterdam in 1994 with extraordinarily deep cantilevers protruding precariously from one façade of the building ***Fig.6***. Far exceeding the cantilever length of anything

Fig.6 *WoZoCo elderly housing, Amsterdam, the Netherlands (MVRDV, 1994–1997). Credit: Photography Arpad Daniel Ronaszegi*

Wright had accomplished in Oak Park, Illinois, nearly a century earlier, Maas appeared to be testing the limits that technology offered in the last decade of the 20th century.

In 2011, Winy Maas once again expanded on the WoZoCo cantilevers when he designed the "Balancing barn" in Sussex, England ***Fig.7***.

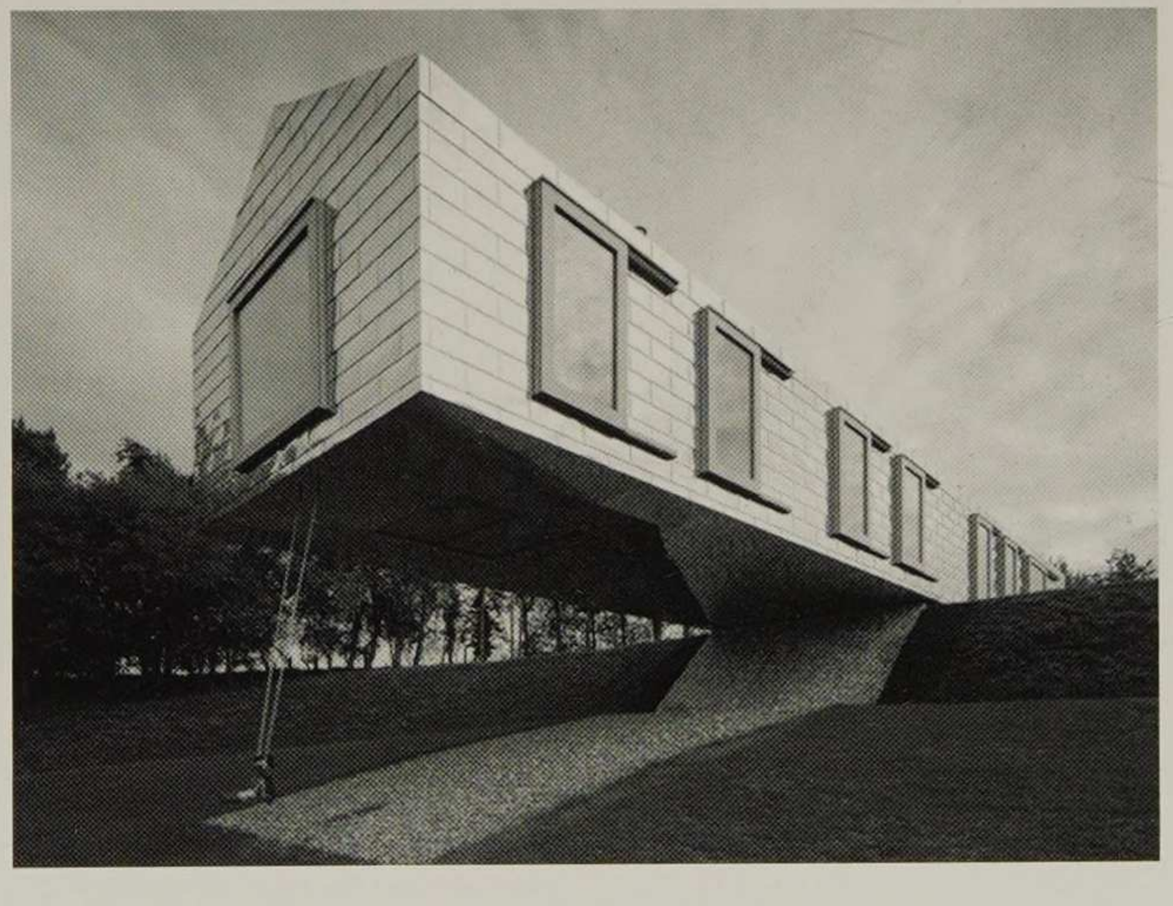


Fig.7 *"Balancing Barn," Sussex, England (MVRDV, 2010). Credit: Edmund Sumner*

While Maas expressed the structural truss that supports this *tour de force* on the inside of the vacation bed-and-breakfast, the outside remains steadfastly resistant to structural expressionism. The exterior of this oddity embraces the Venturiesque perception that the condition by which the building appears to levitate is beyond earlier architectural dogma that for so long has insisted that what-you-see-is-what-you-get.

The Alpspix viewing platform at Garmisch-Partenkirchen in Bavaria is but one example of viewing platforms throughout the world that test technology in order to titillate tourists ***Fig.8***. Technological advancements

Fig.8 *Alpspix viewing platform, Garmisch-Partenkirchen, Germany (Wallmann Architekten, 2010). Credit: Bayerische Zugspitzbahn Bergbahn AG / Benedikt Lechner*

are such that there seems to be no limit to what is structurally achievable: only our imagination delimits feasibility. Strangely, technological innovation can delude one into believing that what one sees is not *a priori* what one gets.

Are these examples pointing to architects who are beginning to evolve an ethical foundation through which structural acrobatics are brought under control, or are they just as daring and reckless as Wright was without effectuating any ethical posture?

A unique 21st-century example of empirical architectural exploration while testing the inherent confines of a particular material is the 2003 Marble Curtain designed by Chicago architect Jeanne Gang at the National Building Museum in Washington, D.C. In her project, Gang stretched the limits of a normatively compressive material—marble—so as to ascertain what, if any tensile capacity was intrinsic to it. After a time, some fatigue was observed in the stone curtain, but that daring act is noteworthy ***Fig.9***. In our evaluation of buildings in

Fig.9 *Marble Curtain, National Building Museum exhibition Masonry Variations (2003), Washington, DC (Studio Gang Architects). Credit: Harry Zernike*

the West, we need to find a way to appreciate structural experimentation, even if the results fly in the face of logical explanation.

The CCTV tower in Beijing by OMA (2004–2008) is another notable 21st-century example of an extraordinary figural solid of a far greater magnitude than Gang's experiment—with an entirely different fascinating figural void ***Fig.10***. However, not unlike Boston's Hancock Tower, Rem Koolhaas' expression of something as mundane as diagonal window mullions does not get in the way of the topologically innovative form of CCTV. Similar to the experiments of Gothic cathedrals, the CCTV project challenges our preconceptions about "tall towers," and in the process expresses a topologically new way of conceiving form, seemingly without fear of error.

I am unsure whether these two examples propose a new way forward or are still part of the old way of doing things.

In 1992, John Whiteman, the sitting director of the Skidmore, Owings and Merrill Foundation in Chicago,[21] told me that "Buildings, like bodies, begin to die at birth." Both buildings and bodies are subject to the

21 John Whiteman made that statement in my presence when he was the Director of the Skidmore, Owings and Merrill Foundation (1988–1993).

Fig.10 *CCTV Tower, Beijing, China (Office for Metropolitan Architecture, 2002). Credit: Iwan Baan*

vicissitudes of gravity and thereby, through a phenomenon known as "creep," change configuration over time. Just because buildings are designed as if they are static doesn't mean that they don't move in real time, albeit infinitesimally initially, and somewhat more definitively over the long haul. In the first place, we need to understand that "to build is to err." All of built form is a provisional approximation of concepts that were concretized into what we now refer to as building, and those approximations are rife with errors.

In my 2011 book entitled *Schlepping through Ambivalence*,[22] I refer to ten *contaminants* of architecture that are individually and collectively the source of errors committed by architects. These contaminants are: congestion, death, dimensionality, gravity, indeterminacy, mimesis, nostalgia, otherness, stasis, and synthesis. In aggregate, those ten contaminants with which architects are obligated to contend represent an ongoing source, depending on one's view, of either certitude or error.

Since architecture is one of those disciplines that are imbued with transparency, sooner or later one's position will become both inevitable and visible. Certitude is the result of an "absolute ethic" while erring represents a relative ethic. The tradition of Western architecture is grounded in an absolute ethic that aspires to perfection. This manuscript argues for an understanding that erring is often the result of experimentation that accepts a relative ethic.

Congestion denotes excessive incursions, for example, fenestration and other surface penetrations and deformations of the building envelope that, by disrupting the surface mass to the point of threatening the collapse of the building envelope itself, could be ascertained as falling into the category of erring.

Death is the inescapable pull towards an absence of presence. In a field whose work is thought to be "judged by all the ages," it is no small irony that buildings, like bodies, expire. The partheon on the Acropolis in Athens is but one example of the removal of flesh from a structure, with only the skeleton remaining which has long since been deemed "useless" (in conventional terms).

Dimensionality is the architectural error represented by the irrational conceit that one can overcome the inability to situate more than one element in one place at one time. Even so, it is *de rigueur* to see beams and columns ostensibly present in the same place—and often in the same plane at the same time.

Gravity, as noted earlier, inexorably changes the face of architecture as it is diminished over time, causing buildings to be perceived as being somehow less than they were at the time of their conception.

Indeterminacy represents the failure to give form to the unimaginable, since every time determinacy is invoked its counterpart is implied (the errantly relativist theory that black is best perceived in the presence of white).

Mimesis is an error that is brought about by disillusionment with the present. Mimesis is normally exploited by an epoch that is insecure about itself.[23] Because mimesis looks to an original for verification, by definition, things mimetic can never be perfect. Ergo, a copy can never be understood as an original.

Nostalgia is the debilitating error that keeps architecture contained within it by looking to the past for inspiration, deflecting it from a trajectory that might otherwise imply change, thus expanding the knowledge base of the building art.

Otherness represents the error that causes architects to look elsewhere for definition other than the intrinsic home that, for determinists, is architecture's own house.

Stasis represents that condition that fails to resist the natural desire of constituent elements to become dynamic, fluid, in their innate desire to detach one from the other.

Synthesis is an architecturally derived error that comes about (in a Hegelian sense) by unnaturally subordinating constituent parts to an overarching whole (antithesis displaced by synthesis in favor of the original thesis). Such a strategy implies that the sum is greater than each of its parts.

As noted earlier, *apophasis* is a mechanism that theologians have historically found useful in helping them define ideality. Given that ideality is a goal that Western architects (as well as Western theologians and philosophers) have sought throughout time, an apophatic ethic that could contend with a level of unattainable perfection would be as useful a tool for architects to accommodate imperfection as it was for theologians.

The classical tradition in architecture rationalized its ideals of symmetry by referring to the biomorphic symmetry of the human body

22 "The Ten Contaminants: Unheimlich Trajectories of Architecture" (1991) in *Schlepping through Ambivalence*.

23 In *Exile and Change in Renaissance Literature*, A. Bartlett Giamatti writes about a society unsure of itself, using mimesis as a displacement of innovation.

glorified in the figure of the Vitruvian Man. In order to engage in such a metaphoric relationship, local, as well as overarching, symmetries needed to be effected. However, because of our inability to reproduce the perfection that we have long associated with God, we became frustrated when our efforts at localizing symmetries were stymied.

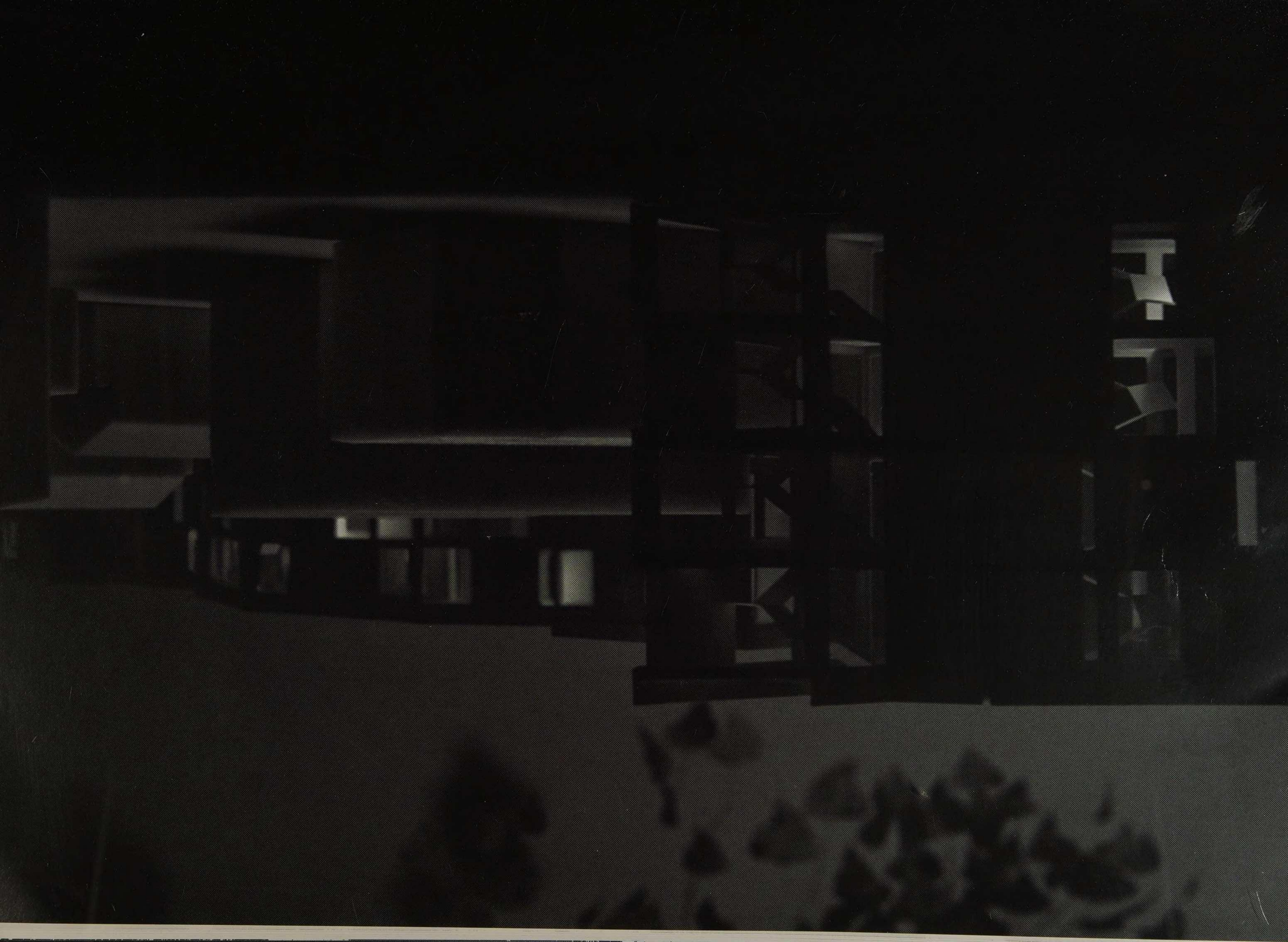
Marcus du Sautoy, the illustrious professor of mathematics at Oxford University, expertly outlines the degree of perfection that symmetry demands throughout nature, analyzing our desire to achieve it cognitively and documenting the generally unsatisfactory results that humankind has evolved.[24] Bees seek the most symmetrical flower, because its pollen is the sweetest; flowers attempt to produce the sweetest pollen so that they can attract bees that will pollinate them.

Unfortunately, the static condition of architecture is not as malleable as the language of philosophy or theology. But because stasis itself is a contaminant, it may be possible to modify the conventional understanding of a building as a fixed object by allowing—indeed encouraging—materials to detach one from the other as they inescapably descend downward due to the force of gravity. Architects might embrace a building's natural desire to become fluid and perhaps even change shape, thereby finding new uses for buildings that are different from how they were conceived originally.

In a technologically sophisticated age, when the human body is constantly under pressure to become malleable and readjust according to the uncertainties connected with the aging process, perhaps buildings-like-bodies need to be scrutinized to see where, if, and how they also might become more malleable. It follows that an apophatic ethic might arise to contend with our errant ways. Needless to say, it would also be important as we gain a deeper understanding of the provisional qualities intrinsic to building as well as an appreciation of the ingenious integrity of natural objects and processes.

While *Wabi-Sabi* teaches us that "nothing lasts, nothing is finished, and nothing is perfect," Lucretius (and Epicurus before him) stipulated that everything (save the atom) deteriorates. It is time for European and American architects to reassess their failed attempts at perfection by coming to terms with an apophatic ethics.

24 Marcus du Sautoy, *Symmetry: A Journey into the Patterns of Nature* (New York: HarperCollins, 2008).



[#.7] *The [gymnastic] excitement [commotion] bores us to tears.*

[3.5] *The erotic potential of formal gyration, hyperbolic twisting, folding, distortion, mannerism, [insert "operation" c. turn of the millennium here] is negligible. We have to unlearn how to unlearn things. The anti-semiotic regime of architectural production, the grunts and distorted moans of twisted, folded grids [etc.] offered no way out. Nowadays either you double down and twist the twists or find something else...because these effects are reversed on us. They are full-blown corporate commodities. There's no way for us to produce architecture through negation or pure positivist logic. It is simply not available to us.*

LIGHTS OUT FOR THE TERRITORY

JASON MENA

The term “public space” is often mistakenly assumed and loosely used to describe gathering places such as parks and plazas, places of transit such as streets and sidewalks, or any places that charge no fees. These are all specific elements of a much larger concept of what social space really is. I find this use of the term like an old habit, one that is hard to break. Instead, I want to suggest thinking of public space as a condition, like the prevailing state of the weather, ground, sea, or atmosphere at a particular time. Public space does not simply exist as a void to be filled up; it has to be created—much like a big bang, in which an immense amount of energy and mass is liberated all at once, bringing forth the birth of a universe—a significant yet disruptive event. Only by prying open the private space and forcing it into some sort of dialogue, a two way conversation, can a new space be created and hopefully remain open and accessible.

JASON MENA

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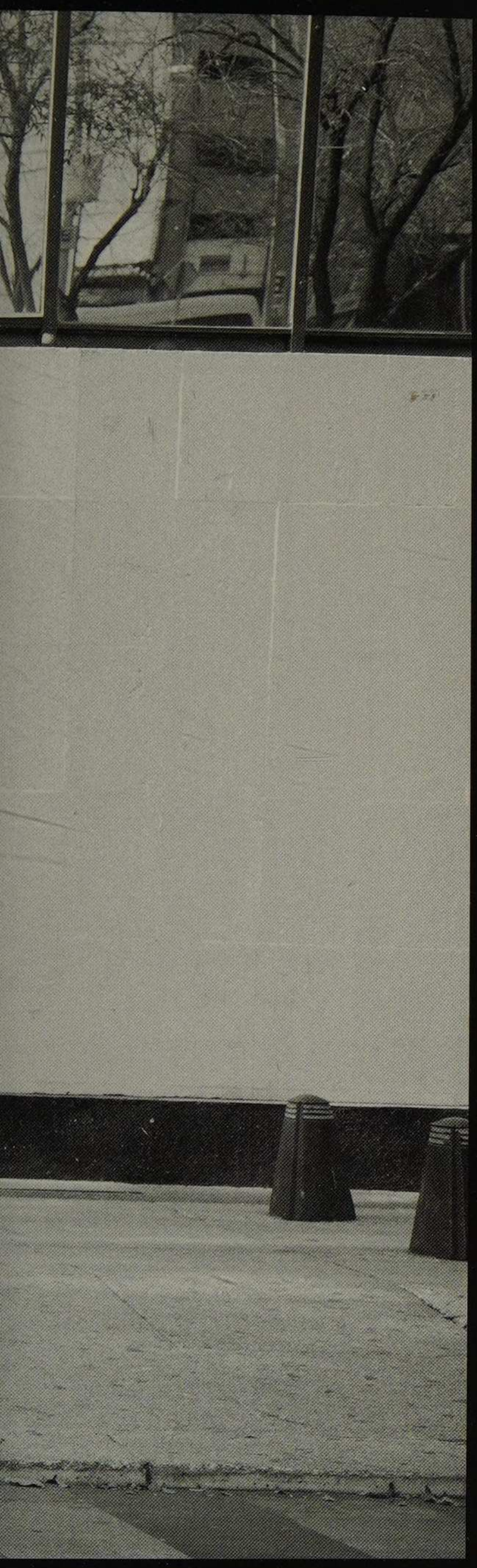

These photographs depict erased graffiti of political messages on the streets of Mexico City. Considered by many a form of defacement, graffiti is a means of claiming ownership of the public sphere by denouncing social and political inequalities—at times sacrificing aesthetic formalism for ideological substance. But its invasion into the urban landscape is also plagued by another type of subversive act: its erasure, which is as much a political act as the writing on city walls.

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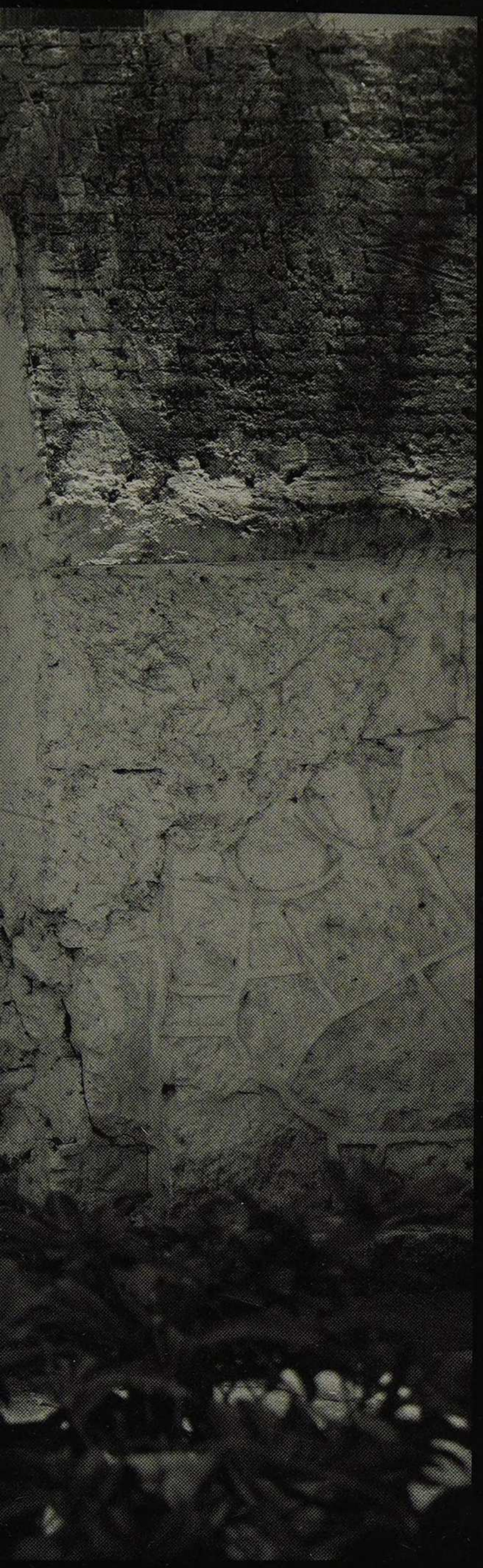


EMPUJE

6. Parallel Entropies, simultaneity, whatever. If you just wait long enough, at the exact right moment, these entropies align and give the illusion of a grand order. But most of the time we are all just standing around, not really looking at each other, waiting for something to break.

2. The history of the city is a history of repetition.

CORPORATE ABSTRACTION

JOHN HARWOOD

A study of corporations is primarily a study of form rather than of content or function. Man, humanity, human energy, is the content; human activity is the function; the corporation is merely one of the forms through or within which human energy becomes organized human activity. There is, however, by the reaction of each upon the other, an intimate relation between form and function, though they ought to be carefully distinguished in accurate analysis.

—John P. Davis, "Corporations in the Light of History," 1894[1]

This essay has developed out of two interrelated papers, both of them concerned with persistent error, and I made plenty of errors along the way in pulling them together. The first, produced for the conference *Words in Postwar Architectural Discourse* at the ETH Zürich in June 2009, treated architectural historians' failure to "come to terms" with the increasing abstraction of individual and corporate bodies in the post-WWII era. I am grateful to Laurent Stalder, his graduate assistants, and all of the participants for their constructive criticism and insights. The second, a consideration of the legal and economic conundrums surrounding the modern business enterprise, was written for a workshop, *Architectural Histories of Organization*, hosted by Timothy Hyde of Harvard University's Graduate School of Design and the Radcliffe Institute for Advance Study. I am likewise grateful to the participants there, who offered many helpful suggestions and criticisms. Needless to say, any remaining errors are my own.

1 Davis, "Corporations in the Light of History," *Publications of Michigan Political Science Association* 1, no. 3 (December 1894), 46.

> The recognition that industry has come to be dominated by these economic autocrats must bring with it a realization of the hollowness of the familiar statement that economic enterprise in America is a matter of individual initiative. To the dozen or so men in control, there is room for such initiative. For the tens and even hundreds of thousands of workers and of owners in a single enterprise, individual initiative no longer exists. Their activity is group activity on a scale so large that the individual, except he be in a position of control, has dropped into relative insignificance.
>
> —Adolf A. Berle and Gardiner C. Means, *The Modern Corporation and Private Property*, 1932[2]

...the individual is merely the residue of the experience of the dissolution of community. By its nature—as its name indicates, it is the atom, the indivisible—the individual reveals that it is the abstract result of a decomposition. It is another, and symmetrical, figure of immanence: the absolutely detached for-itself, taken as origin and as certainty. ...community, far from being what society has crushed or lost, is what happens to us—question, waiting, event, imperative—in the wake of society.

—Jean-Luc Nancy, *The Inoperative Community*, 1991[3]

2 Adolf A. Berle and Gardiner C. Means, *The Modern Corporation and Private Property* [1932] (New Brunswick, NJ: Transaction Publishers, 2007), 116.

3 Jean-Luc Nancy, "The Inoperative Community," in: Nancy, *The Inoperative Community*, ed. Peter Connor, trans. Peter Connor, Lisa Garbus, Michael Holland and Simona Sawhney (Minneapolis: University of Minnesota Press, 1991), 3. My emphasis.

1. *ULTRA VIRES*

One might expect that after seventy-five years or so, numerous entries into the canon of modernist and postmodernist masterworks, and the economic transformation of the university under neo-liberalism, that architecture would have come to terms with the modern business enterprise, a.k.a. the corporation. This is not the case. Perplexingly, this is hardly because of a dearth of descriptive vocabulary—one finds instead a vast proliferation of vocabularies, each producing contradiction after contradiction, fragmenting and confounding discourse rather than furthering it. Even leaving to one side, at least for the moment, the problematic corporate bodies—such as "movements," "styles," "canons," "studios," etc.—so familiar to art and architectural historians, it is plain that multinational corporations, transnationals, for-profits and not-for-profits, non-governmental organizations, firms, clubs, (professional, learned, and humane) societies, labor unions and credit unions, not to mention schools, colleges, universities, governments…. All of these are corporations, and yet how they are related to one another can hardly be stabilized through some reliable taxonomy of modes of plurality and singularity.

There are, to be sure, many frank efforts to account for the corporation as an actor on the historical stage in architectural history and theory. These come in a wide range of ideological flavors ranging from the sanctimonious Marxianisms of Manfredo Tafuri to the arch-neo-liberal farce of Anna Klingmann's attempt to update Le Corbusier for the 21st century in *Brandscapes*.[4] Yet the discrepancies in vocabulary and conceptual rigor do not proceed from ideological or even theoretical commitments; rather they proceed from an error, shared by architectural historians as much as by anyone else, in the basic assumptions of corporate discourse. This error appears at first a relatively simple oversight: we use the term "corporation" without ever fixing to it a *definition*. Reviewing the projects, the literature, the arguments, it is clear that *nowhere* in the sweep of the 19th and 20th centuries (to say nothing of the 21st) does an architect offer anything approaching an ontology of even one specific form of the corporation. Indeed, the corporation appears instead as a kind of unthinkable threat: we read of organizational technologies "moving too fast" for modern people to "keep up with";[5] it is an abstraction in the purest possible form, a representation with no possible referent in the world. And architects and architectural thinkers are not alone in perpetuating this oversight; as I hope to show in what follows, the experts whom we might expect to do this frightening ontological work on our behalf—e.g. legal scholars, economists, sociologists—have splintered into mutually exclusive factions.

This error comes with terrible consequences. By breezing past the fundamental need to know what it is that we are talking about when we speak of "the corporation," architecture becomes a Tower of Babel. At stake in understanding the corporation, in the attempt to come to terms with it, is

nothing less than the possibility of sustaining a critical project for architecture. Whether one listens to the apostles of Milton Friedman or Naomi Klein (and hopefully you, dear reader, listen to neither, or at least do so with earplugs ready at hand), there can be little doubt that the corporation is the dominant form of social organization…globally. The corporation—whether a government, an architecture firm, or a multinational—is the means through which each and every architectural artifact comes to be. The converse, this essay seeks to establish, is also the case: there is no corporation without an architecture that places it in the world, articulating its relation to its surroundings.

Thus we might say that any design, history or theory that fails to account, in a serious and considered way, for the multiple modes in which corporations mediate architecture and *vice versa*, is, at best, of marginal import. Moreover, the dominant modes of architectural theory and historiography have missed a crucial opportunity to articulate how architecture can remediate the corporation. Neither a low-key, "cool" approach to architecture nor a putatively overheated and abstract theoretical discourse have much to say about the crucial role that architects play in articulating the *actual, material forms and functions* of the corporate enterprise.

Forms and functions: these troubled metaphors have plagued architecture for quite some time. The tension between these terms, and the psychedelic swirl of abstractions that they produce, have resulted in a series of false starts in architecture's response to the corporation. Efforts at description, of analysis, of evaluation, and of design have all been stopped in their tracks by desperate appeals to *abstraction*. Out of any number of examples we might examine in mid-20th-century architectural discourse, two in particular should suffice to illustrate the scope of this problem.

In his attempt to "clear away leaves" from the ground of 20th-century architecture, John Summerson did more than find a more pleasant metaphor to describe his work helping J.M. Richards to catalogue the "architectural casualties" of the Battle of Britain for the *Architectural Review*.[6] He found himself obligated to critique—in damning terms—what were widely regarded as the landmark achievements of the interwar avant-gardes, and in particular the all-too-easy homology between form and function. From where Summerson stood, at the lecterns of the Architectural Association, RIBA, the Sir John Soane House and Museum, and elsewhere in the early 1940s, the doctrines of materialism, functionalism, anti-ornamentalism (and a good many other -isms, named or implied) were not only stifling architectural creativity. They threatened to overwhelm the architect entirely. At the center of Summerson's thought was a conviction, held by his later student

4 See Manfredo Tafuri, "Design and Technological Utopia," in: Emilio Ambasz, ed., *Italy: The New Domestic Landscape; Achievements and Problems of Italian Design* (New York: MoMA; Florence: Centro Di, 1972), 388–404, and Anna Klingmann, *Brandscapes* (Cambridge, MA: MIT Press, 2007).

5 This attitude architects inherited from a vast popular literature in the social and natural sciences; for a penetrating analysis of this trope, see Matthew Wisnioski, "Engineers and the Intellectual Crisis of Technology, 1957–1973," (Ph.D. dissertation, Princeton University, 2005).

6 J.M. Richards, ed., *The Bombed Buildings of Britain: A Record of Architectural Casualties, 1940–41*, with notes by John Summerson (Cheam, Surrey: The Architectural Press, 1942). On the role of architectural historians and preservationists in the bombing campaigns of World War II, see Lucia Allais, *Will to War, Will to Art: Cultural Internationalism and the Modernist Aesthetics of Monuments 1932–1964* (Ph.D. Dissertation, MIT, 2008).

Reyner Banham as well,[7] that the architect had been disenfranchised in his (and Summerson's architects, even when plural, were always male) encounter with science, industry, and business—in short, that the modern architect was powerless precisely because he was unable to respond in a meaningful way to what he named the "enormously imposing fact" of modern technics.[8]

In a 1941 lecture, later reworked as an essay in 1947 and published in his classic collection *Heavenly Mansions*, titled "The Mischievous Analogy," Summerson diagnoses the wholly "diagrammatic" character of modernist architecture—an architecture, he argued with force, that is *without a theory*, save for "a handful of generalisations borrowed (unknowingly, very often, and at fifteenth hand) from Viollet-le-Duc"—as a matter of a split in the identity of the architect produced by the onslaught of technics.[9] In response to this onslaught, the architect, Summerson wrote, has

> for some reason or another, stepped out of his *rôle*, taken a look at the scene around him and then become obsessed with the importance not of architecture, but of the *relation* of architecture to other things....The architect has *walked out of himself*, rather like a second personality is seen to walk out of the first in a psychological film.[10]

Having made a "world tour" of multitudinous aspects of contemporary life, in particular the rapidly proliferating sciences and technologies of the first part of the 20th century, this second personality returns to the first, still hunched over his drawing board, "smelling slightly of 'the styles'..., sits down beside him and painfully guides his hand."[11]

This new engagement on the part of the architect is not the only cause for a precipitous collapse in the traditional status and appearance of architecture. "The whole character of western culture" is also to blame: "All those things which suggested and supported monumentality are in dissolution. The corporate or social importance of religion....The sense of the dominance of class....The prestige and competitive ambition of commercial corporations.... [T]here are no groups within the community (possibly excepting the churches) who are anxious to express their corporate identities by gestures as costly and conspicuous...."[12] In other words, Summerson argued, at the same time as society is "flattening out" and becoming more uniform, diffused into countless "associations" or "corporations," there is an apparently paradoxical focus on the individual as the subject of design. This had backed the architect, quite literally, into a corner:

> There is an uncomfortable tension in the modern architect's point of view. He still stands off-centre, designing diagrammatically, staking a claim for architecture rather than producing architecture, hugging the mythical coast of "functionalism" and the "calculated" result. And he has, at the moment, no alternative.[13]

But why no alternative? What constitutes the threat, or at least the impediment, to architecture in this new regime?

Along with stable identity of the architect, Summerson wrote, architecture has lost its ability to "express [the] corporate identity" of modern institutions. The sole illustration in the essay version, Denis Clarke-Hall's Junior and Infant School in Ormesby, Yorkshire ***Fig.1***, drives home the point:

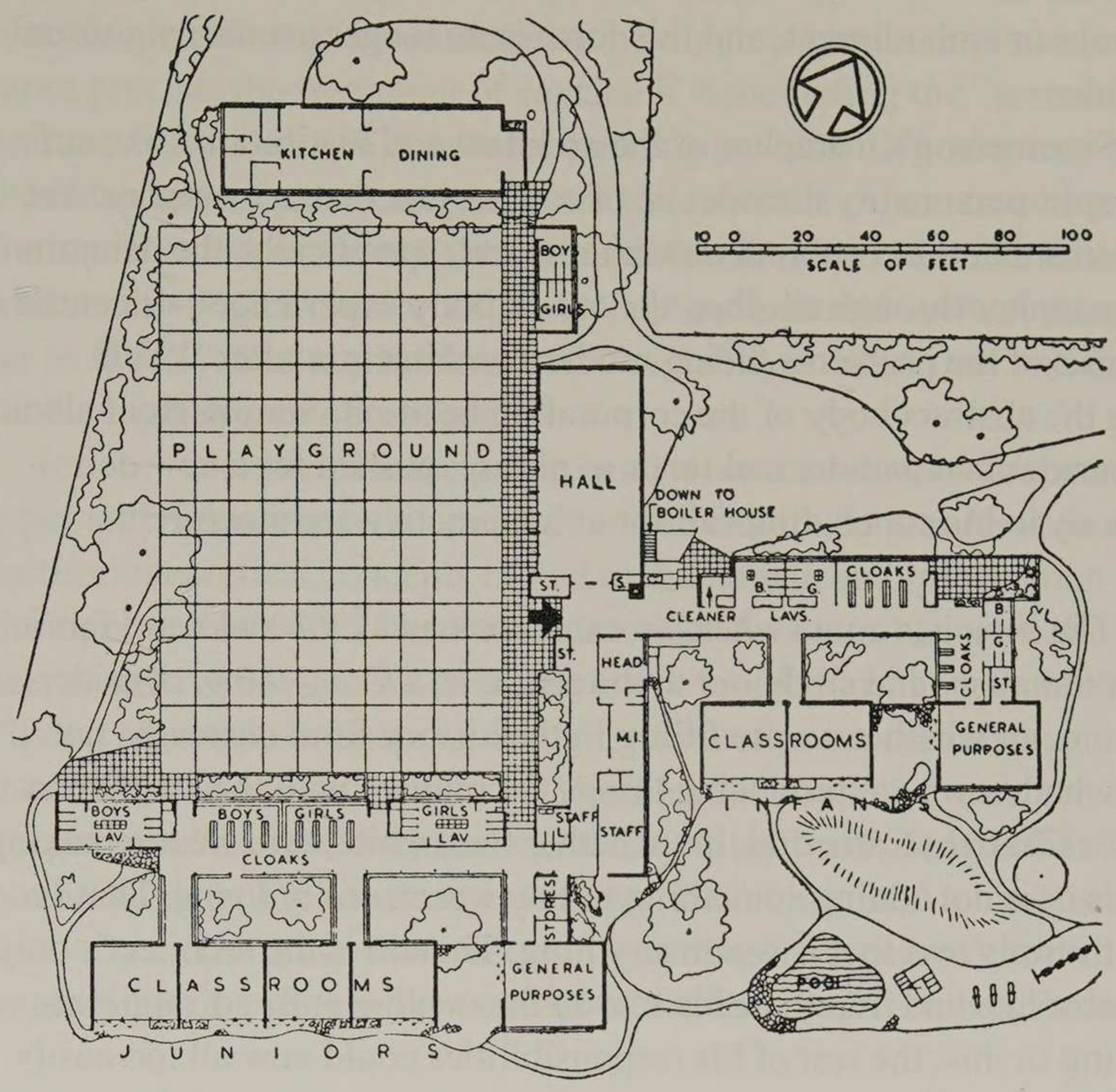


Fig.1 *Denis Clarke-Hall, plan of the Junior and Infant School, Ormesby, Yorkshire. Credit: Denis Clarke-Hall, plan published in John Summerson,* Heavenly Mansions and Other Essays on Architecture *(New York: W. W. Norton & Company, 1963).*

7 This conviction is an overtone in numerous architectural histories of the 1950s and '60s, particularly in the Anglophone world: Sigfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (New York: Oxford University Press, 1948); William H. Jordy, "The Symbolic Essence of Modern European Architecture of the Twenties and Its Continuing Influence," *Journal of the Society of Architectural Historians* 22, n. 3 (October 1963): 177–187; Peter Collins, *Changing Ideals in Modern Architecture* (London: Faber and Faber, 1965); and perhaps most importantly, in Reyner Banham, *Theory and Design in the First Machine Age* (London: The Architectural Press, 1960). Banham, along with these others, took up this point of view not only because of architects' perceived failures to integrate new technologies into architectural form and function in anything more than a symbolic sense; he also pursued a long term project for realizing what he initially theorized as a "Second Machine Age," in which architects would *master* technology and use it to produce what he called an "Other Architecture" that would use advanced industrial and information technology to "humanize" the built environment. This program, as is well known, was spurred on in general by the work of Buckminster Fuller, and as is less well known, in particular by Charles Eames (see Charles Eames to Reyner Banham, 1 June 1960, Charles and Ray Eames Collection, Library of Congress, Box 218, Folder 3), whose influential lecture at the Royal Institute of British Architects in 1959 deeply marked Banham's thinking. See the series of essays that Banham wrote and commissioned as part of the series "1960: Stocktaking," in *Architectural Review* 127, n. 756–760 (February–June 1960).

8 John Summerson, "The Mischievous Analogy" [1941, 1947], reprinted in: *John Summerson, Heavenly Mansions and other Essays on Architecture* (New York: W.W. Norton, 1963).

9 *Ibid.*, 196. Emphasis in original.

10 *Ibid.*, 197.

11 *Ibid.*

12 *Ibid.*, 205.

13 *Ibid.*, 200.

the pinwheeling plan, in which each classroom is treated as "virtually separate" from the others, demonstrated for Summerson that monumentality in architecture is no longer a key component of modern life. In the wake of architecture's failure to embody the coherence of the school as a corporate (along with Bertrand Russell, Summerson would also say "social") body, it is superseded. "Architecture is no longer required to give symbolic cohesion to society. Cohesion is now maintained by new methods of communication."[14] In other words, teletechnology had taken the place of architecture in giving society its form or embodiment, and this form is no longer primarily a visual or thingly order.

Summerson's metaphor of the architect and institution alike suffering from split-personality disorder is, of course, just that: a metaphor. Yet the fact remains that the corporeal metaphor—and, specifically, the denaturing of that metaphor through another, the out-of-body experience—is central to his diagnosis of the problems facing modern architecture after WWII. Confronting the abstract body of the corporation head-on, Summerson, albeit with some curious and paradoxical turns of phrase, pushed for a new definition of the body in his concluding call for a "subjunctive architecture":

> The time has come when we can knock away the awkward fabric of analogy and study our architecture as a *living thing*, considering not whether we are filling in the history form correctly, not whether we are producing things to compare with the Parthenon or Chartres Cathedral, but whether the architecture we are making is or is not adding something to the *experience of living*. That is the only text that is worth anything. Therein is the architect's only absolute and imperishable reason for *surviving*: for, disappointing in this, the rest of his responsibilities could now all too easily be *sapped* by planners, structural engineers, industrial designers and interior decorators. The architect must no longer stand outside himself, merely outlining and defining architecture. Reverting to the metaphor which I used at the beginning, the first and second personalities must re-unite, not by the regression of the second (live) personality into the first but by the drawing of the first into the second.[15]

The vitalist language—"living," "living thing," "experience of living," "surviving," "sapped"—that saturates this passage is perhaps surprising, given Summerson's direct disapproval of the various mischievous organicist analogies that had done so much, in his opinion, to rob architecture of its vitality. This is, however, precisely Summerson's point: the architect must move from *analogy*, a grammatical and conceptual mode in which he will always remain at a distance from himself, to *metaphor*, a mode in which he *and his designs* will be not life-like, but alive.[16] Keeping the deadly effects of bureaucracy—the apparently necessary collaborations with "planners, structural engineers, industrial designers and interior decorators"—at bay, the

architect would need to reconstruct the coherence of his own "personality" (one might just as easily use the corporatist metaphor of "personhood") by building an architecture by a person, for a person.

Summerson's provisional solution for accomplishing this radical therapy is twofold. On the one hand, architects must reassert their "style," their personal and unique qualities, through an active use of their pencils. Summerson operationalizes individual style as a *technique* for subsuming the technical into the living. On the other, he argues for a ground on which architects might effect this transformation, which is ornament, or to be more precise, the treatment of *surface*.[17] Articulating the "texture" of architecture, he argues, is a means for pushing past the diagrammatic and banal planning techniques borrowed from bureaucratic organizations and the social sciences towards a vital architecture that reasserts its value within a teletechnological society. Such an approach should seem strikingly familiar to the 21st-century reader, as it is certainly a theoretical and design tactic with a high degree of currency.[18]

Neither of these provisional recommendations to the architect, especially when viewed in the light of the continued proliferation of architectural theoretical concepts linked to the human and information sciences throughout the 1950s,[19] had much traction. As an art historian, Summerson seems to have been at his strongest not at predictions, but at a kind of Crocean "living chronicle." (There is, though, a hint of postmodernism and its concomitant rejection of history in "The Mischievous Analogy," as when he speaks of "experience" as "the only text worth anything," and predicts that "Soon it will not be Modern Architecture any longer. It will just be Architecture.")[20]

There are two reasons for mining Summerson's lecture for the beginnings of a shift in the concept of the body and its other, the corporation,

14 *Ibid.*, 209.

15 *Ibid.*, 217–18. My emphasis.

16 The echoes of the vitalist vocabulary of pragmatist aesthetics are here so striking that it is worth comparing the preceding passage to John Dewey, *Art as Experience* [1934] (New York: Perigee, 2005), ch. 1, "The Live Creature," in which his first example is the Parthenon. Dewey laments here the loss of a language or "expression" of primal "collectivity" in modern society, resulting in the placing of art on a "far-off pedestal."

17 In this appeal to surface, it is likely that Summerson was influenced by his colleague Nikolaus Pevsner, who famously appealed to the chintz as the origin of modernist architectural sensibility. Whereas the woefully mimetic carpets of Joseph Paxton's Crystal palace were "wrong from any point of view," asking the visitor to "step over bulging scrolls and into large, unpleasantly realistic flowers," William Morris's designs for chintzes acknowledge their own flatness in their tendency toward abstraction. See Pevsner, *Pioneers of Modern Design from William Morris to Walter Gropius*, 2nd edition (London: Pelican, 1960), 41–42.

18 See, for example, Farshid Moussavi, *The Function of Ornament* (Barcelona: Actar, 2006); for a recent critical history of the crucial role of ornament in modernism, see Jonathan Massey, *Crystal and Arabesque: Claude Bragdon, Ornament and Modern Architecture* (Pittsburgh: University of Pittsburgh Press, 2009).

19 See, for example: Alise Upitis, "Personality, Consumption and Architectural Pedagogy in the UK, 1958–1968," *Architectural Research Quarterly* 12, no. 3–4 (February 2009), 325-335; and Reinhold Martin, *The Organizational Complex: Architecture, Media, and Corporate Space* (Cambridge, MA: MIT Press, 2003). For an excellent account of the theoretical grounds on which the exchanges between architects and the sciences were possible, see Orit Halpern, "Dreams for Our Perpetual Present: Temporality, Storage, and Interactivity in Cybernetics," *Configurations* 13, no. 2 (Spring 2005), 283–319.

20 Summerson, "The Mischievous Analogy," 217–18.

in post-WWII architectural discourse. One is Summerson's ingenuousness as regards the basic founding tenets of art and architectural history. Wölfflin rears his head many a time in "The Mischievous Analogy," and in Summerson's anxious movement between championing an autonomous architect and an engaged architecture, one cannot help but think of Wölfflin's striking one of his most compelling formulations—"an art history without names"—from late editions of his masterpiece *Principles of Art History*.[21] The historiographical attitude produced by simultaneously viewing the history of architecture as the product of individuals and of groups—corporate bodies, or perhaps societies—leaves Summerson with a massive methodological contradiction. That contradiction results from a basic and insoluble question of whether or not the individual was, is, and will remain an adequate subject for architectural history. If so, then the corporate body must be assessed as an individual actor as well, producing an uncomfortable collapse in the scale and technics of the architectural event described; if not, then the architectural historian must move to describing architectural history, as Wölfflin at first attempted to do, through a different set of abstract bodies: society, culture, style, and so on. The change in attitude that Summerson both diagnoses and embraces, with evidently mixed feelings, is one that continues to make a claim for treating an architecture that is primarily based in its technics (rather than, say, its symbolism) through the discipline of art history.

The other, admittedly negative, reason to begin with Summerson is the startling fact that the dominant form of social, technical and economic organization of the 20th century—the abstract body known as the *corporation*—does not appear in any one of Summerson's writings outside of the brief passage cited above, and even that passage was only a negative statement about the unwillingness of modern corporations to build classically-inspired temples (clearly Summerson was unable to predict the skyscraper boom of the postwar era, nor the semantic exercises of the postmoderns). To be sure, Summerson mentions "businesses," "bureaucracies," and "agencies," but nowhere does his gimlet eye pierce through the art historical convention of patron/client and architect to reveal a messier affair. The closest he comes, in fact, aside from a few oblique passages in this regard, quickly recanted, in "The Mischievous Analogy," is in his early and justly famous essay on "The Mind of Wren," of 1936, where the figure of Wren's "intellect" is a cipher for a complex and dialogic process of design involving numerous people.[22] His 17th-century subject, however, only traverses the institutions of academy, theater, and church, and there is little room for an investigation of modern technics and economics.

Thus, while Summerson leaves off with this unsatisfactory attempt to restore a theory proper to architecture, he also offers up a historical and theoretical imperative, one that is central not only to his own generation straddling the catastrophe of WWII, but also to each subsequent generation. Since his false start at an architectural theory of the corporation, appeals to philosophical and theoretical constructs extrinsic to architecture have not helped much. In the face of what Bernard Stiegler has recently named "the

industrialization of memory," what Deleuze named "the control society," what Alexander Galloway and Eugene Thacker have named "protocol," and so on,[23] architects still struggle to find a means of both narrating and housing the corporation. And for good reason: the living body of architecture that Summerson desired could not become one with the abstract body of functions that he knew the corporation to be.

In the very same year that Summerson's lecture appeared in print, his colleague from across the Atlantic, Henry-Russell Hitchcock, engaged with the very same problem—albeit on different terms—in a now famous essay for the *Architectural Review* (recently republished with due respect in the pages of *Hunch*): "The Architecture of Bureaucracy and the Architecture of Genius." The general line of argument that Hitchcock pursues—contrasting the architecture produced by the hand of an individual artist-architect ("genius") with that produced by new and ubiquitous large firms or organizations ("bureaucracy")—is achingly familiar, but a careful reading of this essay against Summerson's arguments reveals a broader and deeper assessment of the difficulties facing the architect and historian in confronting the rapidly proliferating modes of architectural authorship.

Hitchcock's aim was, as he announced at the outset of his essay, to do away with a basic diachronic anxiety at the heart of architectural discourse. Without citing *Hamlet*, he nonetheless made sure that the reader recognized that for some time, the temporality of "modern architecture" had been sorely out of joint. In the interwar period, too many architects, critics and historians had been "frequently and tediously" obsessed with the "degree of modernity" of various and sundry architectural projects. Rather than view and explicate one or another project as properly and astutely "modern" (or, alternatively, "pseudo-modern" or "too modern"), Hitchcock suggested that the architect, critic, and historian ought to recognize that the conflict between, say, progressive and conservative attitudes towards the use and expression of modern construction techniques to be but a relic of the "past decade" (i.e. the 1930s). We are all moderns now, Hitchcock argues, and the question is now no longer "a problem of up-to-dateness but of *quality*."[24]

For Hitchcock, discarding this anxious and speculative diachronism meant asking two interrelated sets of questions about quality. On the one hand, at the core of Hitchcock's assessment of quality are two distinct but related terms: *amenity* (paired with what Hitchcock viewed as a synonym, "efficiency") and *beauty*. On the other, there is the matter of whether a building is any good or not (something never far from his mind), which to his mind brought up the question of a possible wholesale transformation of the architect. Deferring a final assessment of quality to the end of his essay, Hitchcock

21 See Andrew Leach's discussion of this deliberate omission and the exigencies of describing "style" as a historiographical technique in Leach, *What is Architectural History?* (London: Polity, 2010), 23–31.

22 Summerson, "The Mind of Wren" [1936], republ. in Summerson, *Heavenly Mansions*, 51–86.

23 See: Bernard Stiegler, T*echnics and Time, 2: Disorientation* (Stanford: Stanford University Press, 1998); Gilles Deleuze, "Postscript on the Societies of Control," *October* 59 (Winter 1992), 3–7; Alexander Galloway, *Protocol* (Cambridge, MA and London: MIT Press, 2004); and Alexander R. Galloway and Eugene Thacker, *The Exploit: A Theory of Networks* (Minneapolis: University of Minnesota Press, 2007).

24 Henry-Russell Hitchcock, "The Architecture of Bureaucracy & The Architecture of Genius," *Architectural Review* 101 (January 1947), 4. My emphasis.

explored these questions by identifying three main types of architect. The first is the architect who, in a more or less conventional professional mode, produced designs for large-scale organizations. Hitchcock glossed over this first type relatively quickly, however, offering only a handful of illustrations of the work of William Wurster for the federal government as evidence of this new, Great Depression- and war-era phenomenon, which he considered praiseworthy for its pragmatic and efficient solution to basic needs.

To the second type, however, Hitchcock gave more careful attention. These were architectural firms that had transformed themselves from small professional services—a set of architectural principals and draftspeople—into large corporate organizations in their own right. Citing the now-familiar examples of Albert Kahn, Inc., and Skidmore, Owings & Merrill (soon to become simply SOM), Hitchcock considered the organizational prowess and practical efficiency of the architecture produced by these firms to be not only necessary to a new age of industrial and governmental administration at previously unrealized scale, but also to be work of a certain, bureaucratic and almost anonymous quality. The "architecture of bureaucracy" produced by these firms was competent and provided ample amenity, but by virtue of the diffuse authorship of the corporate organizations that produced it, there could be no question of beauty separate from a certain level of functional elegance.

The third type of architect was, somewhat predictably, the "architect of genius," whose architecture could *both* provide necessary amenity and do so within a form of tectonic expression that satisfied and challenged the institution for which it was designed. Hitchcock's exemplar, of course, was Frank Lloyd Wright. With the drawing-board version of the Guggenheim Museum in New York *Fig.2* as his icon, Hitchcock ultimately defers—and it is

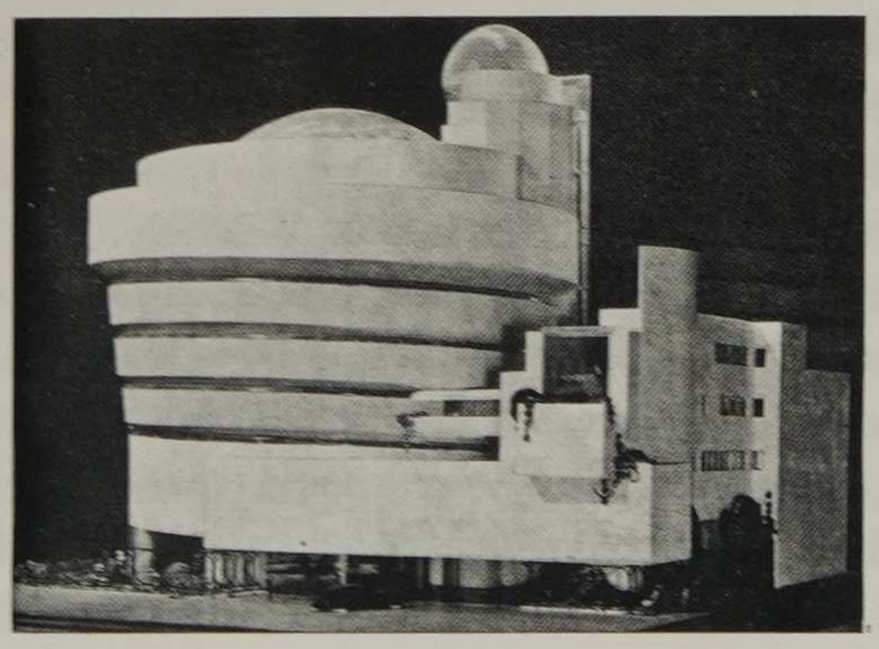


Fig.2 Model of Frank Lloyd Wright, Guggenheim Museum. Published in Architectural Review, *1947.*

a very thorough-going deferral—any resolution of the becoming-corporate of architecture through an appeal to *wholes*:

> ...it is impossible to judge the building as a whole until it is a whole. The building itself when completed will be, to use a favorite image of Wright's, an *organism* not a mechanical assembly of parts. Every element will be so *organically interrelated* with every other in *a single expressive whole that they will cease to have independent existence*. The gallery may or may not be going to be successful as a whole, but if it is not, it will be because *of some inherent flaw in the essential concept*, not because it could be improved by changing this or that part. In other words, the architecture of genius is a kind of artistic gamble which may or may not come off, but rarely just gets by.[25]

Although it is certainly true that Hitchcock had recently written the book on Wright (the familiar and beloved *In the Nature of Materials*), and thus it is understandable that he might hold up the "old master" as exemplary of a group of designers that would, *as individuals*, survive the exigencies of the post-WWII era (albeit only "when we are ready to employ them"), the entire essay is a grudging acknowledgment that all architecture—regardless of its "monumental" status or the perceived need to "raise [institutional buildings] out of the world of amenity into the world of art"[26]—is corporate architecture. The war and reconstruction, for Hitchcock at any rate, meant that the new world would be forever populated with a new breed of architect and a new breed of client, with the lines between them perpetually blurred by the omnipresence of *organism* and *organization*.[27] Components of buildings and components of firms, architects and "bureaucratic organizations" acting as architects, all would "cease to have independent existence."

One might then ask why Wright's Guggenheim design appears as the *deus ex machina* in Hitchcock's essay. It is precisely because it is the slender thread holding the three main modes of corporatist architectural production in tension rather than allowing them to collapse upon one another. A subtle rhetorical and conceptual maneuver in the form of heroic architecture, the Guggenheim, as a gallery for "non-objective art," holds for Hitchcock the promise of the "genius" architect's continued relevance in the post-war era: the architect, in any guise, can domesticate abstraction. Wright's radical gesture, of eschewing the gallery-as-box in favor of the chambered nautilus of the reinforced concrete spiral, demonstrates for Hitchcock the possibility of an "architect of genius" taming a collection of objects and discourse that threatens to get out of hand in its departure from convention precisely by heroically transforming spatial and structural conventions into abstract patterns.

To hear both Summerson and Hitchcock alike tell it, the putative harmonization of form and function that had served as the core of interwar

25 *Ibid.*, 6. My emphasis.

26 *Ibid.*

27 On this problematic distinction, see: Joseph Rykwert, "Organic and Mechanical," *Res* 22 (Autumn 1992), 11–18; and Reinhold Martin, *The Organizational Complex: Architecture, Media, and Corporate Space* (Cambridge, MA: MIT Press, 2003), ch. 4.

architectural theory had become, well before 1947, wholly obsolete. In its place was less a principle than a set of questions concerning the relationship between organization and organism, between corpus and corporation. In the wake of WWII, both surmise, the architect is out of position, performing a para-architectural function, acting *ultra vires*.[28] That is, the architect abandons his/her/its conventional professional function, and instead turns towards a new mode of practice, the production of organizational abstractions reflected in the forms of nautili, gridded curtain walls, plazas and courtyards, etc.

In the work of Summerson and Hitchcock—and their contemporary Pevsner, their successors Reyner Banham, Peter Collins, and William Jordy, and even the young Robert Venturi and his fellow postmoderns[29]—the sophistry of inter-war avant-garde theory when confronted with the complexities of the corporation is conjured into view, even if only, in some cases, to be exorcised as though a demon from the body of "true" architecture. In its place, each of these authors sought to replace the architect's self-image with a new one, now defined not in terms of a stable, knowable, and fixed body, but an image achieved through a shifting set of *abstract substitutions*. (To keep things grossly simple: for Pevsner surface; for Banham and Jordy technology; for Collins layered metaphors; for Venturi history and perceptual contradictions.) In each case, Summerson's early diagnosis, "that architecture, in any case, is not an affair of forms but of the relations of forms," may serve as an adequate description of the basis for such a departure.[30] In these diagrams of swirling relations one may find, in the recent words of the economist and leading theoretician of the "firm," Ronald H. Coase, "galaxies forming out of primordial matter."[31] But even these galaxies remain indescribably complex.

As Joan Ockman recently argued, such responses as Summerson's and Hitchcock's to the disaggregation of corporate bodies within architectural culture are "historically embedded in a raging mid-twentieth-century debate over the place of the individual in a mass technological society."[32] This debate predates the immediate post-WWII era, and in a grand irony, the outcome of that debate was a structural, categorical, juridical, *and architectural* series of errors that remain at the heart of architectural theory and historiography.

In the face of this structural and constitutive set of errors, the question can never be of establishing something akin to a unified theory, but of what architects and researchers alike would call a project (and what economists might call a "positive" or "constructive research program"). What follows is an attempt to diagram not the relations themselves, but the *reasons for the failure of any effort towards a unitary theory of the corporation (and thus corporate architecture)*, to be followed by a few scant remarks on the way forward.

2. CORPORATE ABSTRACTION

All of the architectural uncertainty regarding the corporation is inherited directly from the corporation itself. In the vast and diverse literature produced on the corporation by economists, legal scholars, historians,

sociologists, and even philosophers, it is nonetheless clear that there are three primary ontological regimes applied to the corporation, roughly corresponding to a chronology of invention around the turn of the 20th century. The first identifies the corporation as an *individual*, whether through the metonym of a living person or as a "legal (i.e. fictitious or artificial) person"; the second treats the corporation as an *organism* of one kind or another; and the third renders the corporation or "firm" as a *network* or "nexus of contracts," and argues—perplexingly—that the history and future of the corporation may be understood in evolutionary terms.

It is tempting to view these theories as progressing from the most concrete to the most abstract, from the most basic to the most sophisticated (certainly, economists encourage this reading). Yet it is crucial to note that there is nothing inherently more accurate about the latter body of theory. Each of these theories relies upon the stratagem of *abstraction*, and each such abstraction serves a particular political, economic, and ideological end.

The most commonplace and familiar type presents the corporation through the metonym of a real, individual person or persons. Let us call this Theory A. As numerous critics have noted, these accounts rely upon the doctrine of executive power. Under this doctrine, the actions of a corporate body may be adequately described as those of the "people in charge." This may be, in the simplest case, a matter of describing the actions of a single leader—for instance, describing the vast military-bureaucratic endeavors of the French Empire under Napoleon as the self-evident outcome of Napoleon Bonaparte's decisions. This *executive power* may also be transferable, leading to accounts that move from metonym to metonym. For example, in the case of the "Saturday Night Massacre" at the height of the Watergate scandal, it would be reasonable in most histories to describe the events as a sequence of decisions taken by individuals. First, President Richard Nixon ordered Attorney General Elliot Richardson to fire Archibald Cox, the special prosecutor investigating the Watergate scandal. When Richardson refused and resigned in protest, Nixon then ordered Deputy Attorney General William Ruckelshaus to fire Cox, and Ruckelshaus likewise refused and resigned. Turning at last to Solicitor General Robert Bork, by then *de facto* head of the Justice Department, Nixon managed to find a functionary willing to do his bidding and fire Cox. In each case, the decision to fire Cox may be understood as proceeding from Nixon himself (rather than, say, from the authority vested in Nixon as President by the American electorate).

28 *Ultra vires* (literally, "beyond the powers") is a legal descriptor for an actor—either an individual officer or a corporate body—that acts outside of its authorized power or powers. It was, from the 19th century through WWII, a central term in legal theory and practice concerning corporations, arising primarily when the actions of corporate bodies exceeded the allowable terms of their original charters. On this doctrine as constitutive of turn-of-the-20th-century "organic" corporate theory, and on its consequences for the "physical presence" of a corporation in the form of a "domicile," see Ernst Freund, *The Legal Nature of Corporations* [1897] (Kitchener, Ontario: Batoche Books, 2000), 40–58.

29 Perhaps the most succinct critique of the imagism of the interwar avant-gardes is found in William H. Jordy, "The Symbolic Essence of Modern European Architecture of the Twenties and Its Continuing Influence," *Journal of the Society of Architectural Historians* 22, n. 3 (October 1963), 177–187.

30 Summerson, "The Mischievous Analogy," 214.

31 Coase, "3. The Nature of the Firm: Influence," *Journal of Law, Economics & Organization* 4, no. 1 (Spring 1988), 47.

32 Ockman, *Hunch* no. 12 (2009), 144.

I realize that reviewing such matters may seem rather pedantic; however, the consequences of identifying the *subject(s)* of corporate history as individuals are not always and entirely clear. This despite the fact that the metonymic approach to narrating the agency and actions of the corporation remains the dominant technique of architectural history, whether it is a matter of J. Irwin Miller "building" Columbus, Indiana or the Seagram Co., Ltd.'s (Phyllis Lambert's?) commissioning Mies van der Rohe and Philip Johnson to design a vast engine of fungible real estate at the corner of 53rd and Park ***Fig.3***.

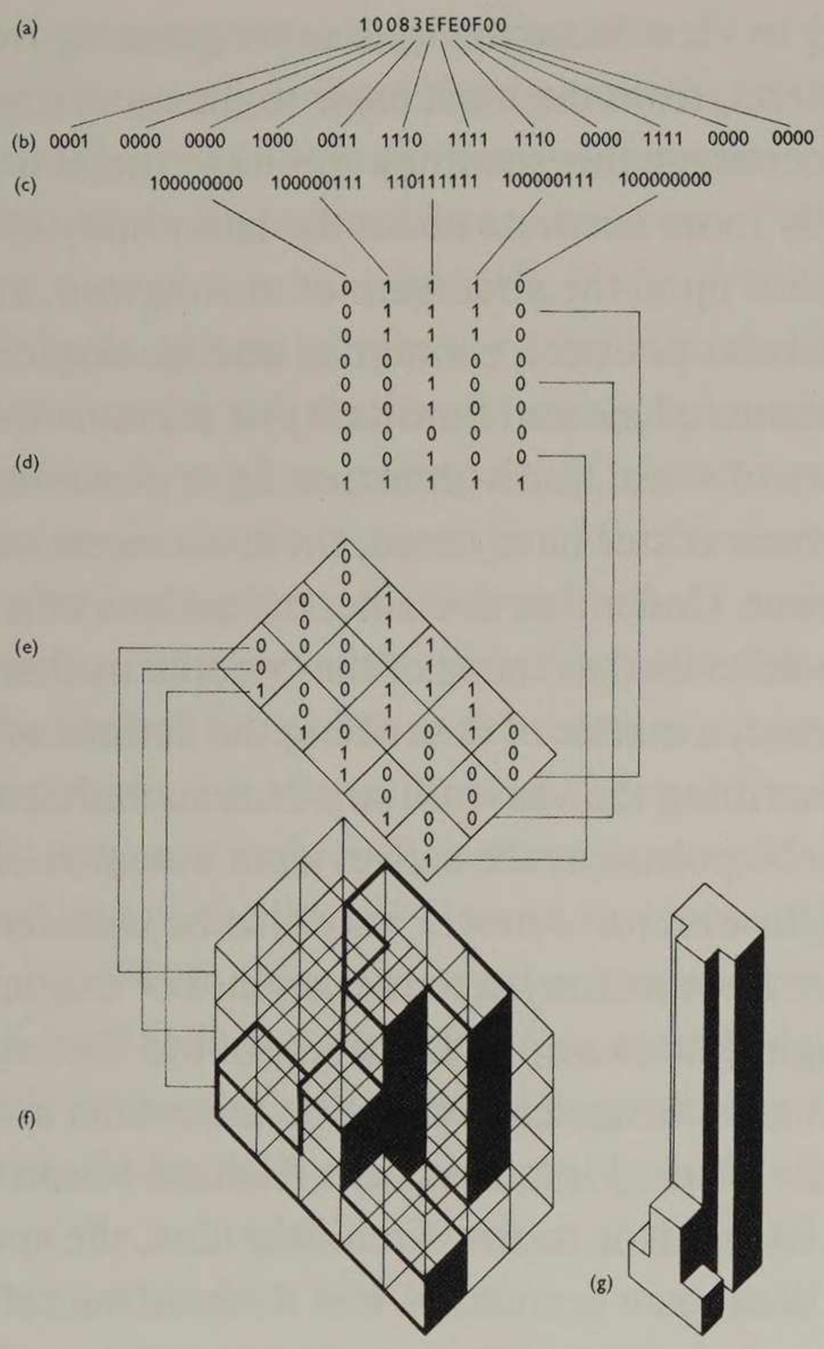


Fig.3 *Lionel March, "Boolean description of the Seagram Building," 1976. From* March, The Architecture of Form *(Cambridge: Cambridge University Press, 1976),* 63. *The original caption reads: "(a) The hexidecimal code for Mies van der Rohe's* Seagram Building; *(b) the binary expansion; (c) creasing into blocks of 3 x 3 x 3 = 9;* note the omission of the three dummy 0s to the left; *(d) the folded 9 x 5 two-dimen-*sional array which is then creased into blocks of 3; *(e) the folded 3 x 3 x 5 three-*dimensional matrix; *(f) the undimensioned three-dimensional Venn diagram; and (g)* the final block from after metric transformation giving correct dimensions."

Yet one is always left with the question of what is *excluded* from a historical account that treats neither collective action, nor the behavior of individuals as *motivated by* corporate identity.

The most common ontology of the corporation is related to the first, and is the one associated with populist critiques of corporate malfeasance from the left:[33] theories of the corporation as an "artificial person" (perplexingly also known as "natural person" theories). We can call this Theory A'. These "concessionist" or "grant" theories of the corporation emphasize the corporation as a *fiction* or invention of the state through the legal charter that sanctions incorporation, regulated by the aforementioned doctrine of *ultra vires*. Contrary to the assumptions made by various leftist critics of the modern corporation (in particular the multinational) and advocates of "corporate responsibility," this body of theory does not ascribe *rights* to the "artificial person," but rather only the permission to execute certain functions as outlined in its charter.

Although this body of theory is still in effect in many very significant respects, its staying power is the result of profound confusion on the part of its adherents, including most American conservatives and neo-conservatives; see the recent U.S. Supreme Court majority ruling in *Citizens United v. Federal Election Commission*, 130 S.Ct. 876 [2010], which inexplicably conferred First Amendment rights on all U.S. corporations. Such decisions do not rest upon a basis of case law; they are, rather, discursive constructs that emerge out of a stridently ideological and factually baseless *attitude* that whatever a corporation does must be to the good.[34] As the legal scholar Morton Horwitz has argued forcefully for years, not only does the legal precedent for establishing the "artificial person" ontology of the corporation have a shaky and troubled past (particularly in the problematic but oft-cited *Santa Clara County v. Southern Pacific Railroad* of 1886), but such theories have largely been superseded by another, more complex pair of theories, both of which appeal to the naturalizing language of Social Darwinist thought.[35] But before moving on to a *précis* of these theoretical constructs, it would be best to note that already in the opposition of the corporation-as-person and corporation-as-artificial-person, one has the basic dynamics that have governed corporate theory since the late 19th century.

Since, following the very letter of the law, the corporation is at the same time and always both "natural" and "artificial," holding rights and not holding them, acting in and of itself and only existing as a metaphor for such action, the corporation cannot be reduced to a personality of any sort.[36]

33 This is the theory that is used as the basis for the argument proffered in Joel Bakan's film *The Corporation: The Pathological Pursuit of Profit and Power* (2004), which features the insights of such critics as Noam Chomsky, Naomi Klein, Howard Zinn, Vandana Shiva, Michael Moore, and—interestingly—Milton Friedman. This despite the fact that legal scholars have long since discredited the notion that the *Santa Clara* decision established the "artificial person" theory as doctrine in US law, and have also derived very different conclusions regarding the significance of such theories. See note 47 below.

34 See Justice John Paul Stevens's partial dissent, with the support of Justices Ginsburg, Breyer and Sotomayor, in *Citizens United v. Federal Election Commission*: "The basic premise underlying the Court's ruling is its iteration, and constant reiteration, of the proposition that the First Amendment bars regulatory distinctions based on a speaker's identity, including its 'identity' as a corporation. While that glittering generality has rhetorical appeal, it is not a correct statement of the law." Full text available at: http://www.law.cornell.edu/supct/html/08-205.ZS.html (accessed June 30, 2011).

35 Evolutionary theory of the corporation or "firm" has its basis in the defense of the trust against the labor movement and Progressivism at the turn of the 20th century. As the president of the American Cotton Oil Trust, John H. Flagler, put it, the right of incorporation was the product of "a steady, logical and wise evolution, or improvement in the method of conducting industrial affairs" (quoted in Horwitz, *The Transformation of American Law, 1870–1960: The Crisis of Legal Orthodoxy* (New York: Oxford University Press, 1992), 83). This commitment has remained in place despite significant changes in the theoretical framework developed to describe the corporation. The most influential treatise of the latter school remains Richard R. Nelson and Sidney G. Winter, *An Evolutionary Theory of Economic Change* (Cambridge, MA: Belknap, 1982). Strangely, acceptance of Nelson and Winter's theoretical framework has led even very accomplished historians to lapse into the language of the metonymic, biographical tropes noted above; see, for example, Steven W. Usselman, "IBM and its Imitators: Organizational Capabilities and the Emergence of the International Computer Industry," *Business and Economic History* 22, no. 2 (Winter 1993), 11, in which the reader hears of IBM's "humility."

36 This irreducibility was enshrined for all time in the U.S. with the New Jersey Corporation Act of 1889, to be followed by a long series of legislative motions ensuring that the corporation would never again be susceptible to a single theory. See David Millon, "Theories of the Corporation," *Duke University Law Journal* 1990, no. 2 (April 1990), 201–262.

That the debate over "corporate personality" has not advanced much beyond the legal debates of the period stretching between 1890 and 1930 is, at first glance, quite surprising. Surely legal theory, if only due to the pressing weight of precedent as established by case law, would have either pinned down the ontology of the corporate body or displaced it into altogether new territory. The opposite is, of course, nearer the truth, with the period since the late 1960s seeing the renewal of debate.

To posit the corporation's personhood as a legal fiction is not yet to theorize its organizational ontology. A more complete image of the corporation emerges when one adds to the overly simplistic debate over corporate personality the additional "natural" theories of the corporation that have emerged since the turn of the 20th century. We can identify these as Theory B. A decisive intervention in the debate, forming one pole of this second axis of corporate ontology, was the German-American legal scholar Ernst Freund's *The Legal Nature of Corporations*, of 1897, which would become the predecessor of the "Chicago School" of economic and legal thought. Preceding the *Santa Clara* decision by nearly seven years, this examination of the theoretical bases of corporate law sought to find a solid basis for an *organic* theory (also known as "corporate realism"), building upon the theses of the legal historian Otto von Gierke, most significantly the claim that the "*universitas* [or corporate body]…is a living organism and a real person, with body and members and a will of its own. Itself can will, itself can act…it is a group-person, and its will is a group-will."[37]

Yet Freund's efforts in this direction were of little avail, as the remarkably honest scholar was forced to admit that

> …the organic theory certainly awakens and encourages the impression that this corporate personality possesses an absolute unity and distinctiveness which if properly understood would enable us to decide correctly all questions of corporate rights and acts, to mark with certainty and exactness the limits of corporate existence, corporate representation, and corporate powers. This certainty is quite illusory, and it is a grave objection to the organic theory that it tends to raise a belief in it. The theory promises more than it can perform.[38]

For Freund, the obvious conundrum of organic theory was that it could not be made to fit the very pragmatic causes of corporate organization. One of the corporation's most salient qualities was and remains that it may "outlive" any single living member, retaining its organization as a form of permanent but mutable capital relations. Thus, in the organic theory the corporation becomes a *permanently living* organism, a "species being"; however, such a metaphorical regime would thus need to posit each corporation as such a species (rather than as an individual), and the increasing imbrication of corporate interests through new forms of ownership and management (a problem confronted below). Moreover, the organic theory introduced intractable problems for any historical narrative of the corporation, particularly when so-called "evolutionary" theory was applied to explain change in a corporation over

time. This is not simply to say that the corporation generates a kind of anxiety, or a need to fix capital in a semi-permanent state; it is also to note that in order to become *more like itself*, the corporation must change not only its appearance, but also its structure. That is, it must become less like itself in order to become more like itself. In an organic theory, change defines the organism even as the organism defies change.

Despite its difficulties, this organic theory is the working theory of the corporation found in the most theoretically sophisticated historiography of corporate architecture, and for the very reason that it is what lies in back of both Summerson's halting vitalism and Hitchcock's organicity of genius. But as both Summerson's invocation of the specter of teletechnology and Hitchcock's description of bureaucratic forms of architectural invention suggest, yet another theoretical regime—that of the corporate body as a network or "nexus of contracts"—adds further complexity to the matter.

This new brand of theory—what we can call Theory C—was carefully calibrated so as not to upset previous contradictory theories, in a landmark work of modern economics. Unsatisfied by the terms of the debate, in 1937 a young economist, Ronald Coase, published a seminal article on "The Nature of the Firm" that remains central to corporate theory even as its implications remain unclear.[39] In short, Coase's main contribution was to abandon the then traditional definitions of the corporation in favor of describing it not as a thing (i.e. a "person," real or fictional), but as a set of *relations*: what has now become the normative notion of the corporation as a "nexus of contracts."[40] The basic aim was to show, in economic terms, why firms came into being. This Coase explained in terms of transaction costs: the firm emerged as a system for exchanging values that was characterized by its efficiency. Each corporation emerged because it occupied a particular and advantageous position in processes of exchange—one firm because it could move products from place to place most efficiently, another because it insured the viability of transactions between multiple other firms, and so on.

As Coase himself admitted in later years, viewing the definition of the corporation as a function of transaction costs occludes too many functions of the corporation, how those functions are organized, and how they were distributed. It was not yet a complete theory, and was never meant to be:

> It has been said that young men have visions and old men have dreams. My dream is to construct a theory which will enable us to analyze the determinants of the institutional structure of production. In "The Nature of the Firm" the job was only half done—it

37 Otto von Gierke, *Political Theories of the Middle Age*, trans. Frederic William Maitland (Cambridge: Cambridge University Press, 1900), and part of von Gierke's multi-volume study *Das Deutsche Genossenschaftsrecht*, quoted in John Dewey, "The Historic Background of Corporate Legal Personality," *The Yale Law Journal* 35, n. 6 (April 1926), 658.

38 Ernst Freund, *The Legal Nature of Corporations* [1897] (Kitchener, Ontario: Batoche Books, 2000), 40.

39 On Coase, see Scott E. Masten, "A Legal Basis for the Firm," *Journal of Law, Economics, & Organization* 4, no. 1 (Spring 1988): 181–198, which offers a succinct summary and critique of Coase's theory of the firm.

40 Coase, "The Nature of the Firm" [1937], republ. in Oliver E. Williamson and Sidney G. Winter, eds., *The Nature of the Firm: Origins, Evolution, and Development* (New York and Oxford: Oxford University Press, 1993): 18–33. The term "nexus of contracts" to describe Coase's approach is attributed to Frank.

explained why there were firms but not how the functions which are performed by firms are divided up among them.[41]

Despite his modest caveat, in the hands of later free-market theorists Coase's theory was elaborated in numerous different ways, layering on aspects of corporate theory gleaned from other, earlier theories (such as the various "organic" and "evolutionary" theories), and Coase's basic assumptions have become gospel, even after the assaults on rational orthodoxy by relatively new movements in the discipline such as behavioral economics.

The problem with nexus-of-contracts theory from the vantage point of the historian and the architect is not that it has no explanatory power (in fact, that the opposite is true is obvious from the vast literature that it has produced since the early 1970s). Quite the opposite: the theory still provides a firm basis for understanding how corporations manipulate capital, "grow" in size, and exist as a crucial component of a capitalist marketplace; moreover, the theory allows for a sophisticated picture of the complexity of corporate ownership to emerge through an analysis of contractual relations. But it is not too crude to view Coase's intervention as allowing for the radical neo-liberal views of Hayek, Friedman, and the rest of the Chicago School. In a politically astute and crafty tautology, forcing economic theory to consider *only* contractual obligations when considering corporate activity allows economists to argue that the state has little or no power to regulate any corporations. Interpreters of "The Nature of the Firm" have effectively seized upon the term "nature" in order to naturalize the idea of *all* corporations' "right" to enter into contracts with one another as if they were individuals; and since the terms of the contracts between parties are legally sanctioned, it follows that the state has no business interfering in such arrangements. They *must* be legal, and they *must* be right, governed as they are by the sanctity of contracts and the profit motive.

This *reductio ad absurdum* of what we have seen to be a much messier affair has prevented critics of the so-called free market from gaining traction in economics and in many related disciplines.[42]

3. INCORPORATION

These three bodies of theory—A, B, and C—have all continued to be instrumental to the legal, political, and economic management of the corporation throughout the 20th century and into the 21st. However, there have been some interesting and crucial attempts to call attention to the hopeless confusion that these mutually contradictory theories generate. Architects and architectural historians may be surprised to learn that the most important of these (outside of those critiques produced in strictly Marxist contexts), came from the philosopher and aesthetician John Dewey. Setting the stage for Coase's later intervention in corporate theory (although Coase was almost certainly unaware of Dewey's arguments), Dewey proposed in his 1926 essay "The Historic Background of Corporate Personality" to discard the entirety of

corporate ontology in favor of a new system of description. Dewey argued that "put roughly, 'person' signifies what law makes it signify."[43] In other words, the ontology of the corporation was not the issue:

> We often go on discussing problems in terms of old ideas when the solution of the problem depends upon getting rid of the old ideas, and putting in place concepts more in accord with the present state of ideas and knowledge. The root difficulty in present controversies about "natural" and associated bodies may be that while we oppose one to the other, or try to find some combining union of the two, what we really need to do is to overhaul the doctrine of personality which underlines both of them.[44]

Following Dewey, with his commitment to judicial pragmatism, the real problem of the corporation was how to suspend numerous competing theories of the corporation in tension, without resolving contradictions, and yet retain the juridical capacity to regulate business. Dewey was, of course, responding to lawyers and judges who insisted that there must be an *a priori* subject of the law—the precondition for bearing rights and duties—because "[o]therwise why are not molecules, or trees or tables just as fit candidates for legal attributes as singular men and corporate bodies? The objection seems serious."

The provisional solution is, according to Dewey, to eschew the entire question of the essence of the rights-and-duties-bearing subject, and instead focus the legal theoretician's attention upon the *consequences*—i.e., what a "thing is...is defined as...what it does...[i.e.,] specific effects *extrinsically* wrought in other things." By appealing to the scientific principle articulated by Whitehead and, more relevantly to Dewey, by C.S. Peirce, of "extensive abstraction," the question of corporate personality could be rethought in terms of its "social consequences."

Following this principle of extensive abstraction, quoting the philosopher of science C.D. Broad, Dewey noted that "what really matters to science is not the inner nature of objects but their mutual relations, and that any set of terms with the right mutual relations will answer all scientific purposes as well as any other set with the same sort of relations."[45] Rather than worry over metaphors, Dewey stressed, the crux of the matter was matter itself:

> Molecules and trees certainly have social consequences; but these consequences are what they are irrespective of having rights and duties. Molecules and trees would continue to behave exactly as they do whether or not rights and duties were ascribed to them;

41 See Coase, "3. The Nature of the Firm: Influence," *Journal of Law, Economics & Organization* 4, no. 1 (Spring 1988), 47.

42 See a recent challenge to right-wing interpretations of the free market, on the grounds of the tight interrelation of "natural order" and political economic regulation: Bernard Harcourt, *The Illusion of Free Markets* (Cambridge, MA: Harvard University Press, 2011).

43 John Dewey, "The Historic Background of Corporate Legal Personality," 655.

44 *Ibid.*, 658.

45 C.D. Broad, *Scientific Thought* [1923] (New York and London: Routledge & Kegan Paul, 1952), 39 quoted in Dewey 661.

> their consequences would be what they are anyway. But there are some things, bodies singular and corporate, which clearly act differently, or have different consequences, depending upon whether or not they possess rights and duties....[46]

In short, what mattered were material consequences of material facts. Dewey's position was later reinforced, even as it was called into question, by Horwitz in his landmark reconsideration of the *Santa Clara* case, which had commonly been understood to have established the corporation as a "natural person." In fact the decision was an effort to *disregard* the corporation as an entity in the first place, instead placing emphasis on the threat to shareholders' rights as individuals outside of their relation to the corporation.[47] As he argued, with rhetoric not far removed from passion, "the rise of a natural entity theory of the corporation was a major factor in legitimating big business and...none of the other rhetorical alternatives could provide as much sustenance to a newly organized, concentrated enterprise," but the overblown reputation of the well-known but often misunderstood *Santa Clara* case was only used *a posteriori* to justify this theory.

The appealing concreteness of Dewey's analysis—especially in the face of so much abstraction—would seem to settle matters. From 1926 on, one might assume, the regulation and history of the corporation would be matters of concrete outcomes; no matter that the corporation itself is a black box. Moreover, shortly afterwards came the nearly decisive intervention of Adolf Berle and Gardiner Means in the debate, with their treatise *The Modern Corporation and Private Property*, of 1932, which sought to render the corporation governable by pointing out that the division between ownership and control that characterized the modern business enterprise meant that the corporation was an artificial entity legitimized by the state.[48]

But as the legal scholar David Millon reviewed the battlefield in the wake of neo-liberal reforms to corporate law in the 1980s, he found the three main axes of conflict and contradiction described above to be still firmly in place.

> The first dimension is the distinction between the corporation as an entity, with a real existence separate from its shareholders and other participants, and the corporation as a mere aggregation of natural individuals without a separate existence. The second dimension is the distinction between the corporation as an artificial creation of state law and the corporation as a natural product of private initiative.
>
> In addition to these distinctions there is a third dichotomy that has received a good deal less attention, a public/private distinction... [which] has operated at a deeper level, explicitly and implicitly structuring thought about the nature of corporate activity and the appropriate goals of corporate law.[49]

Rather than despair at this complex affair, however, Millon argued that these three axes provide us with the basis for a descriptive geometry, as it were, of the modern business enterprise. That is, rather than pursue a prescriptive and impossible defense of a single theory, each of these theories may be used to some effect in order to describe an *aspect* of a corporation's being.

In the wake of these theoretical abstractions, the impediments to knowledge about how to govern corporations and how to respond to them as architectural thinkers are formidable. In addition to the numerous active, competing, and contradictory legal and theoretical frameworks for defining the corporation discussed here, the sheer multiplicity of juridical structures (one for each state in the US, plus numerous additional models active in territories and municipalities, at the federal level, and abroad) makes any single response to both the power and the ineffability of the modern (or postmodern) corporation impossible. We find ourselves in a situation, especially after the American Bar Association promulgated the Model Business Corporation Act in 1950 (substantially revised in 1969, 1980, and again in 1984), of a fragmentary body of laws governing bodies.

Thus, the corporation is, without question, what Jean-Luc Nancy would call one of the "perverse figures that still have to be thought."[50] Within architectural history, this thought must begin with a direct confrontation of the basic error of the appeal to abstraction as a historiographical *deus ex machina*. Such abstractions pull away from the archive of architectural history, the primary facticities architectural history seeks to wrestle into form, and worse, these abstractions become the very homologies that corporations produce—networks as networks, systems as systems, capital as capital—even as it is increasingly apparent that no such systematicity pertains to the corporate body as anything other than a (political, legal, economic, architectural) postulate by its various subjects.

Architectural theory and history have no other choice than to confront this problem head on. The abstractions that corporations produce *as effects* of the basic contradictions outlined above cannot and should not be reified, either in architectural form or as a discourse. Corporations are not invincible and ineffable; their internal contradictions and inability to know themselves do not prevent architects (or anyone else, for that matter) from knowing them. Attention to the willfulness and contingency of these abstractions can reveal the concrete lived reality underlying them. A system becomes a desire for order, a network a contingent and postulated set of relationships carried out in time, a corporation a set of subjects and objects susceptible to description and exegesis.

46 Dewey, 661.

47 See Horwitz, "*Santa Clara* Revisited: The Development of Corporate Theory," *West Virginia Law Review* 173–174 (1985); and the revision and expansion of this article in Horwitz, *The Transformation of American Law, 1870–1960: The Crisis of Legal Orthodoxy* (New York: Oxford University Press, 1992), ch. 3. An excellent overview of the history of competing corporate theories is given in William W. Bratton, Jr., "The New Economic Theory of the Firm: Critical Perspectives from History," *Stanford Law Review* 41, n. 6 (July 1989), 1471–1527.

48 Adolf Berle and Gardiner C. Means, *The Modern Corporation and Private Property* [1932] (New Brunswick, NJ: Transaction Publishers, 2007); see also Alfred Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA and London: Belknap Press, 1977).

49 David Millon, "Theories of the Corporation," 201.

50 Jean-Luc Nancy, *Being Singular Plural*, trans. Robert D. Richardson and Anne E. O'Byrne (Stanford, CA: Stanford University Press, 2000): 57.

The point is driven home by the fact that even the most abstract of relational theories of the corporation relies upon the concrete postulate that the corporation exists in lived, embodied space. At a crucial juncture of his argument regarding the nature of the firm, Coase had to illustrate how firms could "grow" and why they changed from one mode of production to another. Since a "perfect market" would set an ideal price for each product according to the logic of supply and demand, his contemporary economists would be unable to address this issue. To solve this problem, Coase made a remarkable move, turning to a spatial diagram: the model of land use and agrarian and urban development proposed first by the German economist Johann Heinrich Von Thünen*Fig.4*. Von Thünen, the father of "spatial" economics (also known as "location theory"), is all too often a forgotten figure, yet his theories of

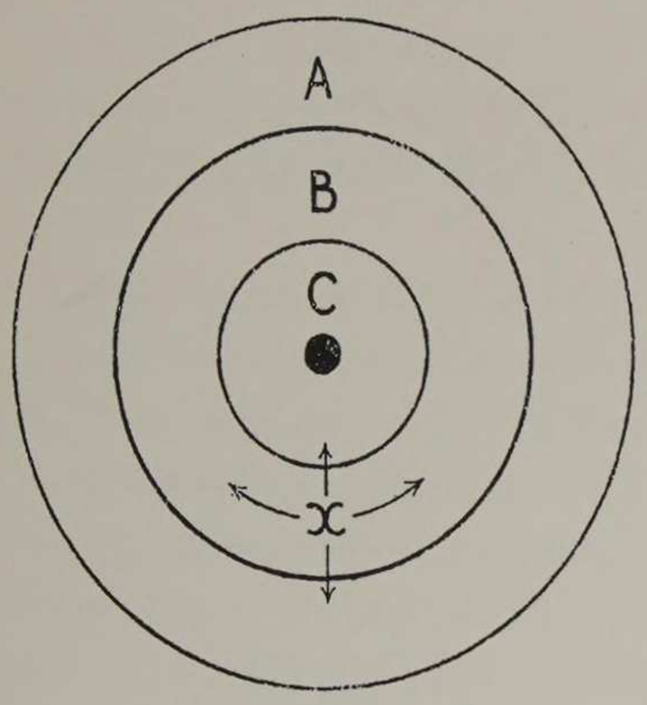


Fig.4 *Ronald Coase, diagram of corporation as a function of transaction costs (after Johann Heinrich Von Thünen,* Der isolierte Staat, *1828), from "The Nature of the Firm," 1937.*

land rent inspired generations of economic and regional planning theories stretching from garden cities to post-WWII industrial development.[51] Without delving too deeply into his theories, we may summarize Von Thünen's basic assumptions simply enough: because the cost of transport of certain products varies according to the ratio of their value to their weight, economic and urban development will produce "fairly sharply differentiated concentric rings [*Kreise*] or belts" around a given town.[52]

Into von Thünen's standard array of concentric rings surrounding the "town" or "consuming center" (the point at the center in the diagram), Coase proposed inserting an entrepreneur ("x") within the spatial field, "who starts controlling exchange transactions" over the boundaries of the various concentric rings.

> Now as [the entrepreneur] extends his activities in the same product (B), the cost of organizing increases until at some point it becomes equal to that of a dissimilar product which is nearer. As the firm expands, it will therefore from this point include more than one product (A and C). The treatment of the problem is obviously incomplete, but it is necessary to show that merely proving that the cost curve turns upwards does not give a limitation to the size of the firm.[53]

Q.E.D. Yet the architectural thinker (or geographer, sociologist, etc.) will note that the entire theory's validity hinges upon the corporation occupying a specific location in space. Moreover, the specific character of that space (the area of production of product B) necessarily determines the corporation's expansion into exchanging products A and C. In short, the need for the corporation to occupy a space—whether figurative, in the case of the market, or literal, in the case of a market*place*—which determines its character opens up all manner of possibilities for architectural thought and agency. The error would be to miss the opportunity.

51 Although he is no longer a household name, the French historian Fernand Braudel went so far as to claim that "Von Thünen…ranks alongside Marx as the greatest German economist of the nineteenth century," and integrated Von Thünen's main theses as primary building blocks of his historiographic method; see Fernand Braudel, *Civilization and Capitalism, 15th-18th Century, Volume III: The Perspective of the World*, trans. Siân Reynolds (London: Collins, 1984), 35–44.

On spatial economic theory, see: Johann Heinrich von Thünen, *Von Thünen's Isolated State [The Isolated State in its Relation to Agriculture and National Economy]*, trans. Carla M. Wartenberg, ed. Peter Hall (Oxford et al: Pergamon, 1966), especially the introduction by Peter Hall; Wilhelm Launhardt, *The Theory of the Trace: Being a Discussion of the Principles of Location* [1872], trans. A. Bewley (Madras: Lawrence Asylum Press, 1900); Alfred Weber, *Theory of the Location of Industries* [1909], trans. Carl J. Friedrich (Chicago and London: University of Chicago Press, 1929); Walter Christaller, *Central Places in Southern Germany* [1933], trans. Carlisle W. Baskin (Englewood Cliffs, NJ: Prentice-Hall, 1966); Alfred Lösch, *The Economics of Location*, 2nd ed., trans. William H. Woglom with Wolfgang F. Stolper (New Haven: Yale University Press, 1954); and Walter Isard, *Location and Space-Economy: A General Theory Relating to Industrial Location, Market Areas, Land Use, Trade, and Urban Structure* (Cambridge, MA: MIT Press, 1956). On Christaller, see Marc Rössler, "Applied geography and area research in Nazi society: central place theory and planning, 1933–1945," *Environment and Planning D: Society and Space* 7 (1989), 419–431.

52 Von Thünen, *The Isolated State*, 8.

53 Coase, "The Nature of the Firm," 28–29.

1. The “Urban” has been replaced by the “Social.”

3. They presented an imaginary “public” that either overemphasized sameness (as in Modernism) or exaggerates difference (as in Postmodernism). The Public vs. Private dialectic, which is so often delineated in design, felt more meaningless than ever. There are no hard edges to public or private—they’re part of the same topographic networks of foam—the archipelago. Within these island networks, we’re trying to collapse the distance in-between.

PATENTS FOR WORK-STATIONS 1990–2010

ANGIE WALLER

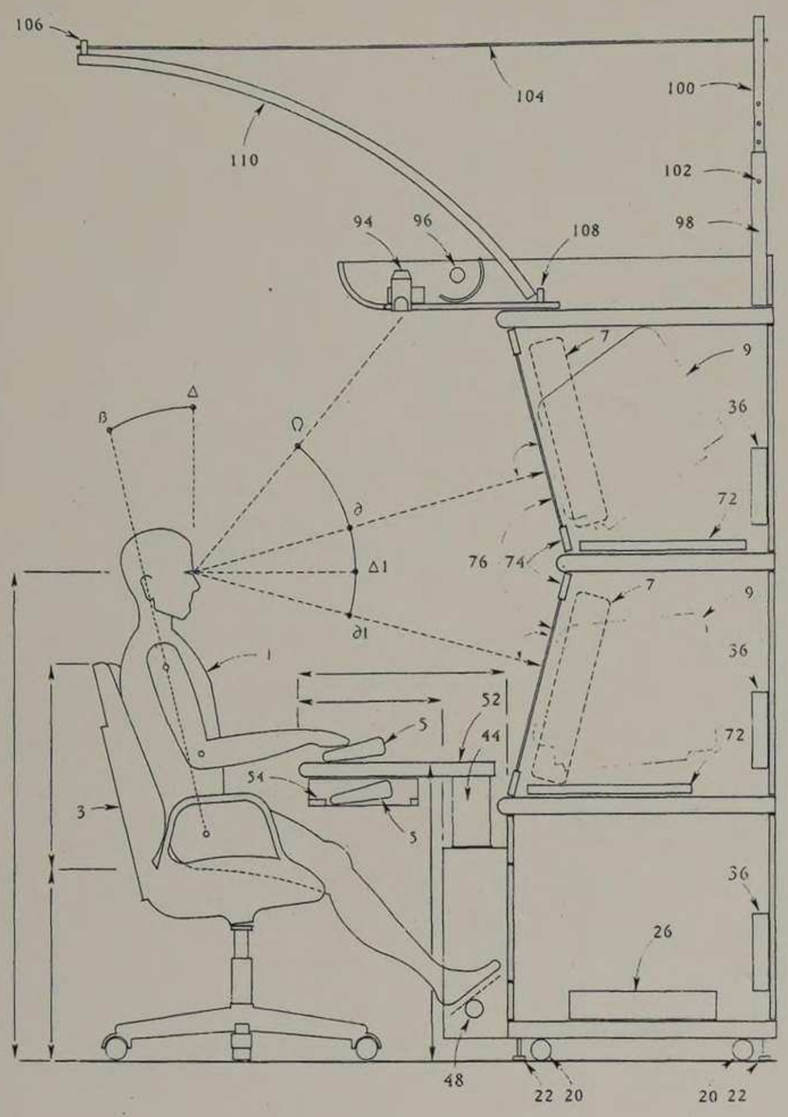
A patent is a legal document representing intellectual property; its intent is to protect inventors and foster innovation. Under this arrangement, it might be assumed that patented workstations improve upon preceding designs and react to the changing needs of user and environment.

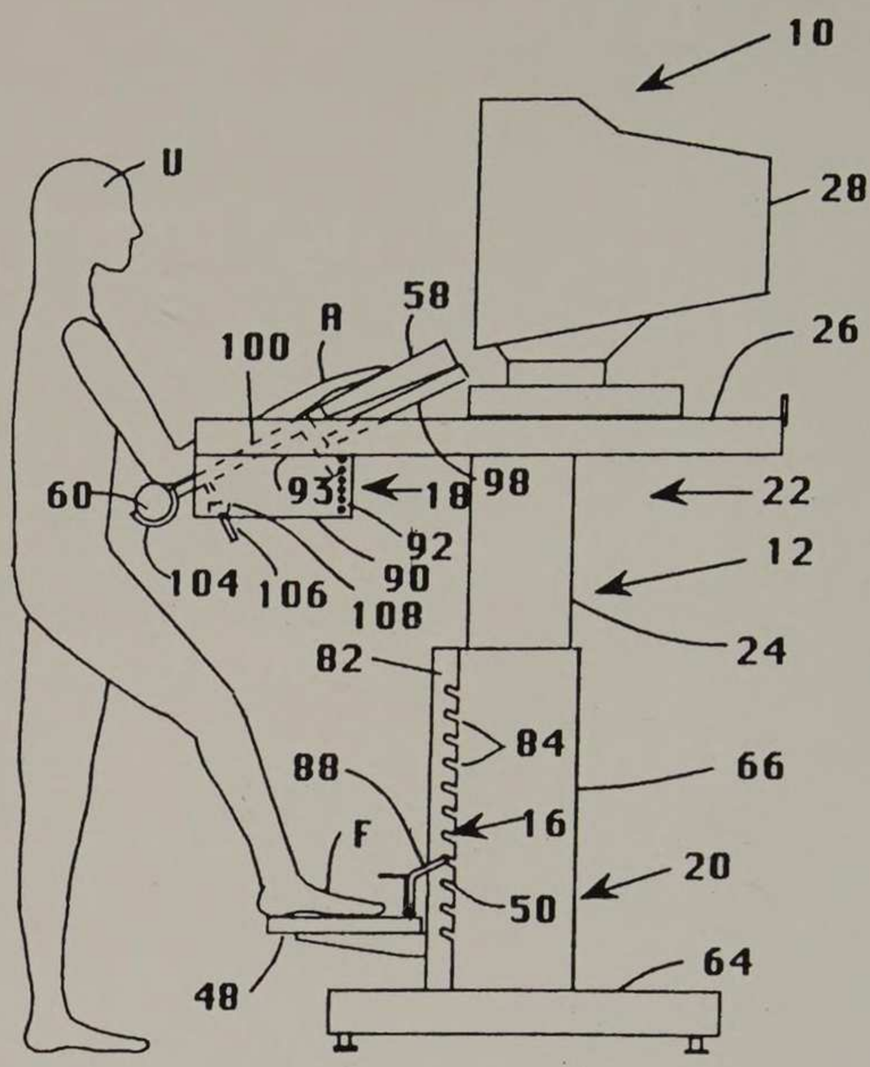
The timeline presented here represents a progression of workstation designs over the last 20 years.[1] Each responds to trends in the workforce such as temp workers, mobile workers, tired workers, and very sore workers. Presented together, the drawings question whether the changes in office environments have had positive effects on workers.

In general, a "workplace" is any spatially delimited site in a business or private residence at which a person works. The setup of workplaces particularly influences the stress and the work output of those working there. For this reason, the best possible workplace design is sought.[2]

1 The results from Google Patent searches for "workstation" were edited based on the requirement that they contain a semblance of a desk. (Workstations representing computer circuitry or computer terminals for specialized industries such as automotive and healthcare were omitted.)

2 Workstation (2000), Patent No. 6,053,588 (I).





A */ 1990*
Interactive Workstation, 1990. Patent No. 4,920,458, Benjamin P. Jones, Berkeley, CA.

B */ 1992*
Ergonomically Designed Computer Workstation Adjustable to Various Sitting and Standing Positions, 1992, Patent No. 5,174,223, Marta. K. Nagy, Thousand Oaks, CA; G. Foris, Marina del Rey, California.

Ergonomics for Man-Machine Fit (1990–1994)

A "The VDT operator is involved in a man-machine based information processing system. The information output can refer to the tactile, the auditory and the visual capabilities of man. Awkward positions to compensate for the man-machine fit result in reduced comfort, strain and excessive fatigue."

B "Typically, computer users have to take five minutes or so for each 30 to 60 minutes of working time to move about to relieve their neck, back and wrist symptoms. As a result, user productivity suffers and employee claims for workman's compensation injuries increase."

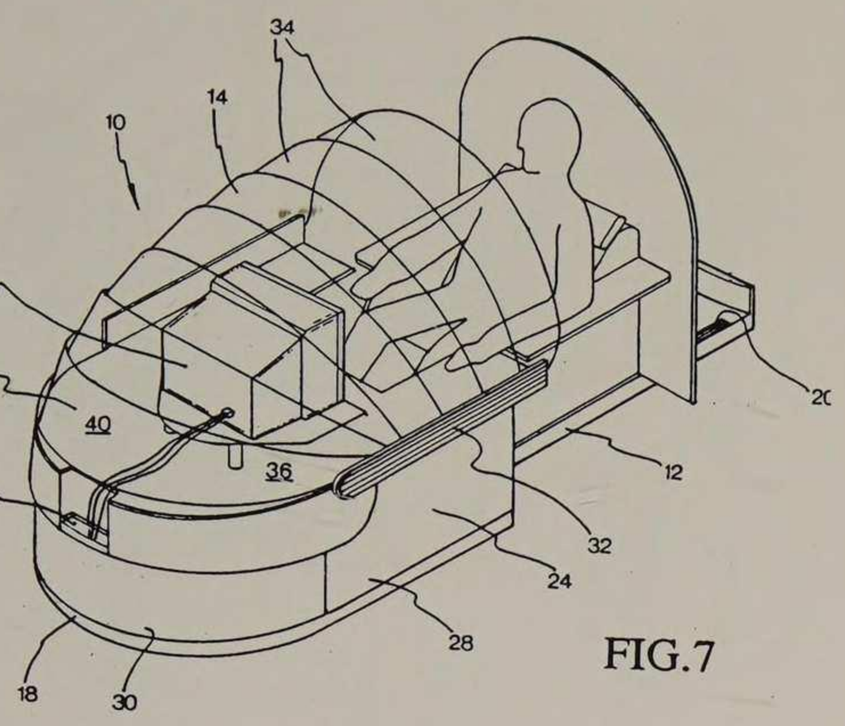
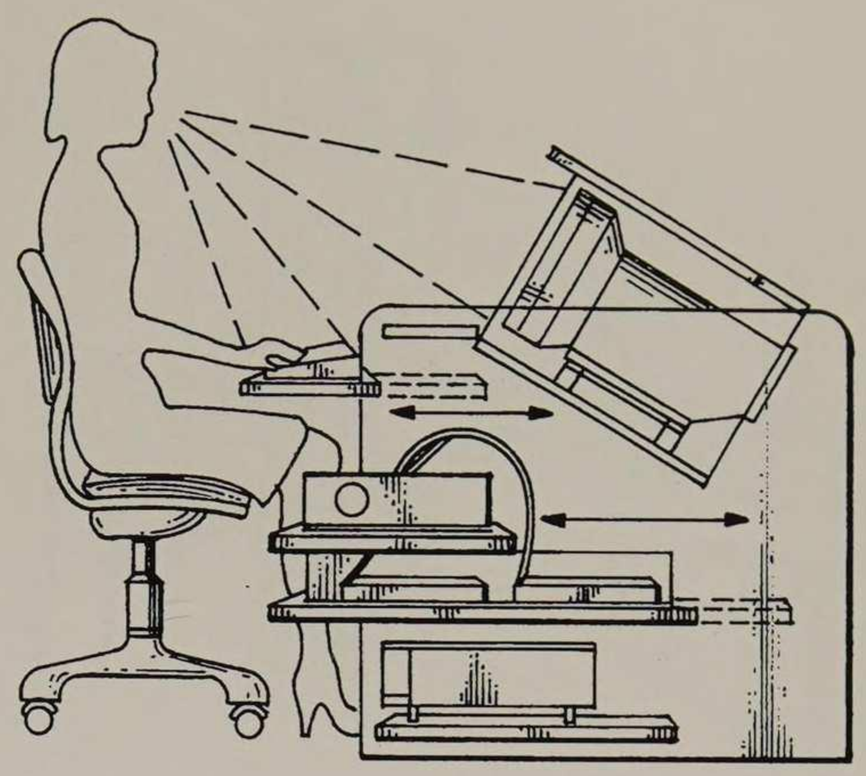


FIG.7

C */ 1993*
Computer Workstation, 1993. Patent No. 5,177,912, Douglas Ball, Senneville, Quebec, Canada.



D */ 1994*
Convertible Computer Workstation, 1994. Patent No. 5,364,177, Carlos V. Uglade, Irwindale, CA. Assignee: Continental Engineering Group, Inc.

Privacy and Distraction (1993, 2002)

C "In most instances, the position which has been found to be the most advantageous is as illustrated...In this position, the canopy provides a sense of privacy without creating a claustrophobic effect."

K This workstation can rotate its position underneath a canopy, providing a flexible range in privacy.

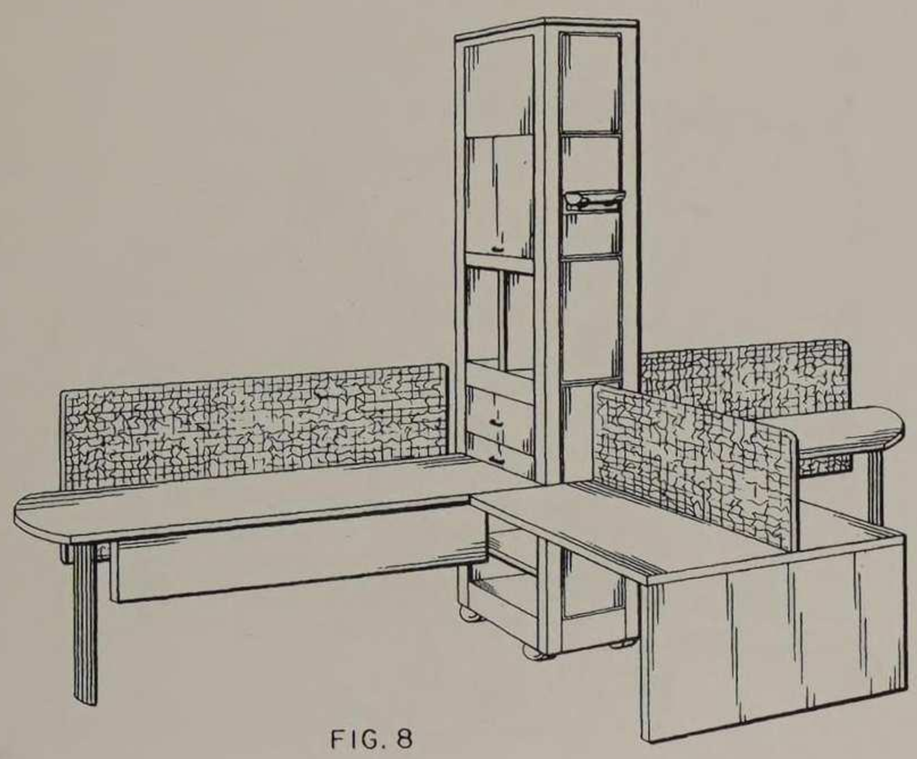
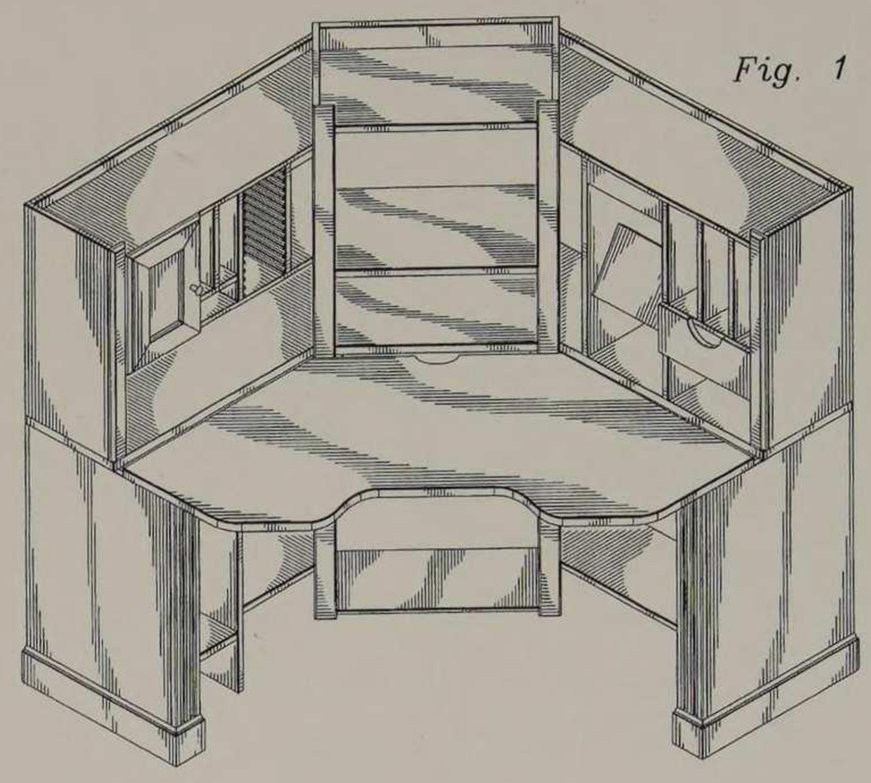


FIG. 8

E */ 1995*
Multiple Desk and Cabinet Tower Unit, 1995. Patent No. DES 362,761, Christopher T. Hood, Boxborough, MA. Assignee: Digital Equipment Corporation.

Fig. 1



F */ 1997*
Corner Computer Workstation, 1997. Patent No. DES 381,530, Michael P. O'Sullivan, Lamar, MO, Edwin P. Lochridge, Atlanta, GA. Assignee: O'Sullivan Industries, Inc.

Ornamental Design (1995–1999, 2003)

E, F, G, L Minimal descriptions are provided with these patent applications. The designs are decorative and do not appear to address ergonomics or storage space like the preceding entries.

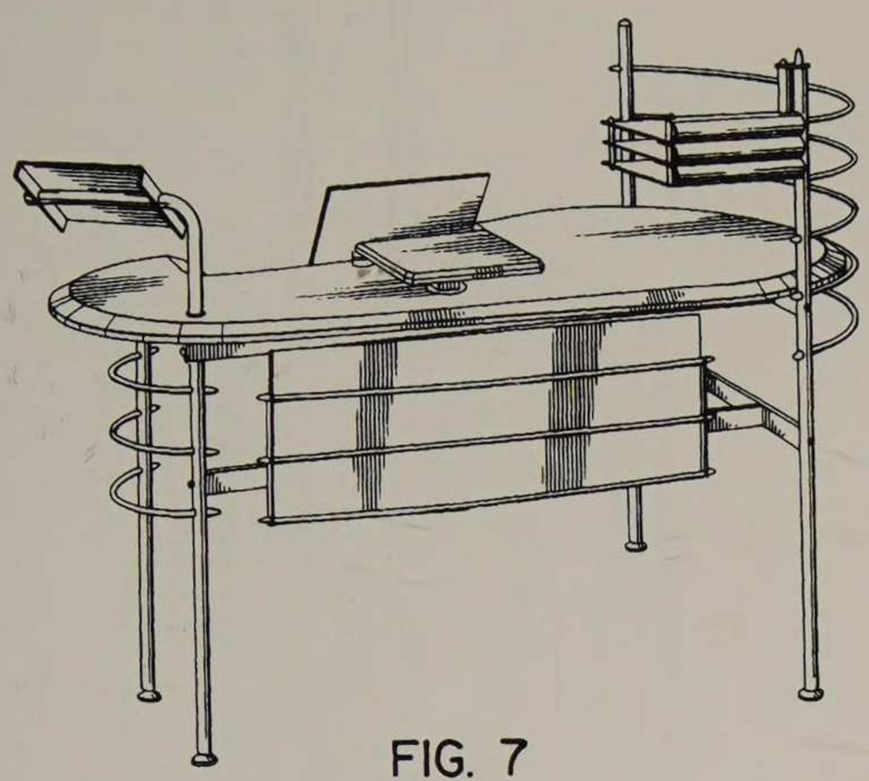


FIG. 7

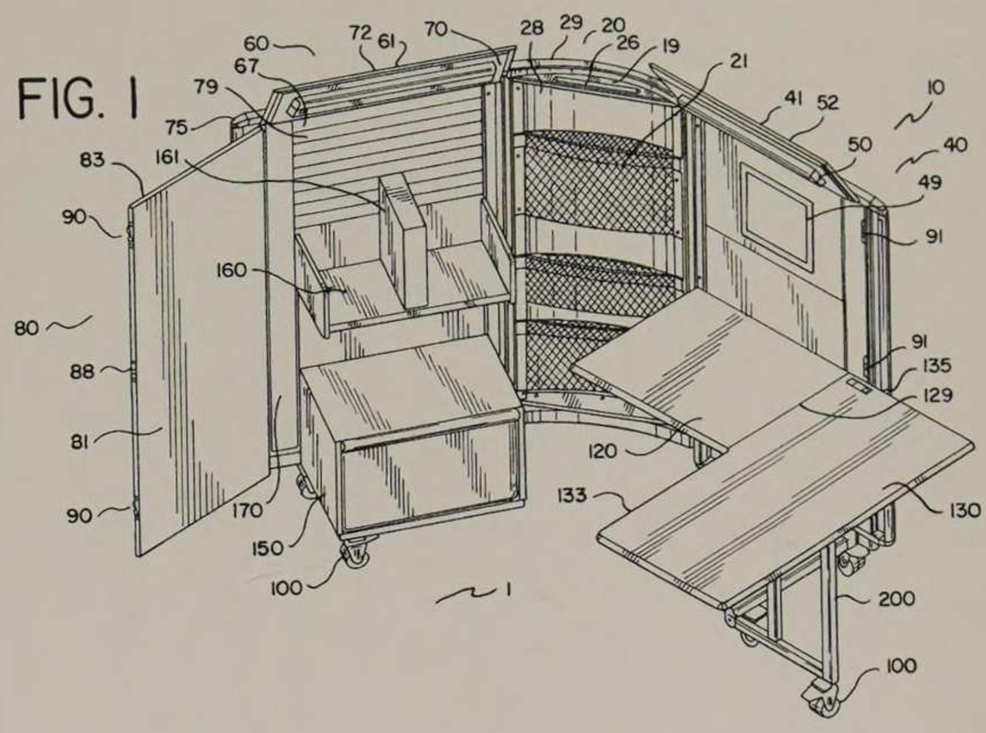


FIG. 1

G */ 1998*

Desk Unit, 1998. Patent No. DES 389,667, Edward Moore, L'Acadie, Quebec, Canada. Assignee: Haworth, Inc.

H */ 2000*

Workstation, 2000. Patent No. 6,053,588, Franz Biggel, Wangen, Germany; Burkhard Schmitz, Ulm, Germany. Assignee: Herman Miller, Inc.

Company Image (2000)

H "The workplace also has the advantage that it has two 'faces.' On the one hand, the 'external face' belongs to the business and represents the company image with a unified and formal design. On the other hand, the inside represents the character of the user and allows highly individual furnishing without conflicting with the company image."

FIG. 5a

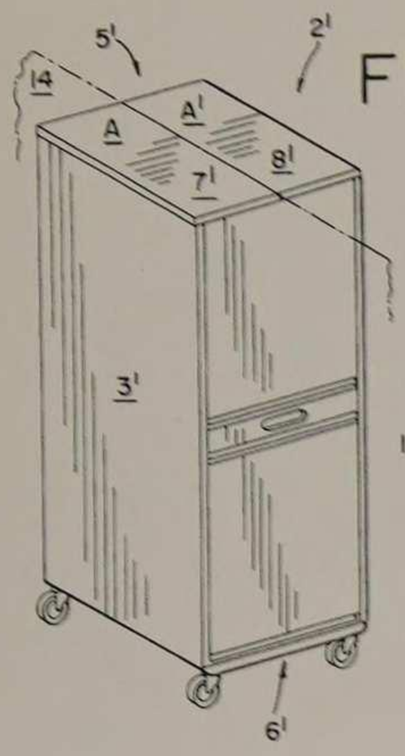
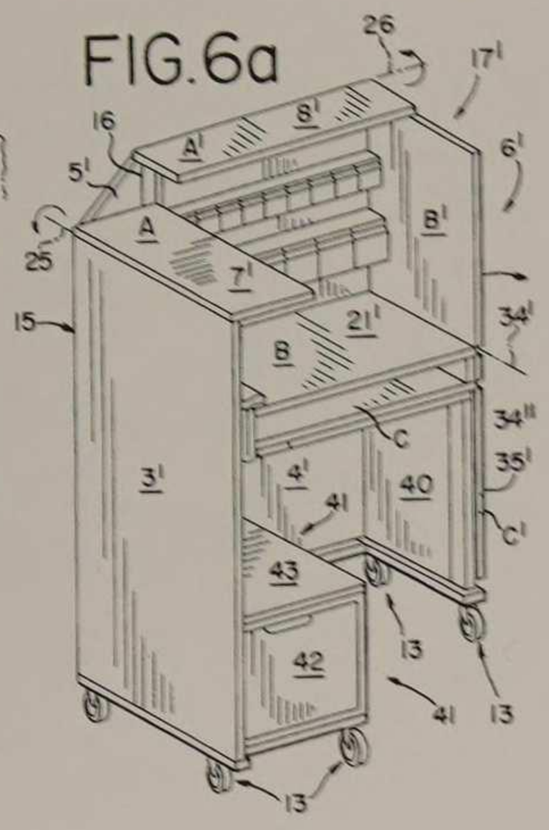
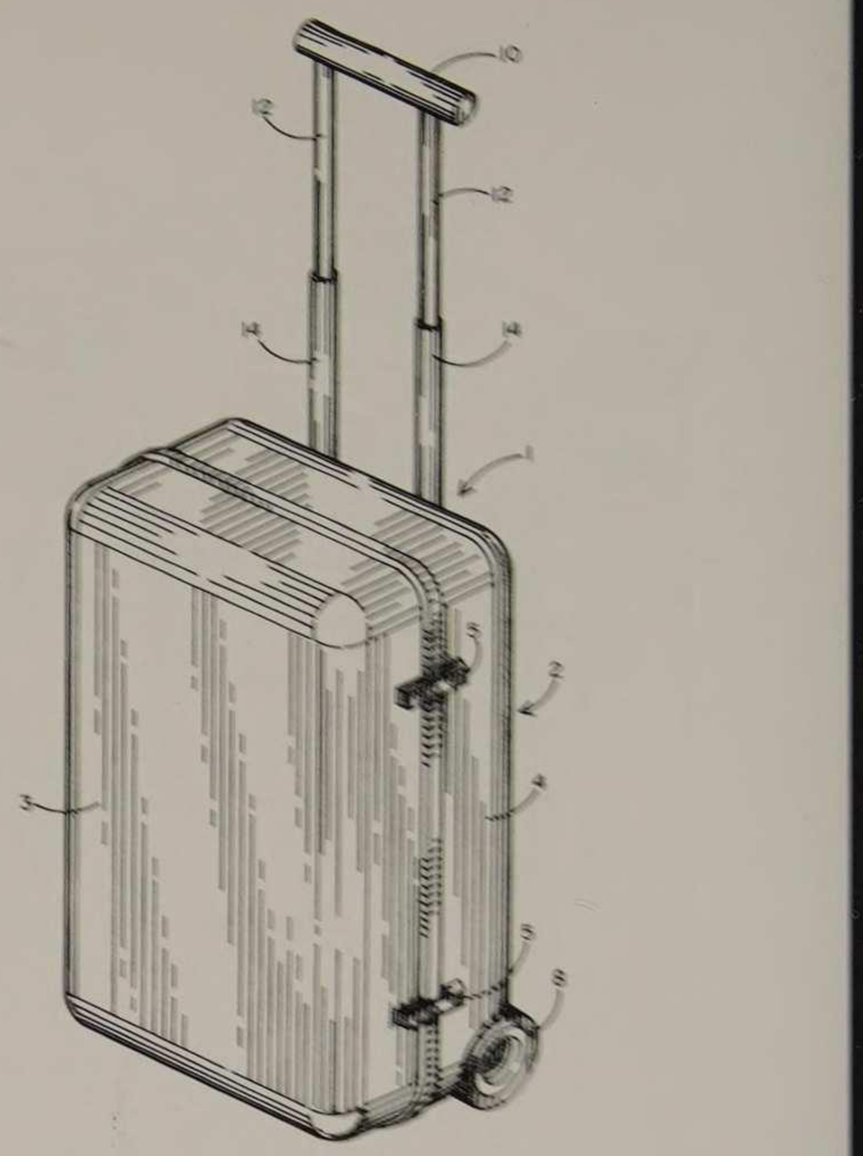


FIG. 6a





I / 2000
Collapsible Workstation, 2000. Patent No. 6,048,044, Franz Biggel, Wangen, Germany; Burkhard Schmitz, Ulm, Germany. Assignee: Herman Miller, Inc.

J / 2001
Portable Office Having Removable Computer Workstation and Shock Isolation Means Therefor, 2001. Patent No. US 6,229,698 B1, Stephen Harvey, Las Cruces, NM.

Temporary Workers (2000)

H "There is an increasing need for work environments which can be configured and reconfigured, particularly for the temporary user and temporary work groups. Consequently, there is an increasing need for workstations which make up a temporary work environment."

I "The invention is based on the concept that a flexible workplace can only be created when its spatial arrangement is flexible, i.e. it can be used in most any location, and it can be individualized."

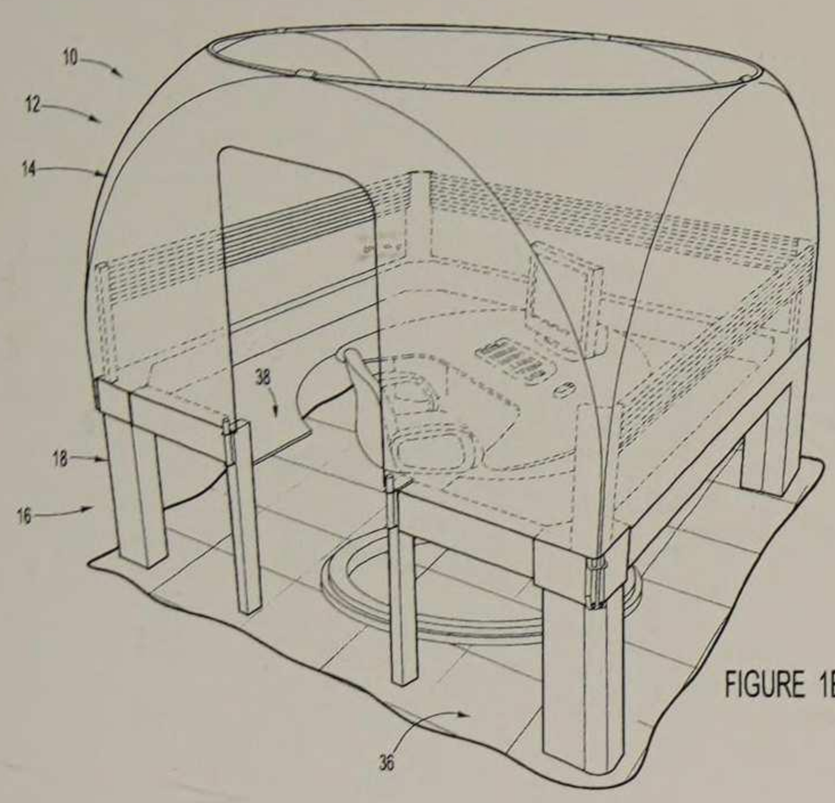
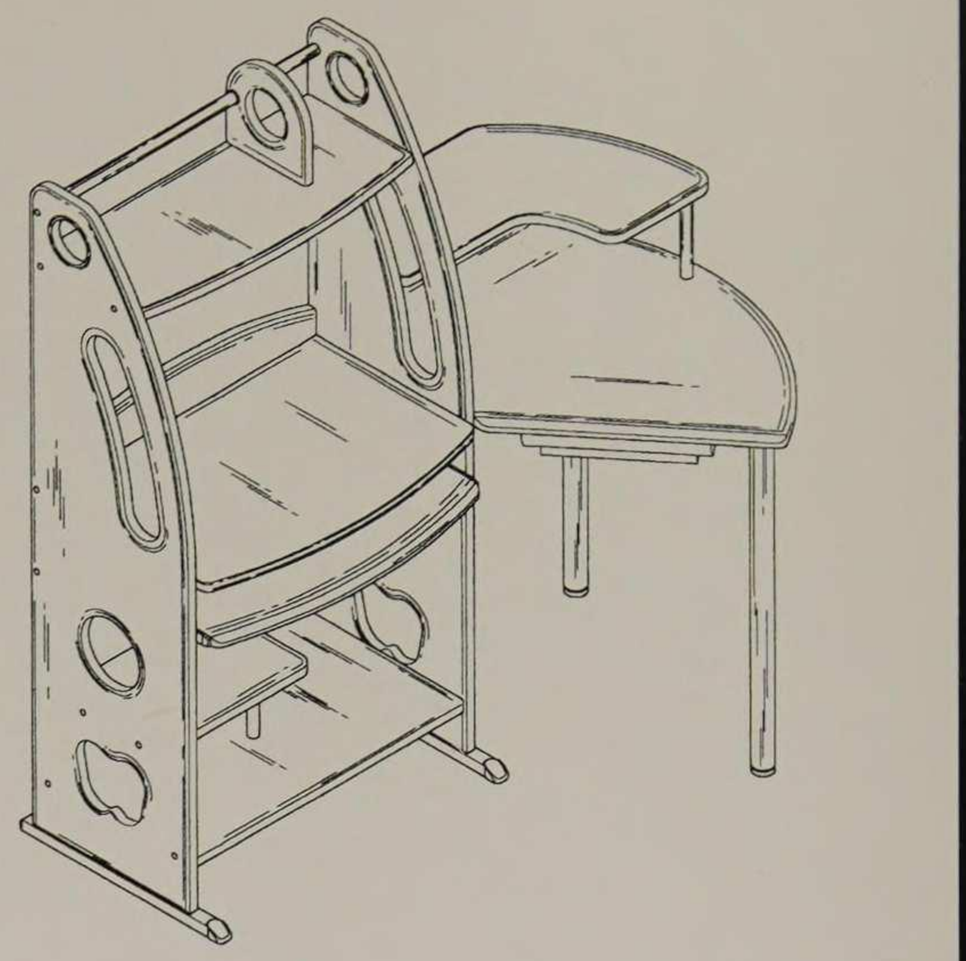


FIGURE 1B

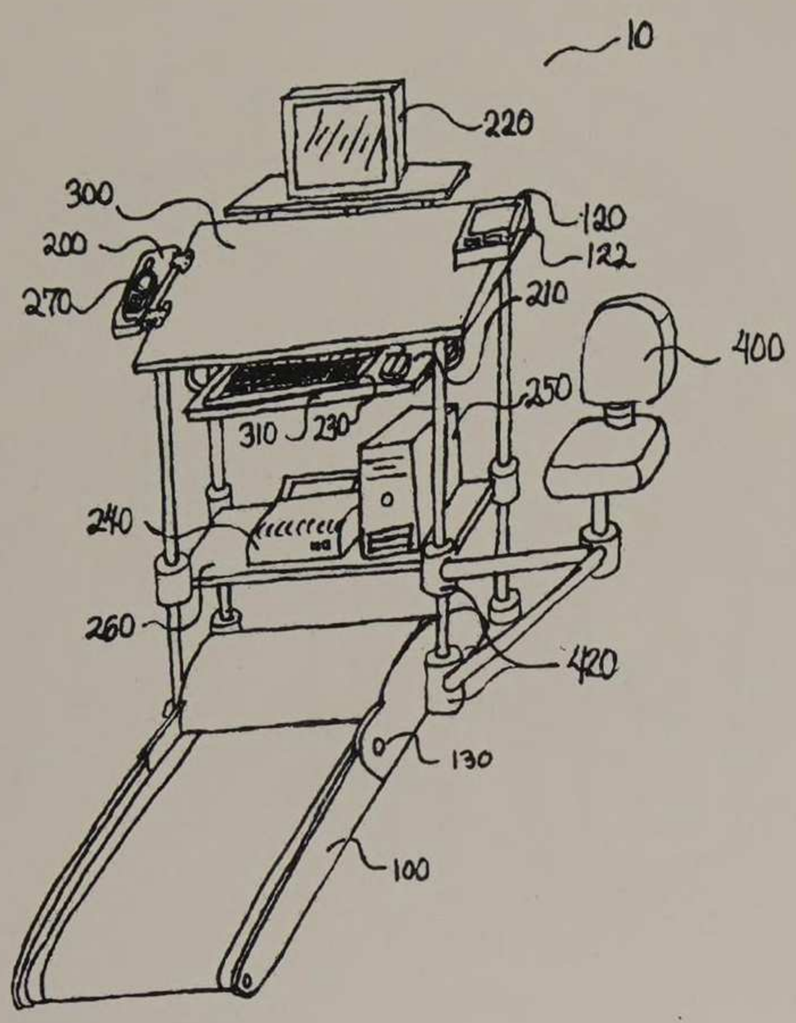


K */ 2002*
Workstation, 2002. Patent No. US 6,474,025 B1, Frederick S. Faiks, Greenville, MA; Mitchell Niewiadomski Lowell, MA. Assignee: Steelcase Development Corporation.

L */ 2003*
Computer Desk, 2003. Patent No. US D469,978 S, Chih-Wei Wang, Taichung, Taiwan.

Mobile Workforce (2001, 2008)

J, N "Some industries by their very nature require employees or other individuals to spend large amounts of time at off-site locations or traveling to meet with clients...These professionals also typically utilize vehicles such as vans, cars, trucks and the like are often utilized as a rolling office to carry equipment, tools, samples, products and other such necessities for the job."



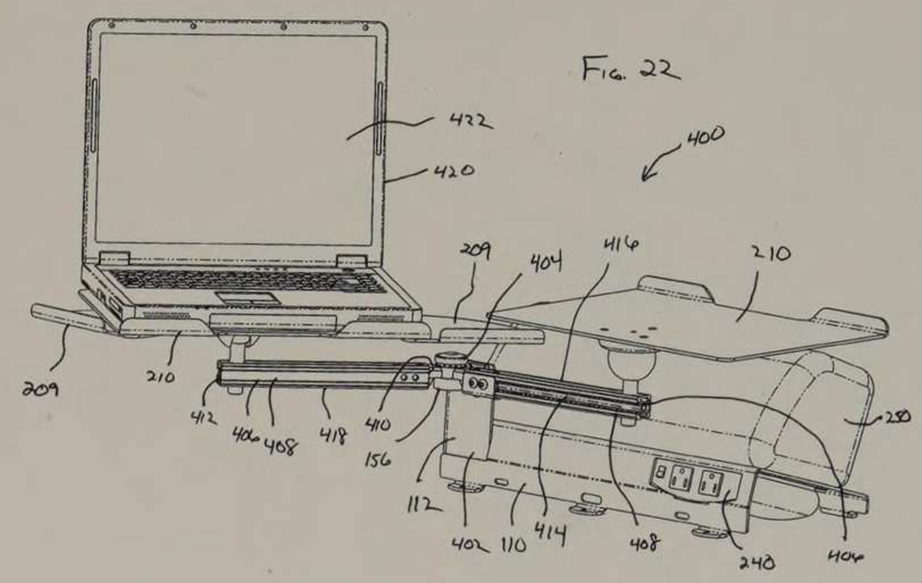


Fig. 22

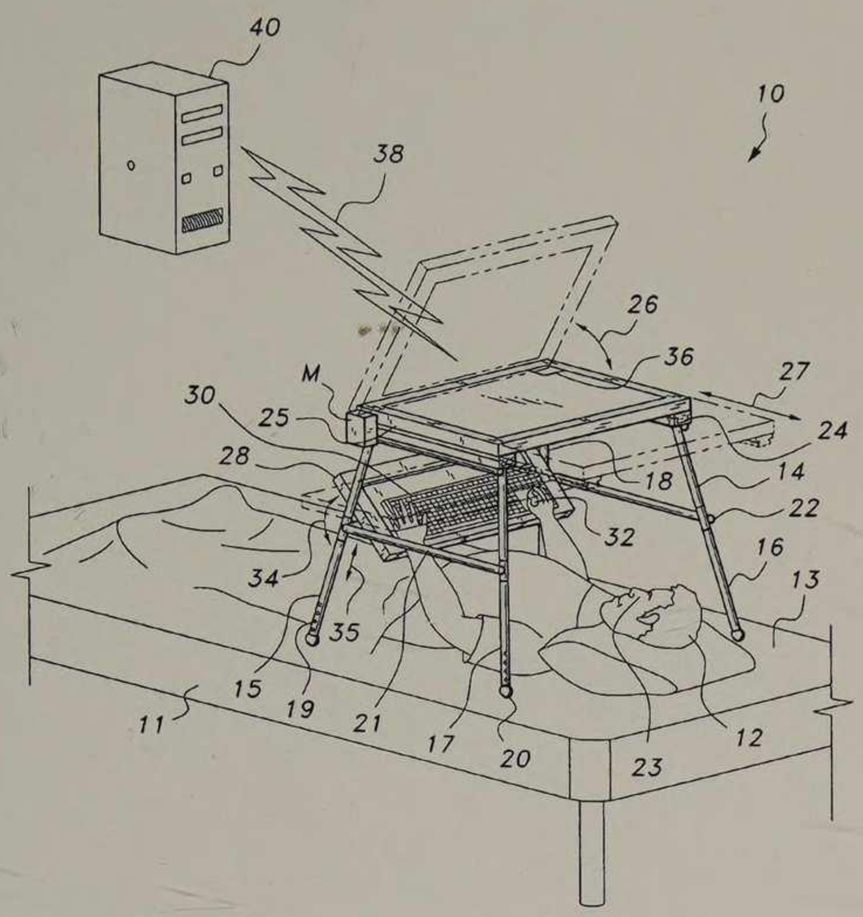
M / 2006
Exercise Apparatus with Computer Workstation, 2006. Patent No. US 2006/0247109 A1, Steven D. Powell, Bainbridge Island, WA.

N / 2008
Portable Workstation, 2008. Patent No. US 2008/0023283 A1, Ian Sutker, Springfield, Illinois; John Skarlis, Cedar Falls, IA; Eliot Evans, Joice, IA.

Decline in Health (2006, 2010)

M "Many Americans spend a major portion of their workday at a desk in offices... [this design offers] a multi-activity device which is particularly suited for conducting complex office-type work while simultaneously exercising at a low exertion level."

O "[Addresses] chronic pain caused by fibromyalgia exacerbated from working at typical desk type computer stations...Financially, chronic pain represents health care costs of approximately twenty billion dollars per year, and industry costs in disability payments, lost productivity, and training of replacement personnel of about eighty billion annually." To ease worker discomfort, the computer workstation permits a user to work while reclining or supine.



O */ 2010*

Computer Workstation, 2010. Patent No. US 7,677,519 B2, Jeffrey S. Gauer, Reston, VA.

[2.1] *We are always being offered the false choice between autonomy and heteronomy [you choose either the red or the blue pill]. The hyperbolic Art/Life split crudely divides the disciplines of architecture and urban design. Architecture is Art for Art's sake, and urban design is about Life and the messy contingencies of the world. The best thing to do with these policed narratives is confuse the categories in order to produce frictions and new frequencies through inclusion. This is as close as we can get to demystification.*

5. In cities, the most public space is not the street or the park. It is the compressed space of the window. The window is our urbanity, nothing else can come close to it. Its effects are what artists have been trying to produce over and over again for centuries. We love that impossible space of the window, the thing we cannot occupy.

DETOURS THROUGH AUTONOMY: MISMAPPINGS IN TRANSLATING THE *DIVINE COMEDY*

AARATI KANEKAR

"A translation issues from the original—not so much from its life as from its afterlife."

—Walter Benjamin[1]

"It is [the translator's] infidelity, his happy and creative infidelity, that must matter to us."

—Jorge Luis Borges[2]

1 Walter Benjamin, "The Task of the Translator" trans. Harry Zohn in Hannah Arendt (ed.), *Illuminations* (New York: Schocken Books, 1968), 73.

2 Jorge Luis Borges, "The Translators of the Thousand and One Nights" in Lawrence Venuti (ed.) *The Translation Studies Reader* (London, N.Y.: Routledge, 2000).

Discussions in translation theory have long focused on the relative autonomy of the translated text.[3] In the last two hundred and fifty years, the concepts of "equivalence" and "function" that are widely accepted as cornerstones of translation studies have been extensively debated.[4] In the two preceding quotations, Benjamin's "afterlife of the original" and Borges' "creative infidelity" question the concepts of "equivalence" and "function" and are indicative of what is perhaps the more interesting and significant aspect of any translation—its autonomy. While much of translation theory naturally focuses on linguistic translations within literature and poetry, the question of autonomy becomes more pressing when we consider translations across different media and, more specifically, if we consider the question of correspondence, accuracy, and fidelity to the original. Roman Jackobson calls these intersemiotic translations or transmutations. Are Borges' "creative infidelities" in fact welcome errors? In this essay I will consider "error" as an anomaly, inconsistency, or misreading that can be considered deliberate and generative in its own right. Specifically, I will explore "mismappings" that occur through the translation of one medium into another, and will use Dante Alighieri's *Divine Comedy* (1308–1321) as a case study, tracing the shifts that occur as it is translated from poetry to drawing and painting and finally to architecture.

The question of "mismapping" becomes more complex when considered in light of the long visual tradition linked to the *Divine Comedy* and the various studies of the concept of error within it. There are three degrees of "mismapping" or inconsistency that this essay investigates: the first is within the poem itself; the second, in the subsequent artistic representations of the poem and the shifts within that tradition; and the third, in the architectural embodiment of the work. Of utmost importance are the mismappings specific to each medium that define the autonomy of each work and, in this way, challenge the very notion and nature of equivalence.

Within the *Divine Comedy* there are several inconsistencies that scholars such as John Freccero and John Kleiner have explored. In this essay I base my discussion on Kleiner's study of what he calls "a miscellaneous assortment of apparently trivial discrepancies—a flawed experiment, a mismeasured giant, an inaccurate translation."[5] Error, according to Kleiner, "haunts every aspect of the *Comedy*, surfacing not only in Dante's measurements of Hell but also in his flawed translations and citations of other poets, in his anachronistic historical references, in his contradictory placement of souls in the underworld, and in his design of impossible experiments."[6] These imperfections are important for several reasons, but most significantly because they run contrary to the way Dante's work has been presented and received over the centuries. For the purpose of this essay I have chosen to focus on particular imperfections or anomalies that are of consequence in the visual and spatial translation of the poem. Of utmost importance to my larger discussion is the strategic nature of the "mismappings" within the poem. As Kleiner suggests, these are deliberate detours that are quite different from "errors" as mere accidents.[7]

As ones reads the *Divine Comedy*, it is clear that this incredible journey occurs on a well-defined path. The poem's tercet structure, numerological underpinnings, symmetry, and movement within three spatial realms—Inferno, Purgatory, and Paradise—certainly suggest a sound structural logic. Purgatory and Paradise consist of 33 cantos each, while Inferno has an additional introductory canto, giving the work a total of one hundred. What is more, the poem is composed in a rigid *terza rima* structure, that is, it follows an aba/bcb/cdc pattern, where the first line rhymes with the third and the second rhymes with the first line of the next tercet. For all these reasons, it comes as a surprise when one discovers the anomalies and deviations that actually exist within the text.

Dante's spiritual journey begins when the poet gets lost in a forest. Virgil, the Roman poet, acts as his guide in the first two realms while Beatrice guides him through Paradise. In the Dantean universe, the formation of Inferno is responsible for the creation of Purgatory: Lucifer's fall into the center of the world after his banishment from the heavens pushes a mass of earth upwards on the other side. The realm of Purgatory is essentially an island mountain surrounded by water, a place where souls destined for Heaven need to undergo purification. The top of Purgatory is Earthly Paradise; this point is closest to the celestial spheres, the place thought to be the Garden of Eden. Each of these realms is divided internally: Inferno comprises nine circles and contains the entire range of harsh and forbidding landscapes that can be seen on earth, only in an extreme form. Within its nine circles are rivers, woods, deserts, glaciers, castles, and cliffs. Purgatory is a rocky mountain with two initial terraces before the gate that leads to Purgatory proper. It consists of seven cornices and a beautiful forest on top, which was once the earthly Paradise, while Paradise itself is described as having nine spheres enveloping earth and dedicated to various celestial bodies such as the Moon, Mercury, Venus, the Sun, Mars, Jove, Saturn, the stars, and the *Primum Mobile*. Beyond this is the Empyrean, the final seat of God. Sinners are assigned to particular circles in Hell according to their crimes, broadly classified as incontinence, violence, and fraud. The division in Purgatory occurs according to the redemption of seven sins, while in Paradise, souls are located in a specific sphere according to their virtuous merits and beatitude. With this brief description of the topography, let us

3 In fact, Hugo Friedrich, in his overview of translation theories during Roman times, writes about Cicero discussing his own translation of Demosthenes giving significance to ideas and forms rather than word-for-word translation and Quintilian seeing translation as a contest with the original—so much so that Friedrich says that the goal in this period was to surpass the original, and in doing so, to consider the original as a source of inspiration for the creation of new expression in one's own language. Refer to Rainer Schulte and John Biguenet's translation of Hugo Friedrich, "On the Art of Translation" in *Theories of Translation: An Anthology of Essays from Dryden to Derrida* edited by Rainer Schulte and John Biguenet, (University of Chicago Press, 1992), 13.

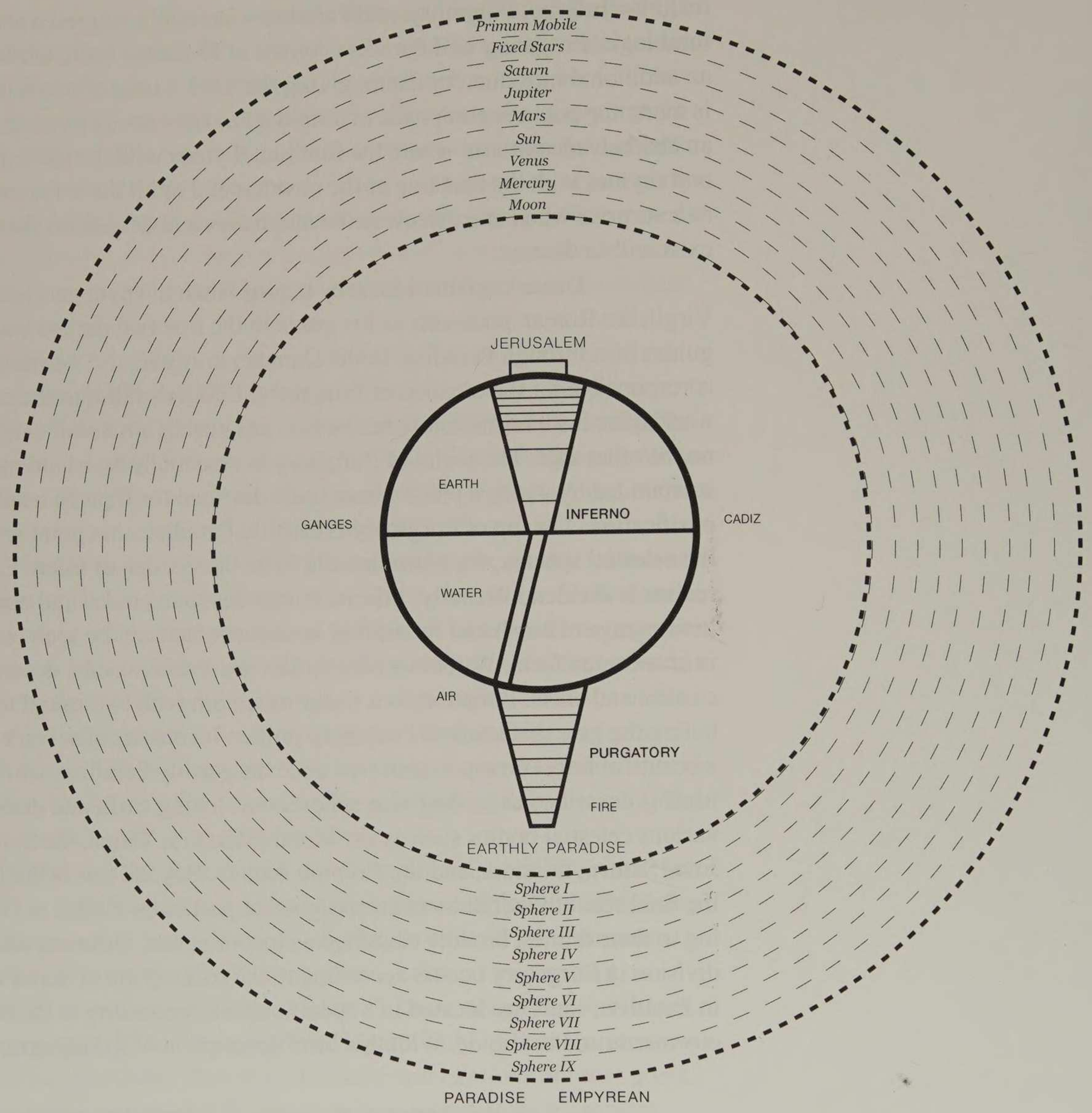
4 Lawrence Venuti discusses this when tracing the history of translation studies in the introductory section of *The Translation Studies Reader* edited by him (London: Routledge, 2000); this has also been discussed in the introduction of *Theories of Translation: An Anthology of Essays from Dryden to Derrida* ed. Rainer Schulte and John Biguenet (Chicago: University of Chicago Press, 1992).

5 Refer John Kleiner, *Mismapping the Underworld: Daring and Error in Dante's Divine Comedy*, (Stanford: Stanford University Press, 1994), 2.

6 John Kleiner, "Mismapping the Underworld," *Dante Studies, with the Annual Report of the Dante Society*, No. 107 (1989), 1–31.

7 Refer to Kleiner, *Mismapping the Underworld*, 23–56.

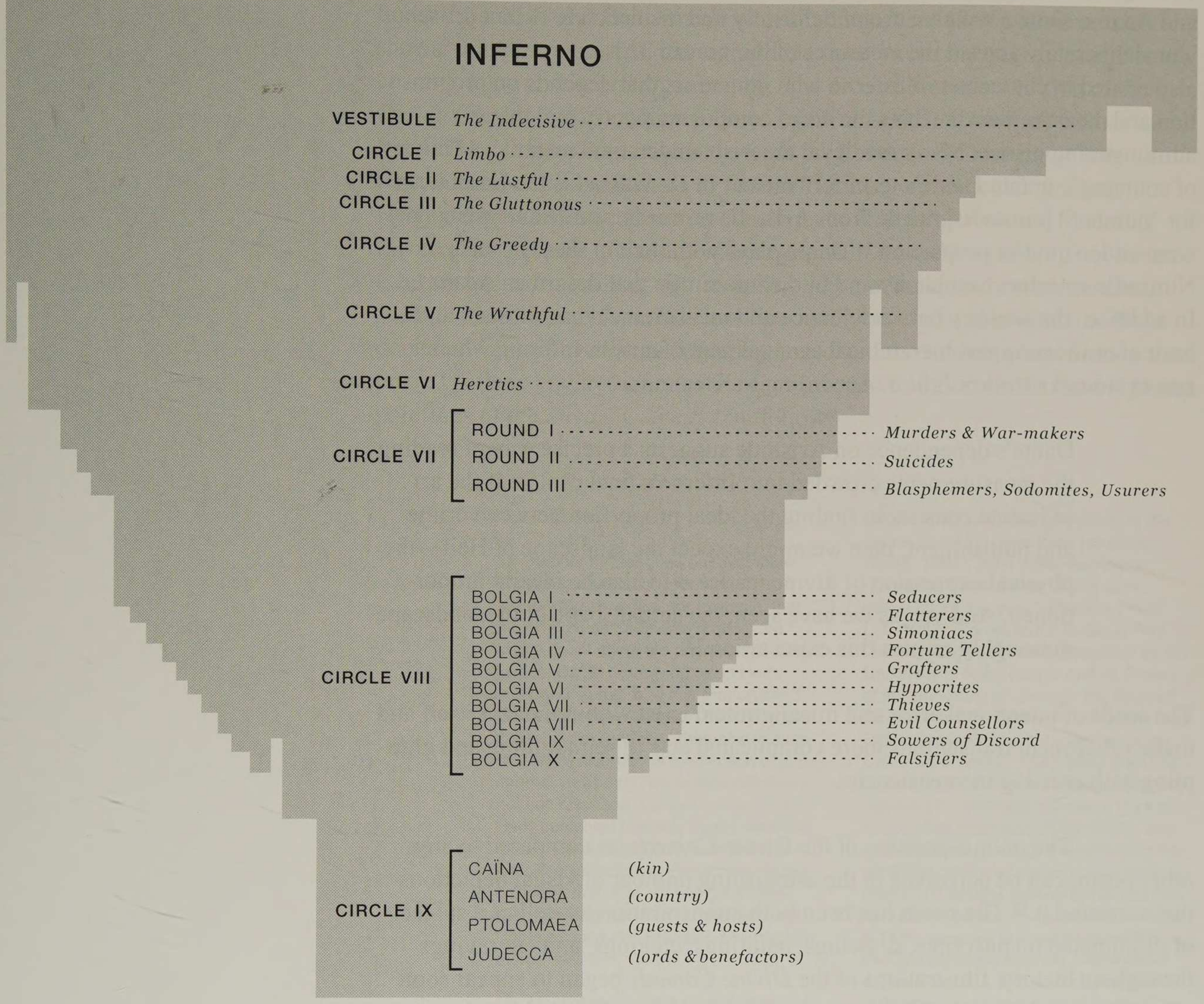
consider measurements that Dante provides in Inferno to examine the first degree of mismapping ***Figs.1a,1b***.



Figs.1a,1b *Schematic drawings of Inferno, Purgatory, and Paradise by the author*

The poem begins in a vague location in the dark woods. While the landscape itself is vividly described, its actual shape and size are difficult to visualize in their totality. After the reader has entered Inferno and reaches the final six cantos of this realm, there are at least eight measurements of the topography from which most other measurements have been extrapolated by commentators and cartographers (an important activity during the Renaissance that included prominent scientific figures such as Galileo). The ninth ditch of Malebolge is 22 miles in circumference, and the tenth is 11 miles in circumference and one-half mile in width. Scholars have inferred

the widths of other ditches based on this measurement, and finally the width of the entire eighth circle of Inferno.[8] More information on these topographic measurements is provided as one approaches the well of giants in the final ditch of Malebolge. This is achieved through the description of the height of Nimrod in the well of giants, and finally through Lucifer's measure in the last



circle. Strangely, the measures of Satan and the giants in comparison to the final circles of Inferno are full of contradictions and confusions when their actual sizes are taken into account.[9] Kleiner's analysis of Dante's measurements reveals "a terrain disordered by number and measure. Satan is too tall for the space allocated him, Nimrod's head is too big for his body, the little bridges of Malebolge are too long, and the deep pit at the center of the Malebolge too shallow."[10]

8 *Ibid.*, 23–56.

9 *Ibid.*, 44–47.

10 *Ibid.*, 47.

Taking a stand apart from the modern commentators such as Charles Singleton and Umberto Bosco who suggest that measurement is a mark of Inferno's realism, and from Renaissance commentators who consider the poet's use of number and proportion as reflective of God's handiwork, Kleiner suggests that Dante's erring measurements are deliberate and have theological and moral implications. For him, the portrayals of both Nimrod and Adamo show a creative use of deformity and distortion to depict artisans who deliberately abused the measures of their craft. This interpretation is also related to characters in Inferno who pursue art that depends on proportion and measurement, such as the art of composing poetry and the art of administering justice. Many medieval theorists understood meter as a "matter of counting"; in fact Dante's term for "meter" in *De vulgari* is the Latin term for "number" [*numerus*], while from Aristotle onwards, simile and metaphor were understood as proportion.[11] Dante plays with both of these aspects in Nimrod's senseless cacophony and in the lute simile that describes Adamo. In addition, the analogy between justice and measurement can be seen in the basic classification and hierarchical arrangement of sins in Inferno, which comes from Aristotle's *Ethics*. According to Kleiner,

> Dante's dependence on Aristotle suggests a precise way of reading the measurements crowded into Inferno's final cantos: if the art of justice consists in finding the ideal proportion between crime and punishment, then we might expect the landscape of Hell—the physical expression of divine justice—to also be ideally proportioned. And yet, as we have seen, the actual shape of the landscape thoroughly refutes this expectation.[12]

The seeds of intentional error and misalignment exist within the text itself and make subsequent translations more complicated acts of reimagining and grappling with existing inconsistencies.

The unique position of the *Divine Comedy*, as compared to any other poem, can be perceived in the astonishing number of visual depictions that surround it.[13] The poem has been both an inspiration as well as a subject of illuminated manuscripts, drawings, paintings, etchings, and engravings throughout history. Illustrations of the *Divine Comedy* began to appear soon after its dissemination, as early as ten to 15 years immediately following Dante's death in 1321. Botticelli, Blake, Flaxman, Doré, Dalí, Guttuso, and Lebrun have produced complete folios that illustrate more or less every canto of the poem. Why has this particular literary work evoked such a strong visual response? One answer is that it has a powerful narrative; another is the intense vividness of imagery that is apparent throughout the poem and especially the first realm, Inferno. Considering the strategic mismappings in the poem that Kleiner discusses, the more important question is what, if any, is the impact of the mismappings on the long tradition of drawings and paintings of the *Divine Comedy*?

Depictions of the geography of the *Divine Comedy* became especially prevalent in the Renaissance.[14] While Vasari writes about Brunelleschi's study of the poem's location and measurements, Antonio Manetti (1423–1497), a mathematician and architect from Florence, most thoroughly investigated Dante's conception of the cosmos, in particular the size, shape, and location of Inferno. This information was reported in editions of Landino and Benivieni,[15] which include a series of woodcuts that show the beginnings of an iconographical tradition in the treatment of Dante's cosmography and infernal geography. The second Manutius edition of the *Divine Comedy* (1515), which follows Landino and Benivieni, as well as the later 1595 edition of the *Divine Comedy* prepared by the Florentine linguistic academy, *Accademia della Crusca*, include a geometrical engraving of Hell's design and dimensions inspired by the Florentine Antonio Manetti's theories ***Fig. 2***. There are additional diagrams in this edition that do not have a cartographic dimension, but instead concern other classificatory schemes such as Pietro Bembo's moral classification.[16] Given the abundance of these depictions, how have the cartographers resolved the mismappings seen in the poem? Is there any influence of the cartographic tradition on the drawings and paintings of the *Divine Comedy* that follow?

11 *Ibid.*, 51.

12 Kleiner further goes on to attribute various interpretations for this: "One reader might suggest, for example, that the erring measurements register the poet's doubt about the adequacy of divine justice; Dante is showing us, in Hell's contorted shape, how mis-proportioned God's punishments are. A second, more conservative reader might prefer to interpret Hell's disorder as a reflection of purely infernal viewpoint; Hell seems deformed not because God is unjust but because He is perceived that way by the damned. A third reader might conclude that it is specifically Dante's pretensions to judge his fellow man that are being parodied. It is not God's Hell that is deformed, but Dante's counterfeit." Kleiner, *Mismapping the Underworld*, 53–54.

13 Most of the visual representations of the *Divine Comedy* by famous artists have been published and are also available on the web. Martin Birnbaum, "William Blake and Other Illustrators of Dante" in *Jacovleff and Other Artists*, (New York: Paul A. Struck, 1946) 65–96; Peter Brieger, Millard Meiss, Charles Singleton, *Illuminated Manuscripts of the Divine Comedy*, (Princeton, NJ: Princeton University Press, Bollingen Series LXXXI, 1969); Sandro Botticelli's drawings were commissioned by Lorenzo di Pierfrancesco de Medici in 1492 and are published with an introduction by Kenneth Clarke in *The Drawings by Sandro Botticelli for Dante's Divine Comedy*, (New York: Harper & Row Publishers and London: Thames & Hudson Ltd., 1976); Sir Geoffrey Keynes, *Drawings of William Blake*, (New York: Dover Publications, Inc., 1970); Milton Klonsky, *Blake's Dante: The Complete Illustrations to the Divine Comedy*, (New York: Harmony Books, 1980); John Pope-Hennessy, *A Sienese Codex of the Divine Comedy*, (Oxford & London: Phaidon Press Ltd., 1947); *Renaissance Dante in Print* (1472–1629) on WWW put together by the University of Notre Dame, ARFTL Project of the University of Chicago, the Denvers Program and the Newberry Library; ILTweb Digital Dante Project put together by the Columbia university has a good resource of the images linked to the Divine Comedy including the Botticelli collection, Doré collection, Dalí collection, illuminations, and contemporary paintings (www.ilt.columbia.edu/projects/dante/images); John Flaxman's 110 designs were engraved for him by Tommaso Piroli and published in Rome in 1793, reissued in England under the title *Compositions from the Divine Poem of Dante* in 1807, and partially republished in Charles Taylor and Patricia Finley's *Images of the Journey in Dante's Divine Comedy*, (New Haven: Yale University Press, 1997); Henry Fuseli drawings and oils were exhibited at the Royal Academy in 1786, 1806, and 1818. Some of these are also referred to in Taylor and Finley's *Images of the Journey*.

14 *Renaissance Dante in Print* (1472–1629) was put together by the University of Notre Dame, ARFTL Project of the University of Chicago, the Denvers Program and the Newberry Library.

15 The Benivieni edition is also referred to as the Giuntina edition.

16 This schematic diagram has been attributed to the Venetian humanist and editor of Dante's poem, Pietro Bembo.

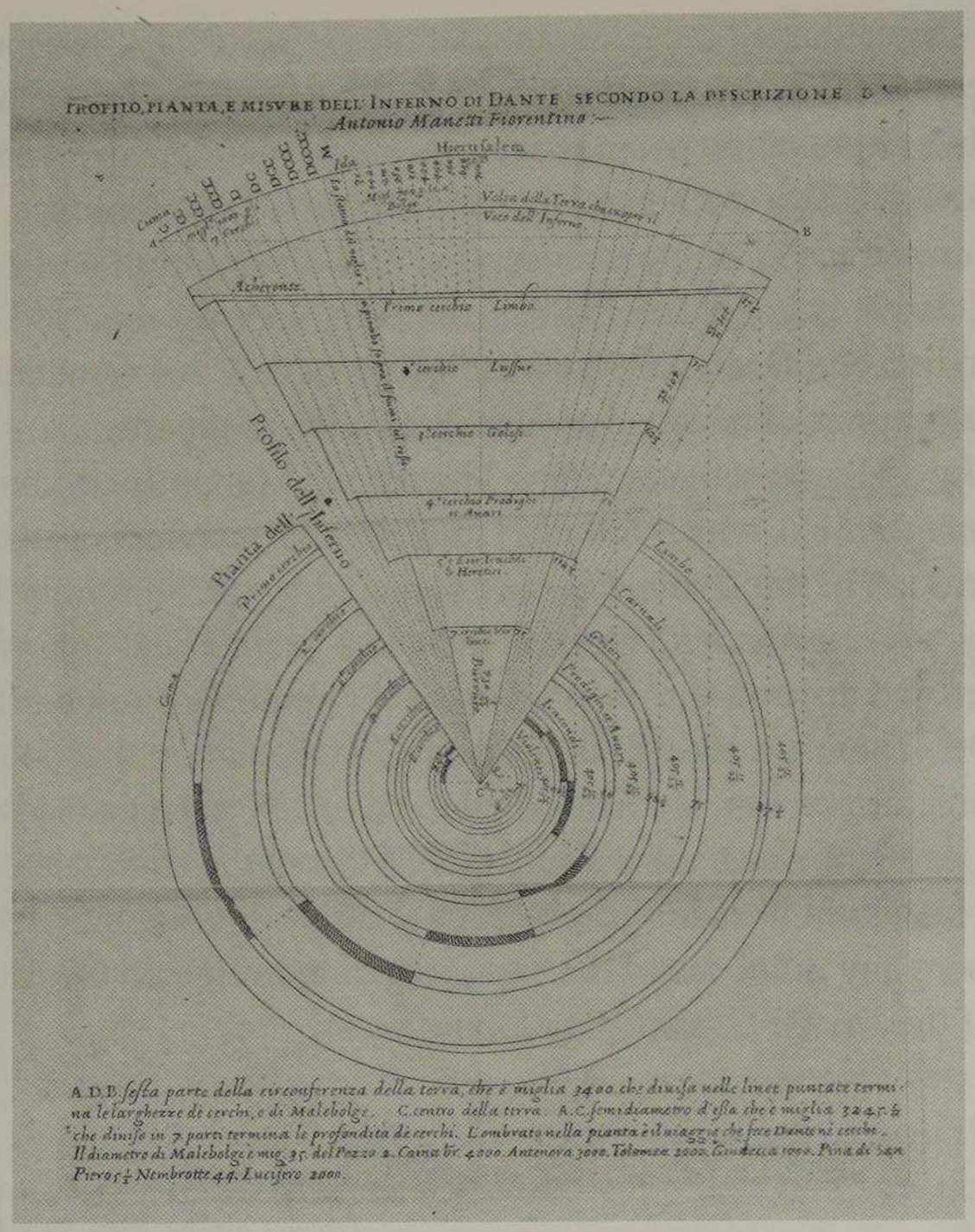


Fig.2 *Manzani edition showing measurements of Manetti's Inferno. Credit: Notre Dame*

One finds ample evidence of debates over the exact dimensions and size of Inferno: Alessandro Vellutello disagrees with Antonio Manetti's calculations, and there is even evidence that Galileo makes a counter-argument supporting Manetti's theories of Inferno based on Archimedes's principles of solid geometry.[17] Manetti's calculations informed the sectional diagram in the Manzani edition, which became an important precedent for many drawings that followed. While the specific problem of measurement was important to Dantean cartography, less technical drawings favored a synchronic view provided by the representational device of the section cut. For instance, many 15th-century codices and folios, including that of Botticelli, give emphasis to the overall topographical realm ***Fig.3***. Rather than trying to reconcile the dimensional measurements of Inferno, these folios introduce each realm in a topographical overview, giving the reader a synchronic view of the diachronic textual journey that follows. Illustrations from the 15th century are more panoramic in nature, and therefore represent topographical features more than specific characters and events. At the other end of this spectrum one also observes some drawings that depict all three realms, labeled to signify the particular sinners housed in Inferno, while in Paradise showing the planet that embodies each particular circle. These schemes are far from Dante's vivid descriptions—they represent an abstract view and give prominence to the underlying structure over the sensual imagery of the *Divine Comedy.*

On the whole, Botticelli's folio synchronically depicts the entire scheme of Inferno, Purgatory, and Paradise, while giving snapshots of the most

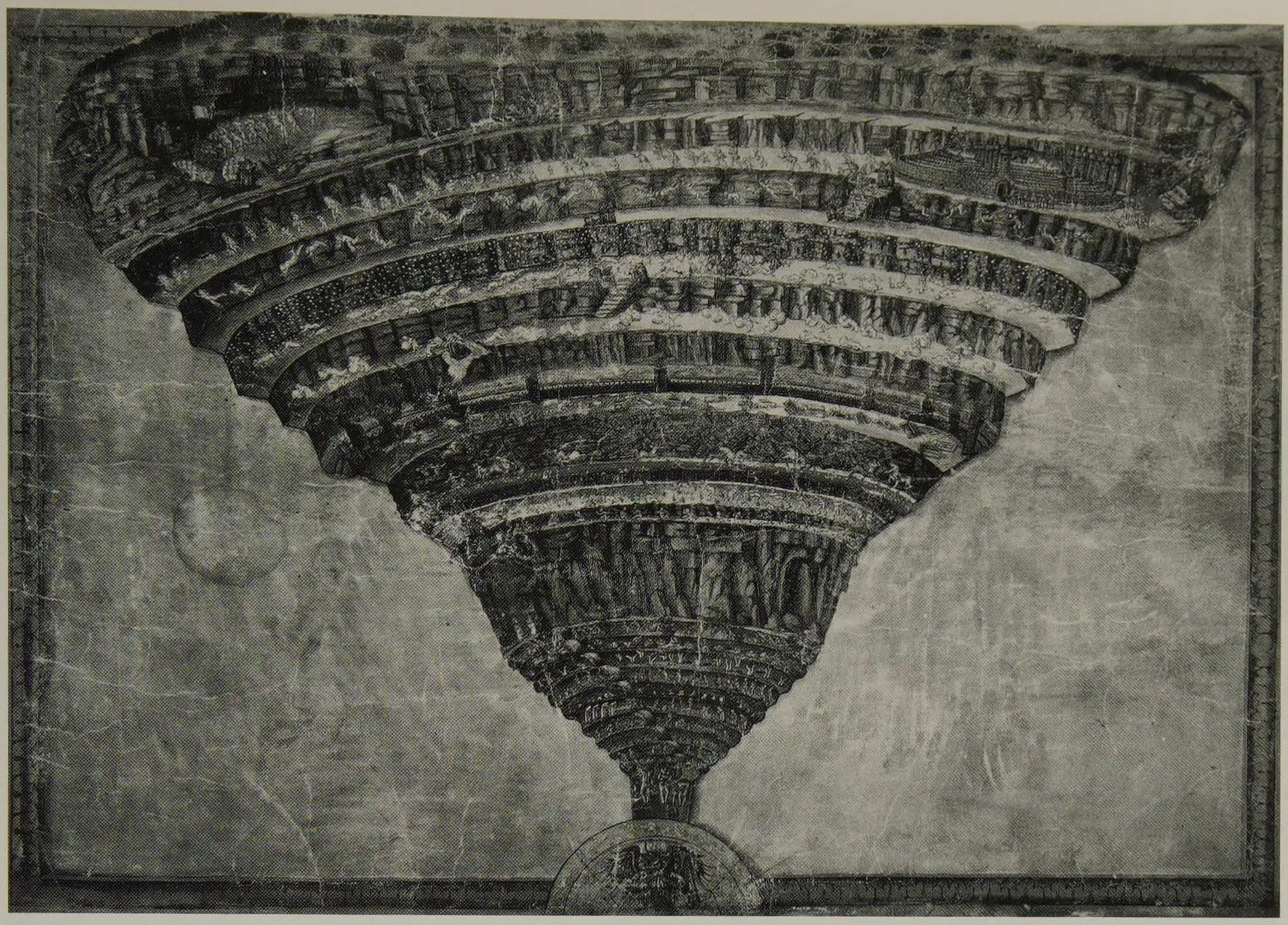


Fig.3 *Botticelli's section. Sandro Botticelli, Chart of Hell, ca. 1495. Reg. Lat. 1896, fol. 101v, Biblioteca Apostolica Vaticana. Credit: Biblioteca Vaticana*

intricate depiction of the events within these realms. Others, such as Pietro da Fino's 1568 Venice engravings, which trace the journey in much the same manner as Botticelli's, reveal that the function of these drawings is to turn the events with their vivid imagery into a discourse. In doing so, they bring the scaffolding that takes the form of proportion, rhythm, and scale to the forefront, and give a sense of continuity to each of the discontinuous incidents. The 1544 Venice Marcolini prints of Alessandro Vellutello's drawings also oscillate between the abstract, geometrical depictions that map the infernal cartography, and other representations that focus only on character and event ***Figs.4a,4b***. The ten engravings of each circle of Inferno have the diameter and depth in miles at the bottom. These engravings focus on one ring at a time in an abstract manner, but also depict the punishment within each one. Here there is an effort to keep the balance between the overview and the specific events without

17 Galileo Galilei in *Due lezioni all'Accademia Fiorentina circa la figura, sito e grandezza dell'Inferno di Dante* says: "Coming then to an explanation of Manetti's opinion, and first of all as far as the shape is concerned, I say that this is the form of a concave surface called conic, the peak of which is at the center of the world, with the base towards the surface of the earth. But then, let us abbreviate and simplify the reasoning. Linking shape, position, and size, let us imagine a straight line stretching from the center of the earth (which is still the center of gravity and of the universe) as far as Jerusalem, and an arc which extends from Jerusalem above the surface of the water and earth for a twelfth of its major circumference. Such an arc will terminate with one of its extremeties in Jerusalem. If, from the other end, another straight line were to be drawn as far as the center of the world, we would have the sector of a circle, contained by the two lines coming from the center and from the said arc. Let us then imagine that, the line joining Jerusalem and the center being immobile, the arc and the other line are set in motion, and that with such a movement it slices the earth, and keeps moving until it returns to its starting point. A part similar to a cone would be cut out of the earth, and if we imagine this to be removed, there would be left, in its place, a hole in the form of a cone; and this is Hell."

Figs.4a,4b *Alessandro Vellutello, engravings from* La Comedia di Dante Alighieri con la nova esposizione *(1544). Credit: Notre Dame*

giving exclusive focus to either. This, in turn, helps the Vellutello prints serve as snapshots of particular circles with their sinners, although nowhere in Vellutello can one see the complete structure as a cross-section through the entire Infernal realm. Here, mapping the classificatory system is more significant, and the link between a particular section and a particular sin shows the importance in establishing the relation between the entire realm synchronically and the mnemonic landscape of experience through a series of sectional cuts across the Infernal cone. All of the discussions on Infernal cartography and its dimensional issues ultimately give rise to a specific representational device—the sectional cut—whether through the entire realm, as in Botticelli, or in individual circles, as in Vellutello. The sectional cut as a device giving a synchronic overview is unique to drawing and can thus be seen as a foray into the autonomy of that medium of expression.

Most of the illustrations that deal with the entire structure of Inferno depict a sectional drawing that shows the view of a situated and ubiquitous subject. However, most of the contemporary editions of the *Divine Comedy* that have accompanying sectional drawings of Inferno are diagrammatic at one end and painterly at the other: they do not give any specifics of distance or dimensions, nor for that matter an inkling of the mismappings Kleiner discusses. Almost all paintings of the *Divine Comedy* seem to deliberately overlook the inconsistencies and give greater significance to the realism of the infernal topography, and the sectional paintings emphasize the overview rather than the dimensional problems. None of the paintings suggest the restricted context in the final two circles of Inferno; in fact, many of them, such as Gustave Doré's drawing of Cocytus, give an opposite sense—that of vastness ***Fig.5***. These sectional paintings seem to suggest that artists were not focusing on the precise measurement of the realms. And, while the inconsistencies in measurements

Fig.5 *Gustave Doré's Cocytus.* Traitors to Kin, *Inf. 32, 1868. From Dante Alighieri,* L'Enfer de Dante Alighieri, avec les dessins de Gustave Doré, *vol.1, Paris, 1968, page size ca. 31x43 cm*

would have had an impact in the precise drafting of each realm, they have little bearing on description of events and atmosphere within individual circles, which is the focus of many paintings and etchings. Even in the sectional drawings, which show a cut through the entire realm, the cartographic dimension that focuses on precise measurements is diminished, underscoring the overview to emphasize the painterly attributes inherent in the medium.

After the 17th century, visual depictions of the *Divine Comedy* shift from an emphasis on the topographical landscape and the classificatory system of sins to an emphasis on characters, events, and the body. William Blake's paintings for the *Divine Comedy*, such as the Simoniacs, are a case in point. Here, one sees the center of the painting occupied by an upside-down body whose feet are on fire in a blazing well, above which are the two observers. The suffering body takes up the majority of the frame, with hardly any landscape around it ***Fig.6***. The same attitude can also be observed in more modern representations. Take, for example, Dalí's watercolors showing Charon carrying the souls on the River Acheron, and the appearance of Dis in Inferno; or "The Fallen Angel," "The Heaven of Mercury," and "The Preparation for the Final Prayer," inspired by scenes in Purgatory; or indeed his drawings of Paradise—they all depict the body rather than the landscapeor environment ***Fig.7***.[18] This

Fig.6 *William Blake (1757-1827), The Simoniac Pope from Illustrations to Dante's Divine Comedy (Inferno 19), 1824-27, watercolor 52.7x36.8 cm, Tate Gallery. Credit: © Tate Gallery, London, 2013*

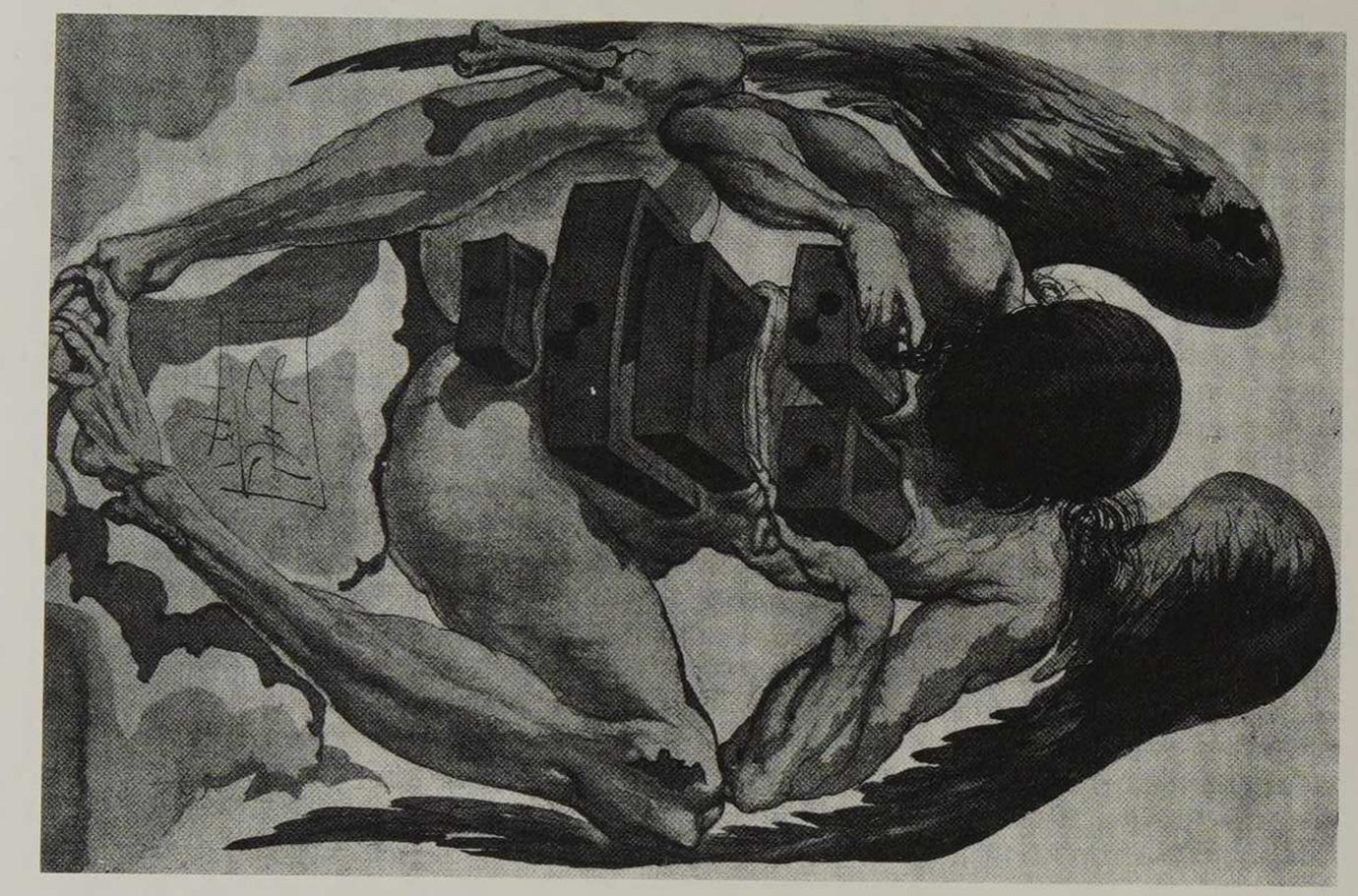


Fig.7 *Salvador Dalí,* The Fallen Angel (Le royaume des pénitents)*, 1951. Credit: © Salvador Dalí, Fundació Gala-Salvador Dalí, Artists Rights Society (ARS), New York 2012*

attitude stands in contrast to the 14th- and 15th-century illuminations where landscape was used as a mnemonic device, i.e., an aid to remember the particular sin and suffering classified in each circle of the Inferno. The emphasis in all of Dalí's watercolors is upon the transfiguration of the body rather than the landscape. The drawings of Inferno give prominence to the monumentality of the suffering body, almost like a sculpture on a stage set.[19] In canto I of Purgatory, "The Fallen Angel," the focus is on looking inward into oneself, which is represented by the empty drawers of the angel. Paradise canto XV, "Dante's Ecstasy," shows the underlying connection of the body with the divine, with light shooting out from the cross toward the angelic form. This shift from landscape to body reorients the question of the poem's internal inconsistencies from topographical measurements and landscape to bodies and events. As compared to illuminated manuscripts and Renaissance paintings of the *Divine Comedy*, these more modern paintings do not represent familiar states but seek to transform modes of perception that have typically become associated with the poem. These paintings are evidence of the fact that transformation need not be just about geometry and topography of the infernal realm. Mapping shifts from landscape, classificatory systems, and topography, so that the body eventually stands in to register the landscape and becomes a map of experience itself. The beauty of this translation is that there is a degree of autonomy to the work: these paintings point to the internal logic of the medium rather than to the literal equivalence between the original and the translation.

When compared with earlier epic tales of journeys through the underworld such as the *Odyssey* and the *Aeneid*, Dante's poem is unique in its spatialization of the three realms and in the explicit and all-encompassing distinction given to the poet as a subject.[20] In two-dimensional visual representations, as discussed above, the oscillation between depictions of settings

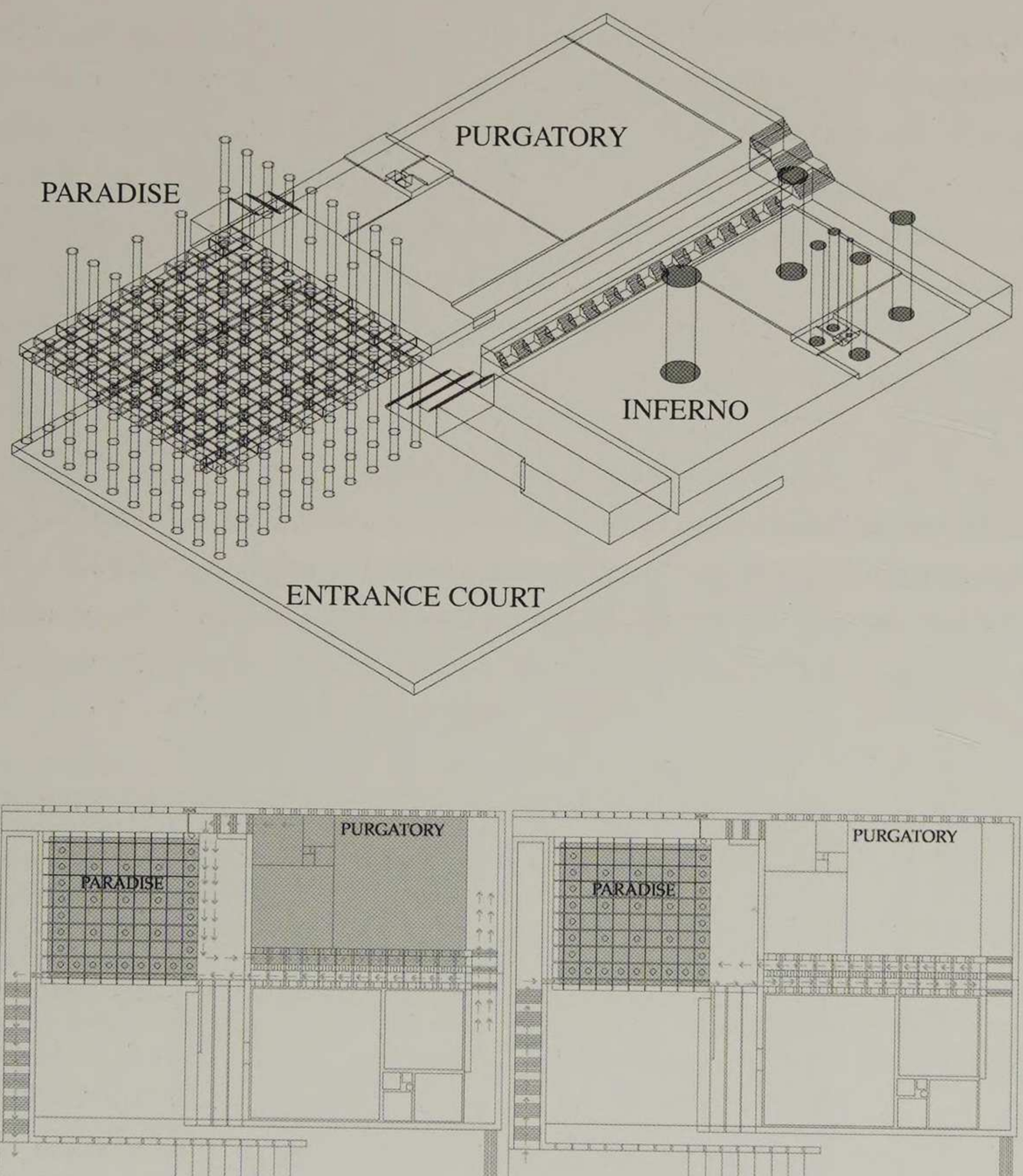
18 Dalí, who was intrigued by Dante since his youth, later said that what fascinated him most about Dante was "his angelic vision of being," and "the cosmic side of God, incomprehensible for man, and reflected in the mirror of the face of the angel." In 1951, the Italian government, in preparation for the 700th anniversary of Dante's birth (b.1265), commissioned Dalí to produce illustrations for a new edition of the *Divine Comedy*. Unfortunately, there was immediate opposition from two fronts: from the "patriots," who objected to the commission going to a Spaniard, and from the communists, who objected to the "waste" of the people's money. Finally, the Italian government yielded to the opposition and cancelled Dalí's commission. Dalí decided, nonetheless, to continue on with the production of the *Divine Comedy* illustrations. After the Italian Government cancelled its commission with Dalí, a Frenchman, one Joseph Forêt, who had earlier published an original lithographic series by Dalí (*Pages Choisies de Don Quichotte de la Mancha*, in 1957), decided to publish Dali's *Divine Comedy*. In April 1959, wood engravers (R. Jacquet and J. Taricco) were hired by M.Forêt, to begin the process of transmogrifying Dalí's watercolor illustrations into wood blocks. This process would continue until November 1963, and would result in 3,500 engraved wood blocks representing the one hundred illustrations. (The reason for so many blocks is that each block represents either a distinct color or a line drawing.) The completed entire edition was to be composed of six separate volumes, two volumes for each of the three cantica: *L'Enfer* (Inferno); *La Purgatoir* (Purgatory), and *La Paradis* (Paradise), with Dante's Italian text translated into French (translation by Julien Brizeuxe). The first of the completed cantica, *L'Enfer*, was published in Paris in 1960 by Editiones d'Art Les Heures Claires (Mr. Forêt's company), in two volumes, containing a total of thirty-four woodblock prints. In 1962, the second cantica, *Le Purgatoire*, also in two volumes, and with thirty-three prints, was released. And lastly, on 23 November 1963, the final cantica, *Le Paradis* was issued; it too contains thirty-three prints.

19 Here I am referring to Inferno illustrations of canto 4, 5, 7, 11, 15, 21, 22, 26, 28, 29.

20 Octavio Paz, *The Other Voice: Essays on Modern Poetry*, (New York: Harcourt Brace Jovanovich, 1990), 10–11.

and depictions of the transfigured body shows how the same work is both an act of description of previously vague mythological geographies and an act of self-discovery through them. This poetic map becomes a medium through which emotions are expressed. I argue that the Danteum—the singular architectural representation of the *Divine Comedy*—succeeds in capturing these dual aspects of the poem. Like all architectural works, the Danteum provides a structure for experience. This is true even though the work itself was never built, since one can project what constitutes an embodied architectural experience through other means of representation. What the design speaks most strongly of is the condition of the body. This is something implicitly present throughout the *Divine Comedy* and at times explicitly discussed in relation to the poet's living body in contrast to the bodies, or lack thereof, of the dead

Figs.8a,8b 21



Alternative path
(plan showing upper level)

Actual path taken by visitors

Figs.8a,8b *Danteum project (Giuseppe Terragni and Pietro Lingeri, 1938). Axonometric drawing and plans by the author*

Designed by Giuseppe Terragni and Pietro Lingeri in 1938, the Danteum is a rare architectural work documented not only in drawings but also in a written document, *Relazione sul Danteum*,[22] wherein Terragni describes his design decisions in relation to specific aspects of the poem. This document is comparable to Dante's *Epistle to Can Grande della Scala*,[23] in which Dante not only dedicates "Paradiso" to Lord Can Grande but also leads his readers through an explanation of this work. As a monument dedicated to Dante, the Danteum is less like a statue—the typical mode of representation that reconstitutes presence—and more a tomb, which monumentalizes absence. Its drawings reveal a deceptively simple, box-like building whose plan is organized in four parts: first, an entrance court open to the sky; adjacent to it, an area with a dense regular grid of 100 travertine columns; on one side of these spaces, two rooms that step up in section, intended as representations of Inferno, with seven travertine columns that range in thickness and hold each square of the roof, and Purgatory, with cut-outs open to the sky; and on the second floor, Paradise represented by a grid of 33 glass columns.

At the outset, the translation of the *Divine Comedy* to the Danteum project raises a host of questions. First, why does the building not have a circular geometry, which would be the most direct adherence to the *Divine Comedy*? Why are there only seven columns and eight platforms in Inferno when the poem has nine circles in that realm? The seven columns in the hall of Inferno do not correspond to the nine main categories of sin that Dante uses to structure his narrative. The seven vacant podia in the hall of Purgatory correspond much better to the seven terraces described by Dante but leave out the four categories of sinners in the ante-purgatory. Why is one of the 33 columns sticking out in the otherwise symmetrical arrangement in Paradise? Why does the Empyrean on one side of Paradise stand in contrast to its spatialization in the poem? While Terragni makes a case for some of his design decisions in the *Relazione sul Danteum*, the text in fact reveals more about the deliberate errors in translation from the poem to the building ***Fig.9***.

Terragni's first design decision is to use the golden section rectangle as the fundamental organizing system for the project. This is an inherently autonomous choice rather than an operative device of translation, since as an organizing device it does not bear any obvious connection with the composition, structure, or any other aspect of the *Divine Comedy*—regardless of the dimensional inconsistencies of Dante's work, it is unquestionable that Inferno and Purgatory are conical forms. Terragni's first mismapping is in the form of the Danteum itself. In the *Relazione* document, Terragni explains his rejection of round forms: first because they would only enclose a modest area, and second because they preclude the assimilation of the project within

21 Aarati Kanekar, "From Building to Poem and Back: the Danteum as a Study in the Projection of Meaning Across Symbolic Forms," in *The Journal of Architecture*, Volume 10, April 2005, 146.

22 A large portion of this report is missing, although the remaining gives an idea of Terragni's architectural intentions. Excerpts were initially published by Bruno Zevi and Renato Pedio in *Omàggio a Terragni*. For the existing report with the additional parts that were published in 1986 by Giorgio Ciucci and Silvio Pasquerelli refer Schumacher's *The Danteum*, 127–149. The *Relazione* points referred to henceforward are from this publication.

23 There is immense controversy surrounding the issue of whether the *Epistle to Can Grande* was actually written by Dante himself. For details refer Barlow Lectures delivered at University College London on 17–18 March 1993 by Professor Robert Hollander of Princeton University.

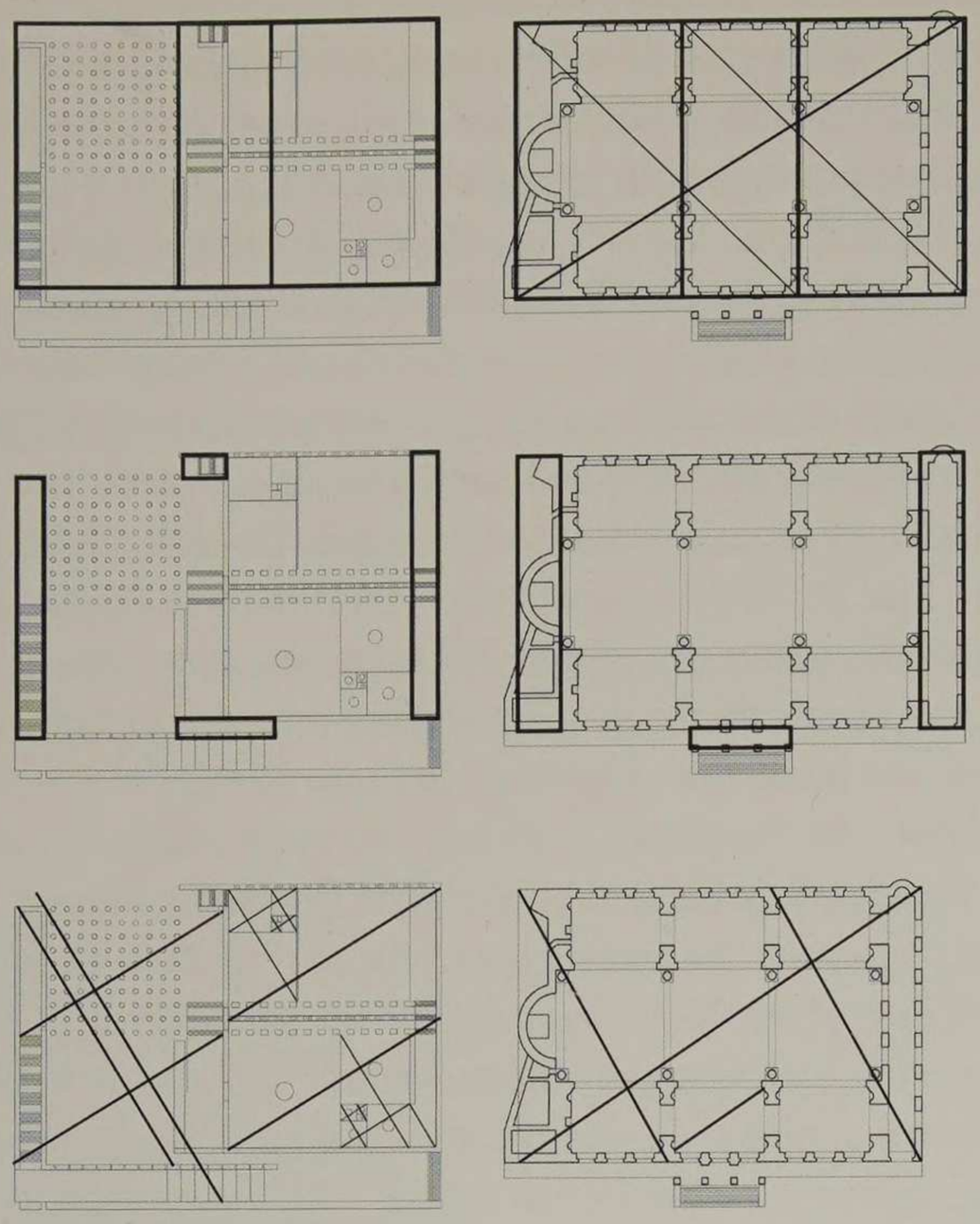


Fig.9 *Golden section rectangle proportioning in comparison with Basilica of Maxentius after Thomas Schumacher*

an urban context. The location of the Danteum on a site that was close to the elliptical Coliseum could have created a potential conflict. Moreover, its location opposite the Basilica of Maxentius no doubt played a significant role in Terragni's design decisions. The golden section proportions of the Basilica suited Terragni, who was keen to connect the Danteum to this building, which was a reminder of the unity of church and empire.[24] Moreover, this relationship enabled him to determine the dimensions of the Danteum; as he explains, "the long side of the Danteum was equal to the short side of the Basilica." Thus, more than the *Divine Comedy*, it was that the Basilica of Maxentius, as Schumacher's analysis has also demonstrated, that helped Terragni determine the overall form, proportioning system, dimension, and orientation of the Danteum.[25] What is more, the golden-section rectangle was already a part of Terragni's design repertoire long before the design of the Danteum. This is clear when one considers various tombs designed by Terragni, especially the Stecchini and Mambretti tombs (1931 and 1936–38) ***Fig.10***. Just as the Basilica is the contextual precedent that sets the stage and impacts the design of the Danteum, the tombs reveal a consistent a design language that clearly did not originate in the specific aspects of the *Divine Comedy* that were translated in the Danteum project. Both of these relationships question the notion of "equivalence" or "fidelity" to the original and uphold the autonomy of the architect's unique craft, since the factors informing the choice of the golden section rectangle—contextual urban conditions, dimensional problems that have to do with the area the building would enclose if circular, and the architect's own proclivity to the use of the golden section rectangle—are specific to the medium of architecture.

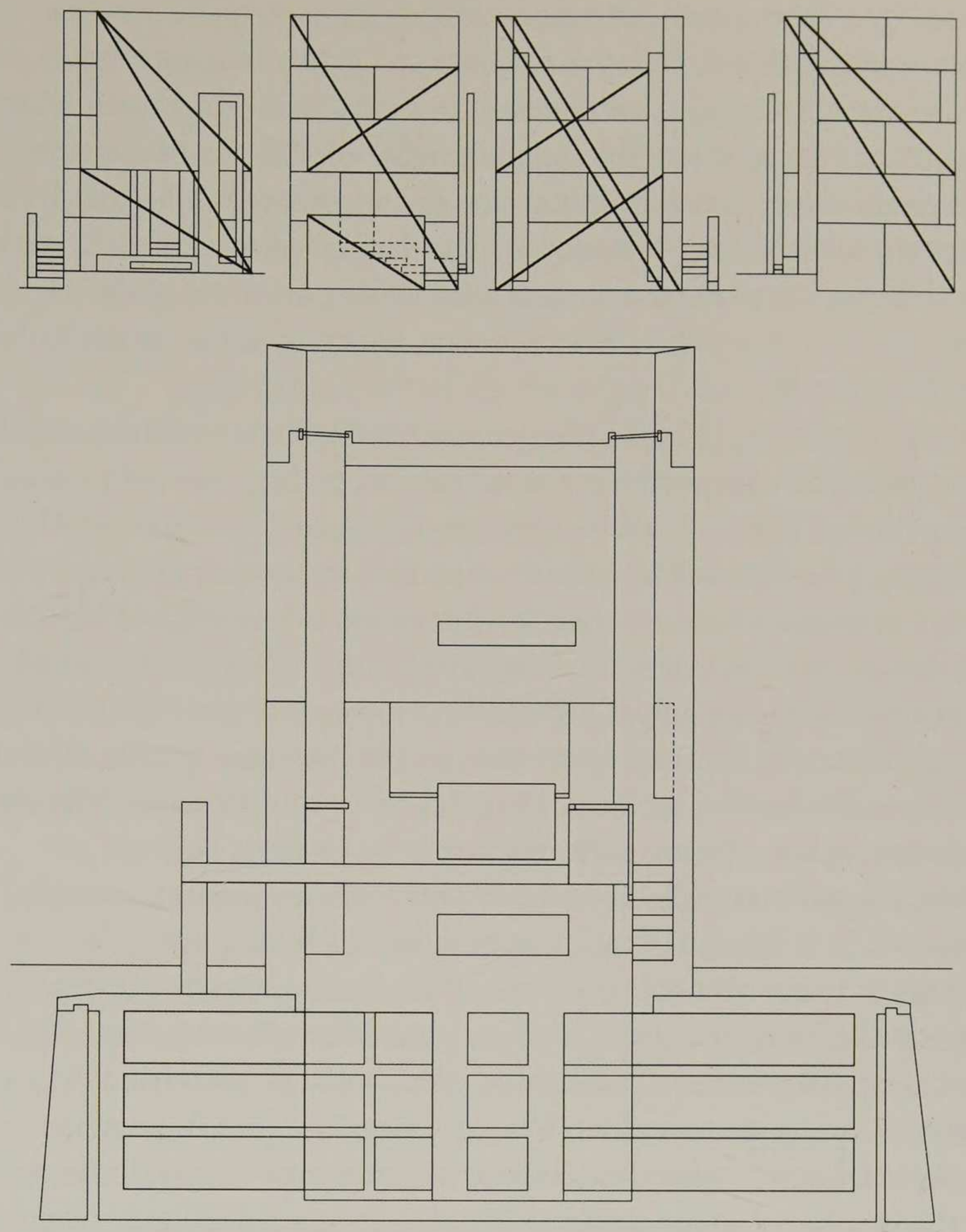


Fig.10 *Mambretti Tomb, Fino Mornasco (Giuseppe Terragni, 1938), elevations and transverse section*

Besides the urban context of the Danteum, symbolic ideas also played an important role in the choice of the golden section rectangle as a proportioning and organizing device. Schumacher explains that Terragni interpreted both the circle and the rectangle as abstract constructions that embodied symbolic attributes. Dante himself addresses the issue of the impossibility of squaring the circle in Paradise as allegorical of the inability of man (traditionally symbolized by a square) to come to terms with God (represented by a circle). In architecture, this notion has historically manifested itself through the rectangular versus the circular temple—the nave versus the apse. In the Danteum this idea can be observed in the recursive way the golden section rectangle is broken into smaller golden rectangles and squares, with each

24 According to Etlin the Basilica was one of the largest extant Roman Imperial buildings that was nearly complete when the Emperor was killed in battle in 312. It was then dedicated by the Senate to the victorious Constantine whose statue was also erected in the apse of the Basilica. The significant symbolic aspect here is that Constantine had seen the vision of the Cross when he conquered Rome and the combination of all these aspects made the Basilica a particularly important symbol for the Fascists. Refer Richard Etlin, *Modernism in Italian Architecture, 1890–1940* (Cambridge, Mass.: MIT Press, 1991), 549.

25 The numerical law of one and three that he perceived in the *Divine Comedy* was integrated by the "superimpos[ition of] two rules, one geometric, the other numerical…to achieve equilibrium and logic in the selection of dimensions, spaces, heights, and thickness' for the purpose of establishing a plastic [arti]fact of absolute values, spiritually chained to Dantesque compositional criteria." Refer *Relazione sul Danteum*, point 8.

square anchored by a central circular column. These forms, in turn, produce a spiraling movement within the recursive square and golden section rectangle geometry. The circular columns are used in a very interesting manner: in Inferno they create the spiral motif, and in Paradise they create the square. It is in the pattern of movement within Inferno and Purgatory that the spiral becomes enacted and embodied. Therefore, while the golden section rectangle is certainly a mismapping of the structure of the *Divine Comedy*, it shifts the focus from the formal to the embodied experience, which is central to the medium of architecture.[26]

In the Danteum, Terragni also aims to establish a correlation between form, proportion, geometry, and number—a preoccupation of architects since ancient times.[27] That numbers were invested with symbolic meaning throughout the *Divine Comedy* is particularly apparent in Terragni's statement in the *Relazione* document that "architectural monument and literary work can adhere to a singular scheme without losing, in this union, any of each work's essential qualities only if both possess a structure and a harmonic rule that can allow them to confront each other, so that they may then be read in a geometric or mathematical relation of parallelism or subordination."[28] This statement indicates which aspects of the original work Terragni believes are important and chooses to translate in the built work. He then points to certain numbers (such as 1, 3, 7, 10) and to their combinations as having symbolic values since ancient times. While Dante imbued specific numbers with symbolic attributes in the *Divine Comedy*, Terragni's use of numbers operates at various levels. He gives greatest significance to the compositional structuring of the poem, using the three realms (Inferno, Purgatory, and Paradise) to organize his basic schematic diagram. The one hundred cantos that constitute the poem are then reflected in the choice of having one hundred columns that the visitor would encounter prior to entering the three realms. Finally, the 33 cantos that form the Paradise section are also present in the form of columns in the corresponding area of the building. Besides compositional ideas, Terragni also justifies numerical relationships to proportioning systems: for instance, he explains that his choice of the golden section rectangle is directly linked to numerical symbolism of one and three. In point 6 of the *Relazione* document he writes: "There is only one rectangle that clearly expresses the harmonic law of unity in the Trinity, and this is the rectangle known historically as the 'golden'; the rectangle, that is, whose sides are in the golden ratio (the short side is to the long side as the long side is to the sum of the two sides). One is the rectangle, three are the segments that determine the golden ratio." This justification of one and three can be interpreted in various ways. One possibility is that in the construction of the golden section ratio, the first segment is divided in two parts, and from this midpoint an arc is drawn with radius equal to the diagonal of a rectangle with sides 1 and .5 in turn creating the golden ratio. Nevertheless, it is clear that Terragni has made the choice of form first, and has then used numerical symbolism to rationalize this design decision.

The application of one and three can be observed throughout the Danteum and is further justified by what Terragni calls the "symmetrical"

division of the poem, wherein three canticles, each containing 33 cantos with an extra canto in the first, results in a total of one hundred, the symbol of perfection (a square of ten which can also be interpreted as (3×3)+1). A similar rule is employed in the marble coursing of the building, where there are three courses of equal height and one string course that corresponds to the level of each of the three rooms. Rather than a literal representation of the landscape of the Comedy, the Danteum seeks to underscore the linguistic structure through which Dante communicated.

In his explanation of the divisions within each of the spaces in the Danteum, Terragni emphasizes the ideological significance in the choice of certain numbers, such as the number seven. The spaces dedicated to the Inferno and Purgatory both have seven recursive divisions. This, in reality, does not coincide with Dante's classification of either of these spaces. Dante's Inferno has nine circles plus the vestibule, and his Purgatory has seven ledges plus two terraces and Earthly Paradise. Nevertheless, Terragni justifies his choice of seven divisions for both Inferno and Purgatory by suggesting that each is punished in Inferno for the faults provoked by the seven sins, and that Dante has extended this notion further into what he calls "some finer-grained subdivisions."[29]

Terragni's implementation of the golden section rectangle's recursive logic means that within the Inferno area of the building, each square has a column in the center and, as we move toward the center of the spiral, two important things happen: one, it is not the geometric center of the realm, and second, after the seventh square it would be almost impossible to navigate this space bodily. It would seem that the choice of seven iterations of the spiral was not only a matter of numerical symbolism but also of practicality (for instance, it would have been impossible for Terragni to continue the spiral to ten squares). Architecturally, this coincides with the cartographer's dilemma of the mapping of Inferno and Kleiner's discussion of the mismapping in the lower circles. If one assumes that Terragni could have started from the smallest possible area and gone up in scale in order to accommodate the ten divisions, it would then point to the possibility that Terragni could have been aware of the cartographer's dilemma and chosen to deliberately emphasize the dimensional error present in the *Divine Comedy*.

While the Danteum adheres closely to the structure of the poem, it cannot hold linguistic content that relates to the specific characters whom Dante encounters. And while one would expect that it would tie more closely to the rich descriptions of the landscape, one finds that even here there is a dilemma. The horrific nature of Inferno—with its rivers of blood and the forest of harpies—that was often the painter's delight becomes the architect's nightmare. Unlike the illustrators, Terragni draws closer to the structural logic of the poem and the abstracted logic of the landscape to conjure bodily experience in a way that only an architect can.

26 Aarati Kanekar, "From Building to poem and back: the Danteum as a study in the projection of meaning across symbolic form," in *The Journal of Architecture*, Volume 10, April 2005, 135–159.

27 Refer *Relazione Sul Danteum* in Schumache, *The Danteum*, 127–149.

28 Refer point 5 of *Relazione sul Danteum*.

29 This, in addition to the symbolic attributes of the number seven, which historically stands for completeness, a combination of spiritual or the soul (3) and the worldly or the body (4), a number linked to creation—the Sabbath, the day of rest after creation—seven days of the week, seven ages of the world, seven sins, among others.

In translating the *Comedy* into architecture, Terragni brilliantly exposes one of its inherent characteristics as a medium: embodiment. Throughout the *Comedy*, Dante stresses the contrast between his own living body and the souls of the dead, some of whom long for their living bodies while suffering.[30] In Inferno, bodies are classified in a discontinuous landscape, as if to create a map of both sin and punishment. The map is stable because those suffering are placed at one position and under one punishment for all time. In Purgatory, the bodies are indirectly referenced by their shadow or its absence.[31] In Paradise, space is only differentiated according to the intensity of light and the presence of bodies, however dematerialized.[32] Thus, the body forms the map in Paradise, while the map situates the body in Inferno. A continuing tension ensues between the story that is narrated and the spaces that are described. In the Danteum, the manner in which columns stand as figures and as devices that organize space resonates with this tension. As figures, they are part of a narrative—the physical conditions they exemplify metaphorically express feelings. At the same time, they create space and situate subjects within distinct settings.[33]

Moving from text to drawing and painting and finally to architecture, there are three degrees of deliberate mismappings. First, we can understand the contradictory references to measurements within the poem as strategic mis-measurements, the spirit of which exemplifies the poet's playfulness. As Kleiner describes, error here is "less a solution to a poetic problem than [an] imaginative exploration of the problems that Dante invents for himself."[34] If we accept Kleiner's analysis, these are carefully and quite deliberately chosen inconsistencies central to the poetic imagination. The second mismapping is linked to the issue of translation, apparent when the *Divine Comedy* is manifested in a two-dimensional visual form. The cartographic drawings of the section through Inferno provoke questions of the actual size of earth, land, water, and the heavens. In drawings and paintings, these inconsistencies are either suppressed in favor of synchronic overviews or neglected entirely in favor of a focus on atmosphere, event, or characters. Finally, the third mismapping occurs in the architectural translation, which brings into focus inconsistencies of both formal and numerical structure.

It is clear from tracing these translations across media that each of these inconsistencies is strategic in nature, an exploratory foray into the autonomy of the medium and in fact a creative detour made possible by the medium of expression itself—much like the deliberate errors Dante committed as an expression of his poetic imagination. There is really no such thing as "error," but only the dictates of a particular medium and the possibilities it presents to the creator. And, while a certain level of equivalence undoubtedly underlies any translation, we can venture that when it comes to translations from one medium to another, there is no such thing as a one-to-one correspondence. In fact, to strive for a literal translation, aiming only for complete equivalence and fidelity to the original, would be the greatest error of all. Jakobson's intersemiotic translations or transmutations seem particularly appropriate in this case. As we have seen, the mismappings that occur in

translations from language to image to architectural design are actually the ones that contribute most to the richness of the work and add a new dimension of meaning. This is where creative license comes into play; these are Borges' "infidelities" and Benjamin's "afterlife," essential triggers for giving the work its autonomy. In doing so, they bring into focus aspects that were implicit in the original work and resurrect the original in new and unexpected ways.

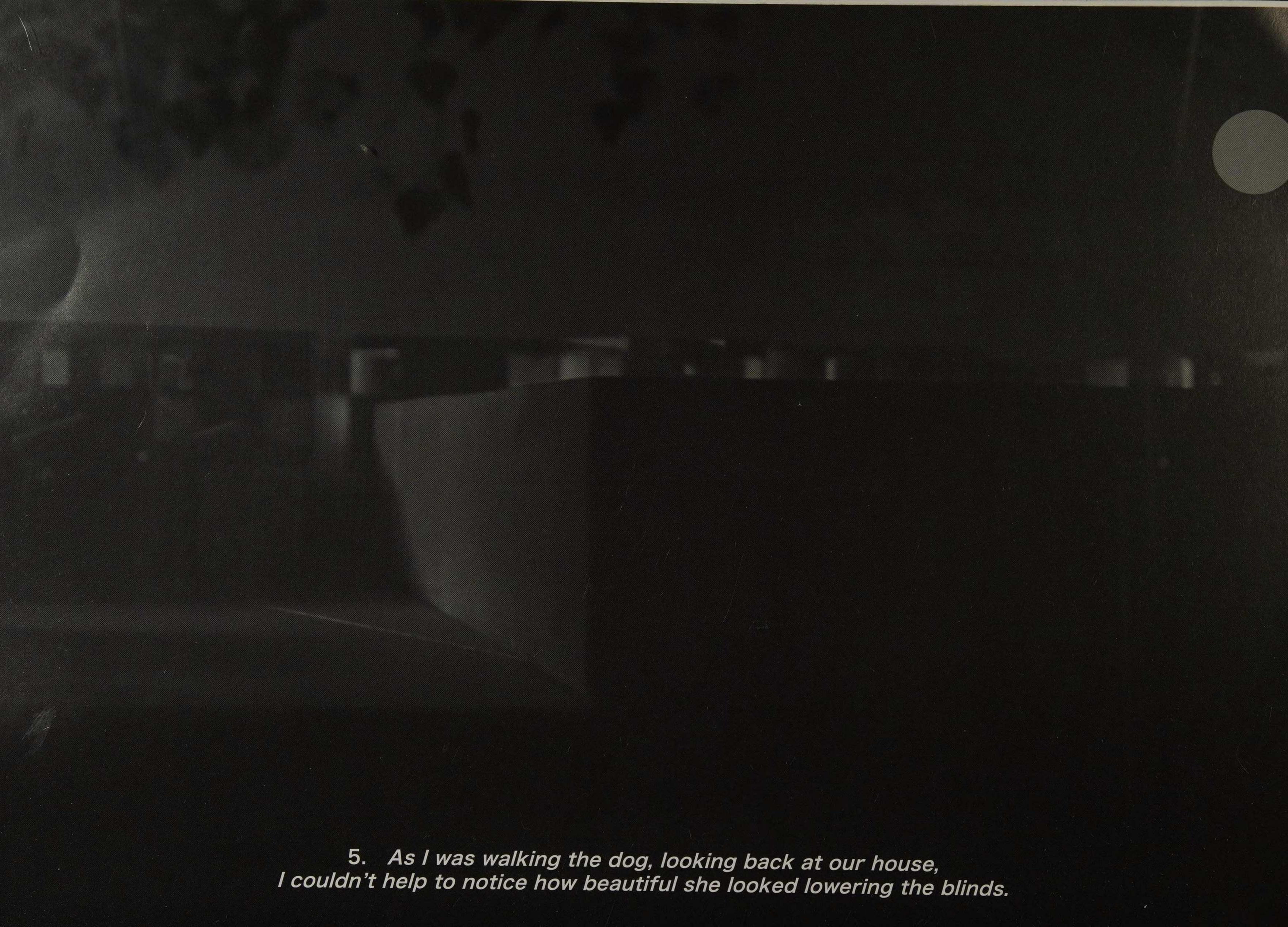
30 "Have you noticed how he who walks behind moves what he touches? Dead souls are not accustomed to doing that." (Inferno XII)

31 "The souls who, noticing my breathing, sensed that I was still a living being, then, out of astonishment turned pale...I saw one of those spirits moving forward in order to embrace me—his affection so great that I was moved to mime his welcome. O shade—in all except appearance empty! Three times I clasped my hands behind him and as often brought them back against my chest." (Purgatory II)

32 "...yet even as coal engenders flame, but with intensity glow outshines it, so that in the flame the coal persists...so will the brightness that envelops us be then surpassed in visibility by reborn flesh.... One and the other choir seemed to me so quick and keen to say 'Amen' that they showed clearly how they longed for their dead bodies—not only for themselves, perhaps but for their mothers, fathers, and for others dear to them before they were eternal flames." (Paradise)

33 Aarati Kanekar, "From Building to poem and back," *The Journal of Architecture*, 151

34 Kleiner, "Mismapping the Underworld," *Dante Studies*, 21.

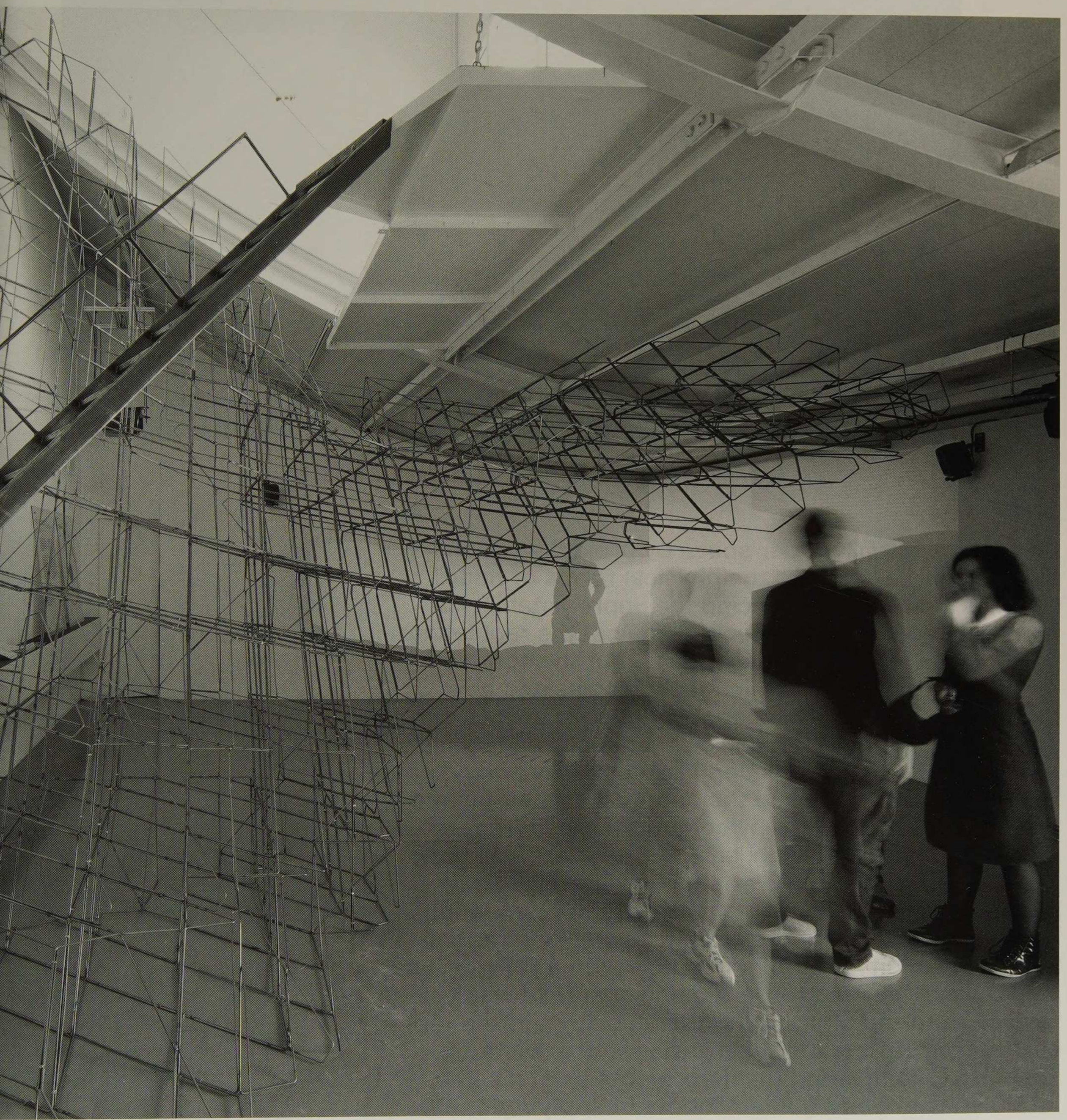


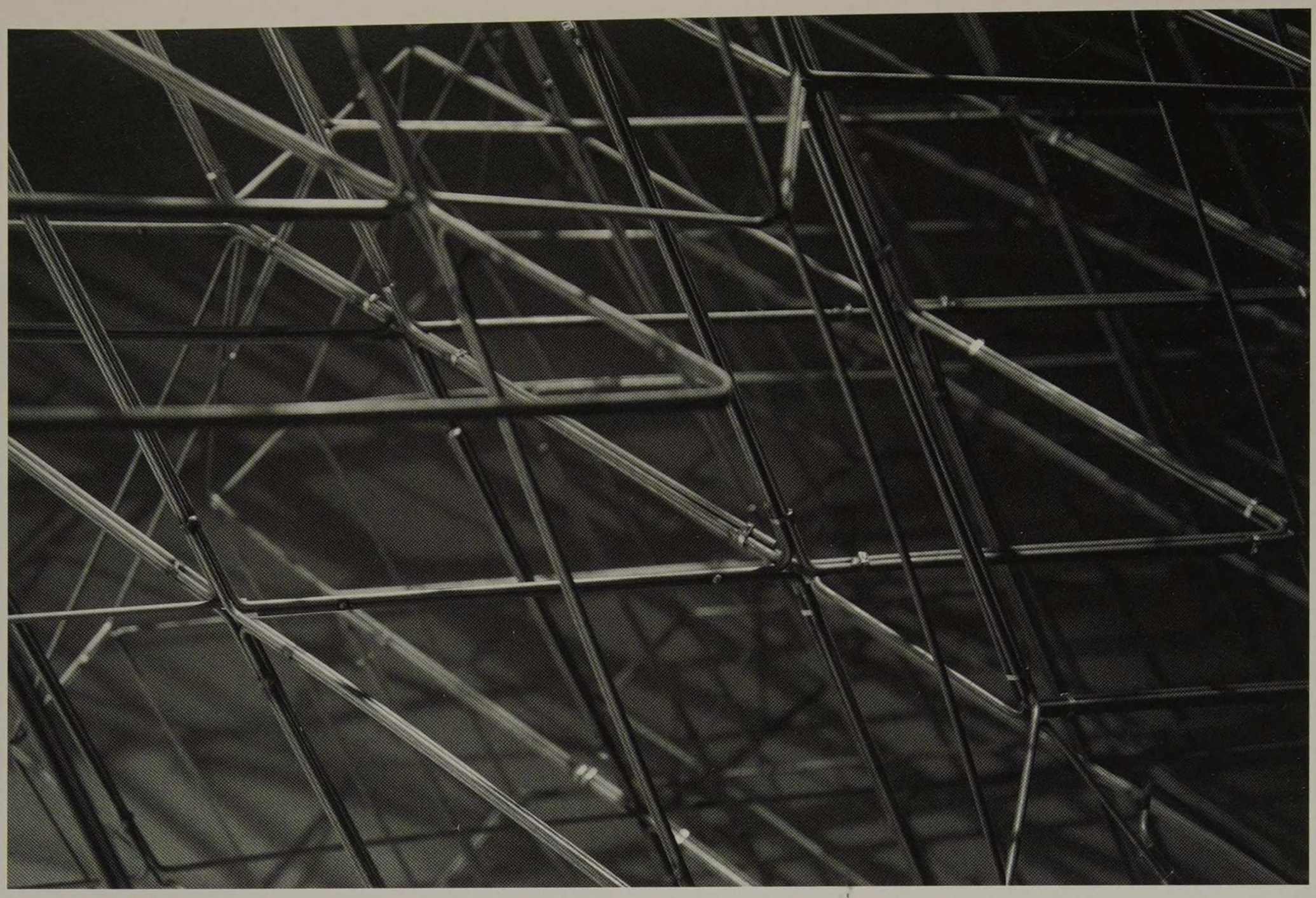
5. *As I was walking the dog, looking back at our house,*
I couldn't help to notice how beautiful she looked lowering the blinds.

4. Dear Mr. Logue, I'm so sorry. I can't even tell you how sorry I am. Why does everything have to come to an end? Ed replied, "Humanity seems to continually fantasize about its end, we imagine it can't go on. Everything seems to be beyond its expiration date. Perhaps, it's a selfish conceit that our time is always the worst time."

THE CLOUDS OF VENICE

SUPERMAN-OEUVRE

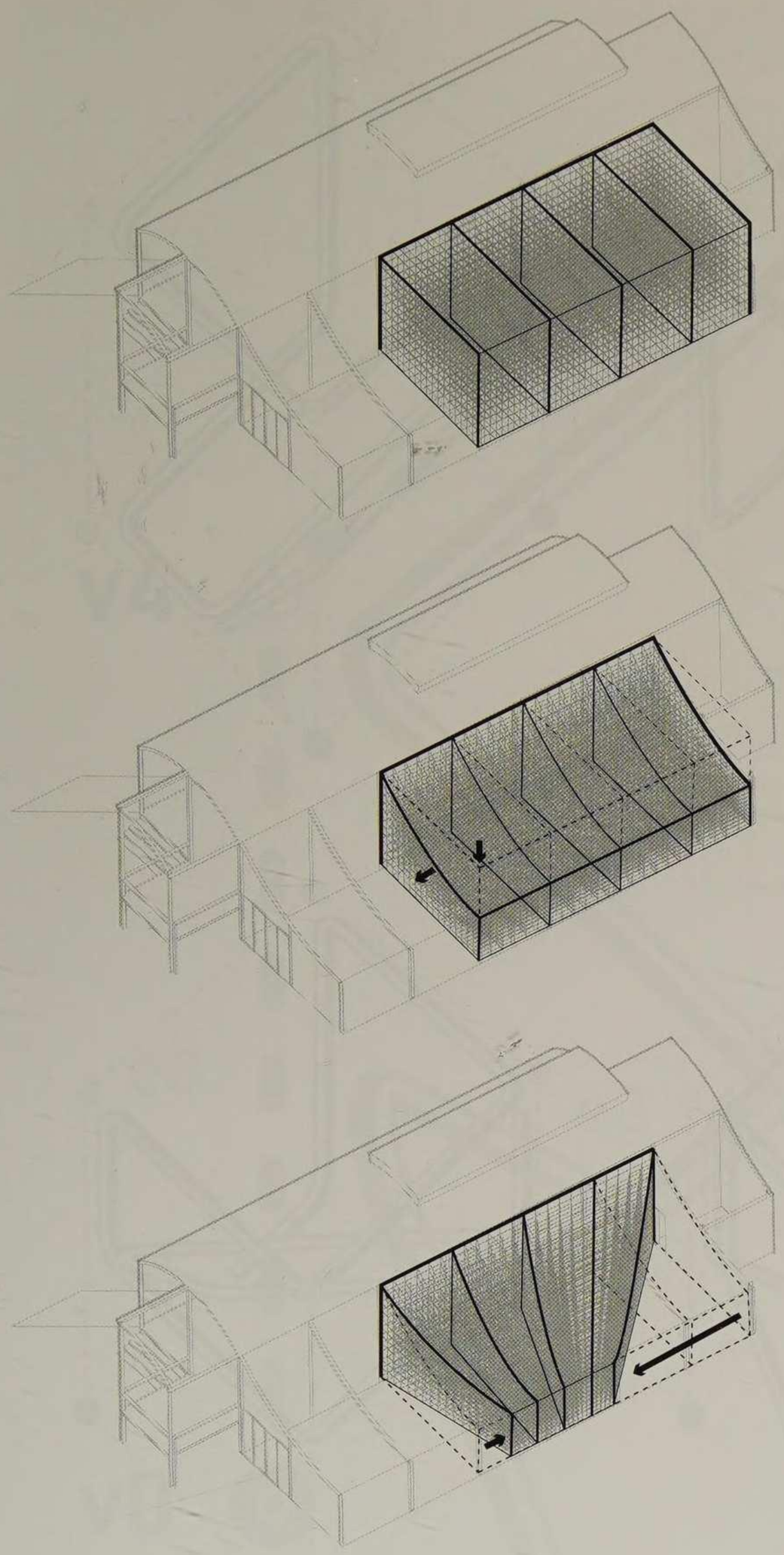




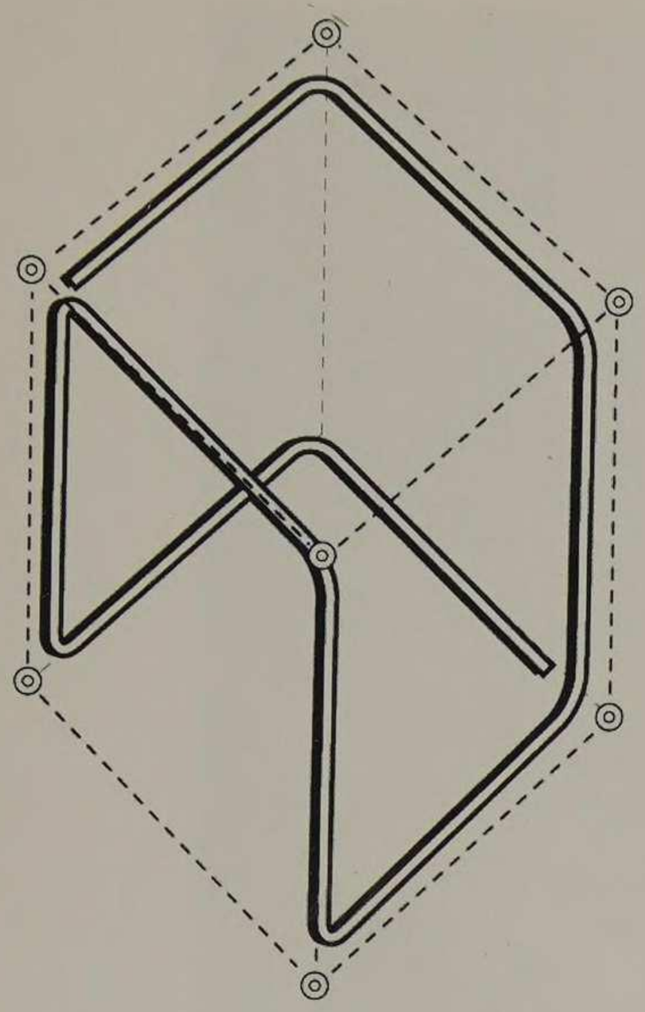
An intricately distorted grid orders space diffusely

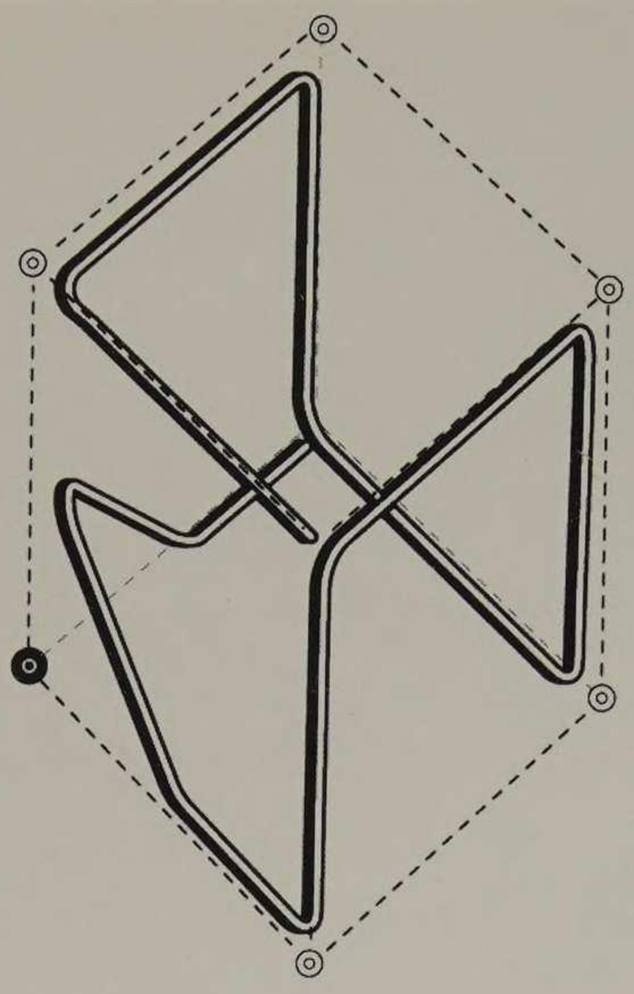
Designers normally order space by projecting two-dimensional shapes into the physical forms of floors, columns, and walls—balancing the unpredictability of how architecture is experienced against the regulating influence of orthographic drawings. But the equation is changing as high-precision technologies and new models of practice create opportunities to stray from convention. At the 2012 Venice Architecture Biennale's Australian Pavilion, the young firms *supermanoeuvre* and *matter design* showcased the potential of their unique practices, characterized by computational literacy, research-intensive design, and international workflow.

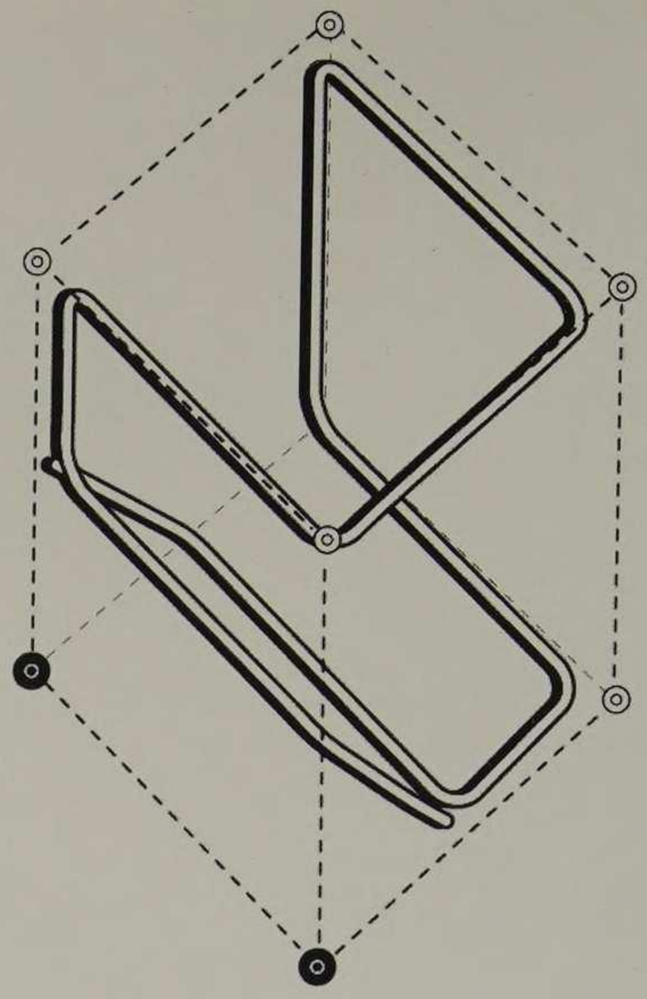
To emblematize what they view as a disciplinary change of focus from objects to production processes, the designers sought to challenge architecture's solidity by defining space with a fully diffuse structure. A warped three-dimensional field was traced by a customized Marching Cube algorithm into a tapestry of wireframe modules variegated in distinct "families." No drawing of the projects exists; some 5,000 lines of code guided robots in applying 6,800 unique bends to steel rods. Design files were generated in Sydney and London and the installation was fabricated at the University of Michigan before being shipped to Venice for assembly.

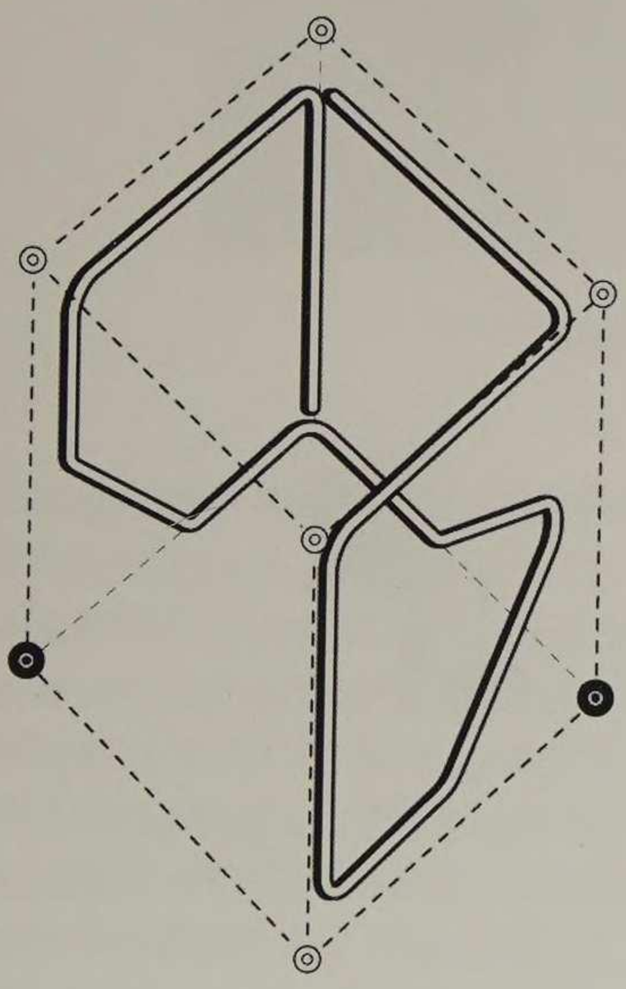


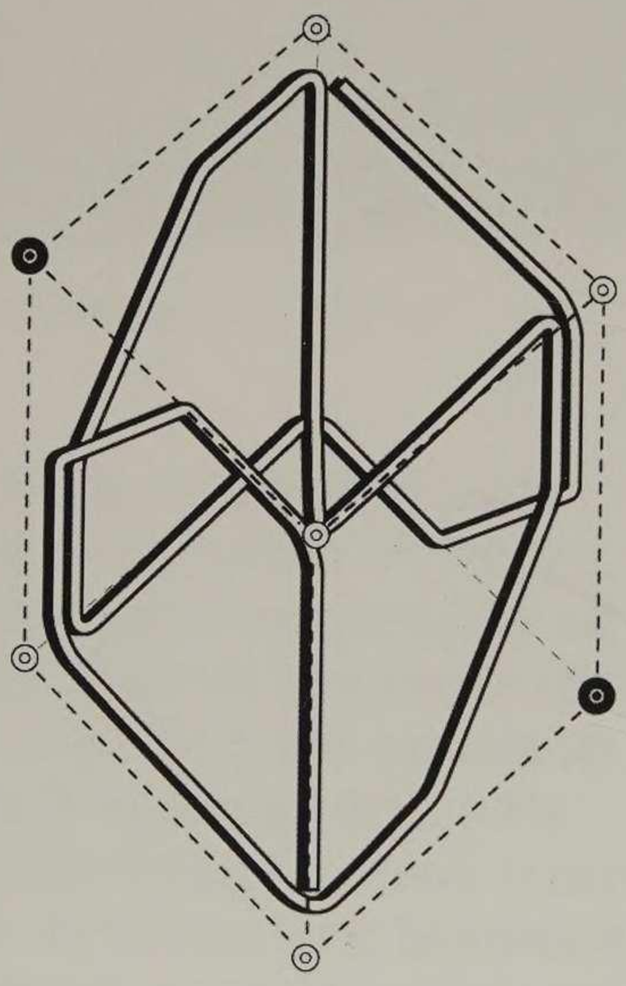
Diagrams of spatial transformations

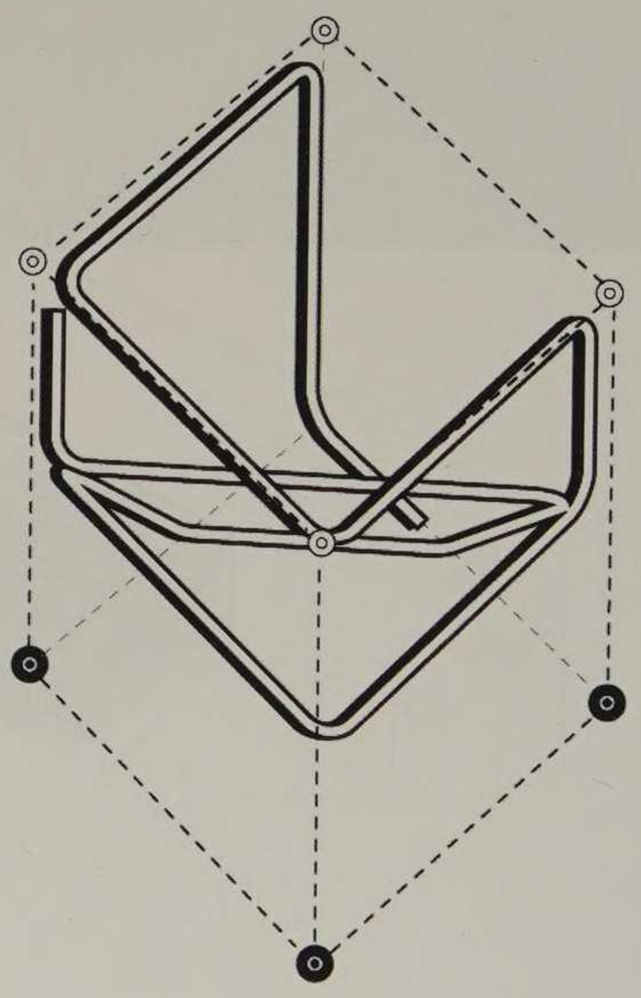


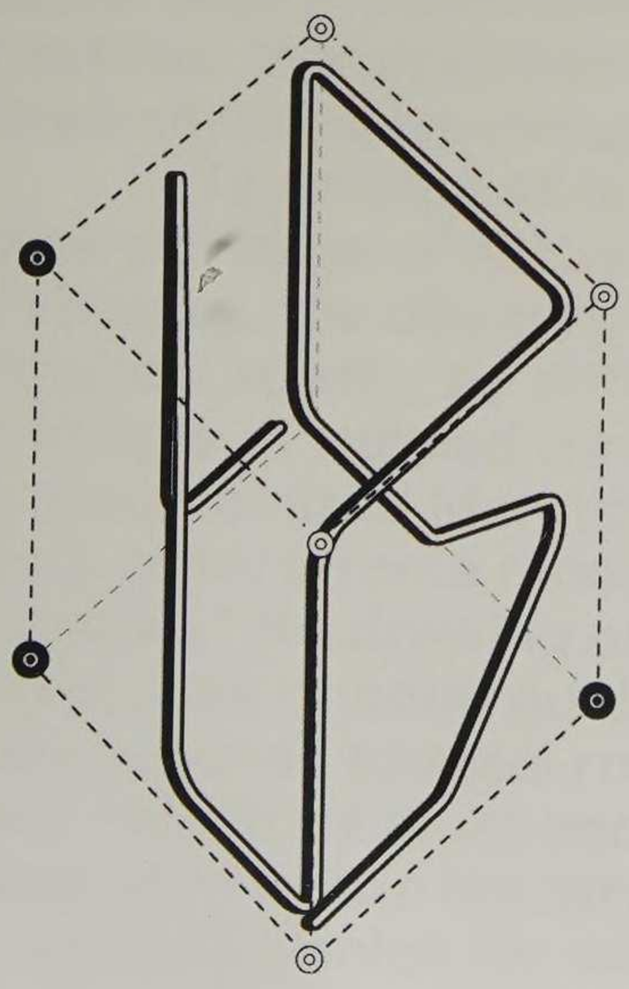


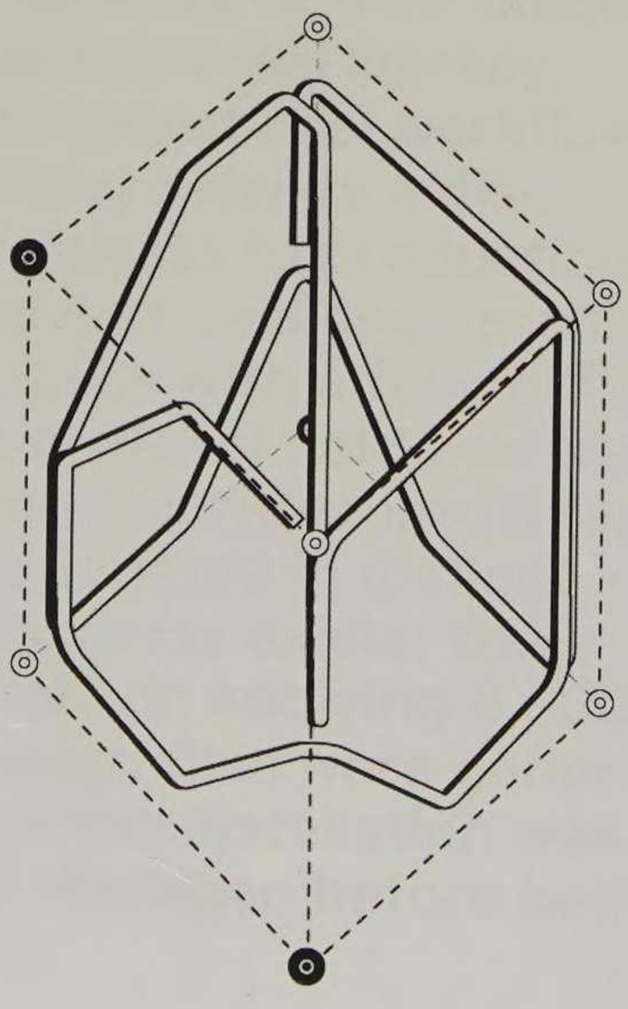


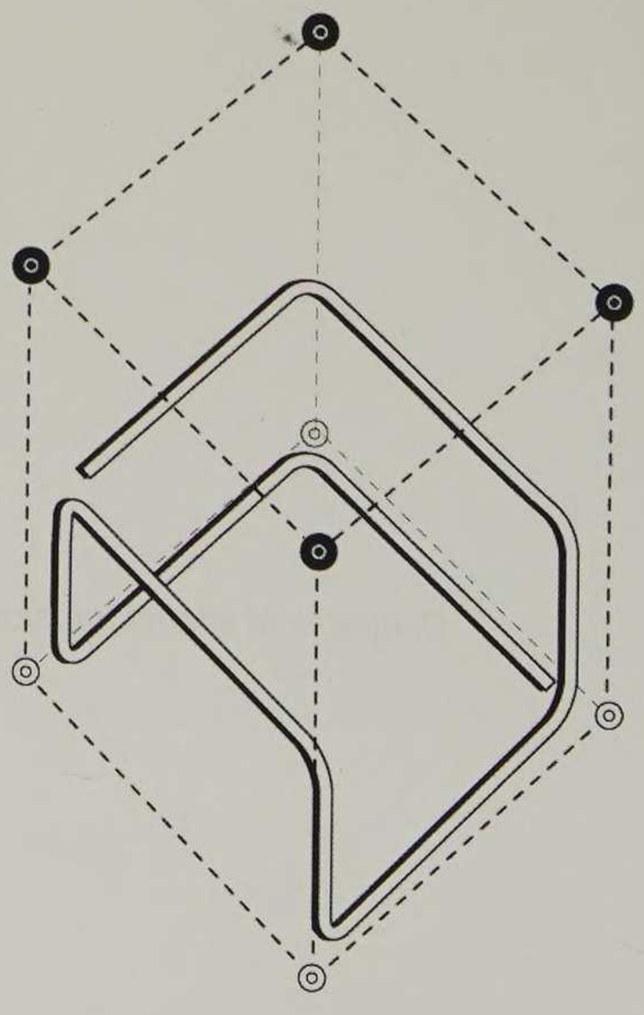


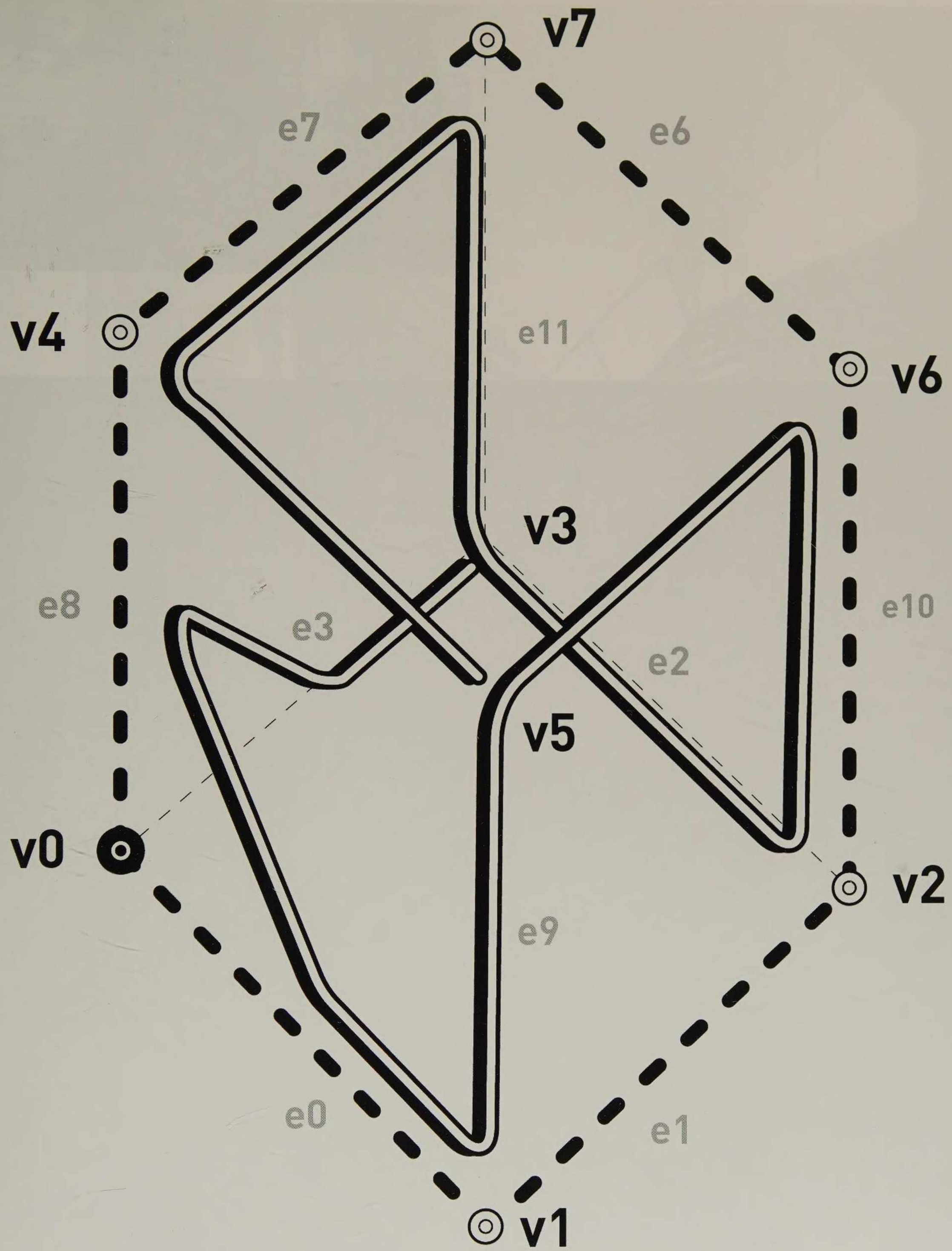




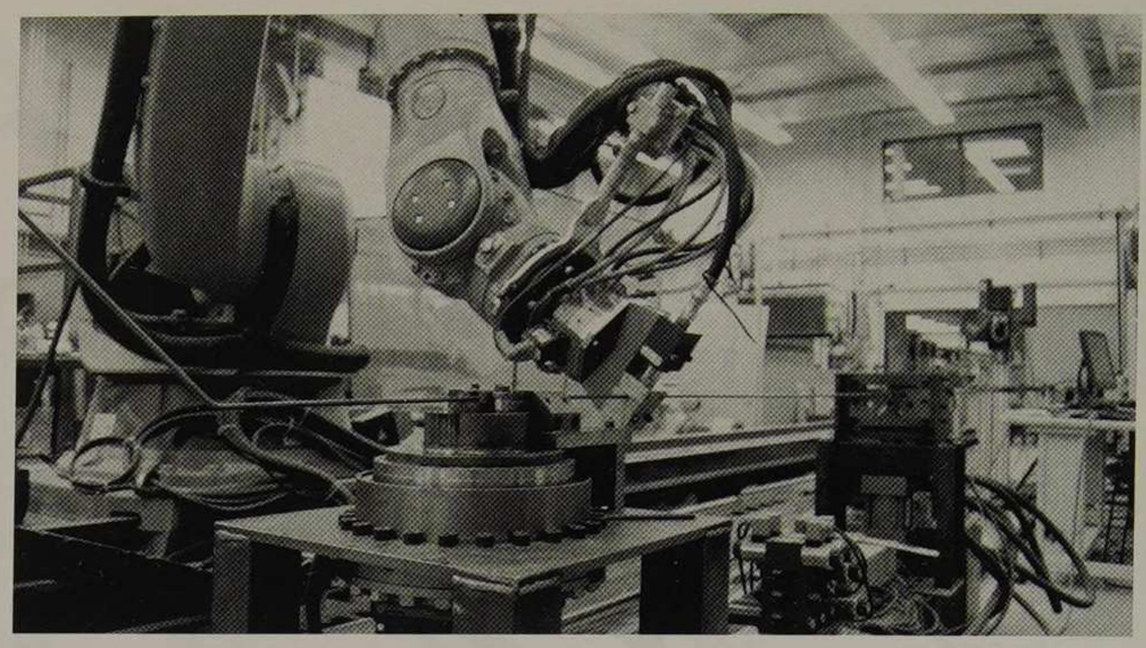




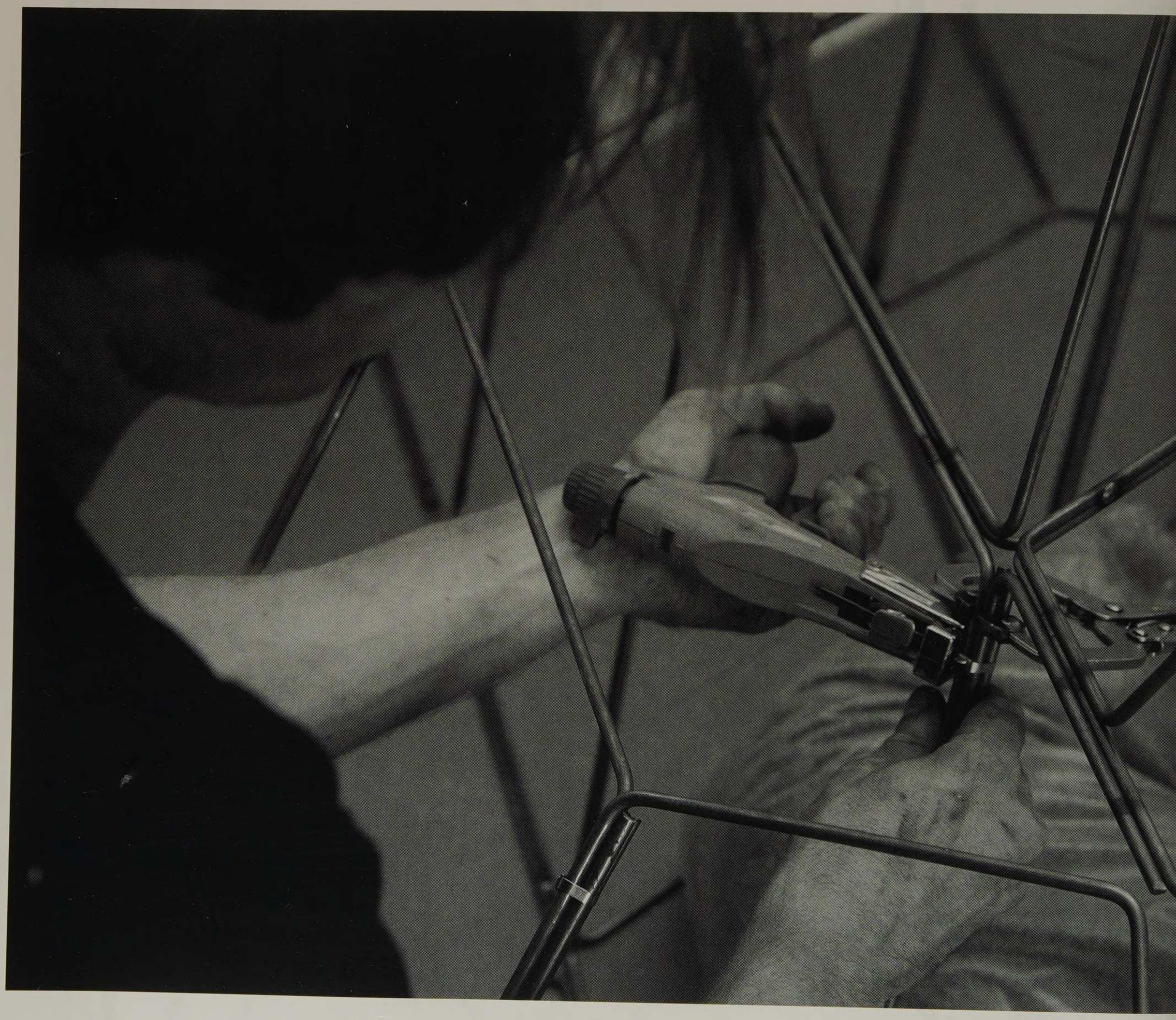




Opposite & Above
Grid modules



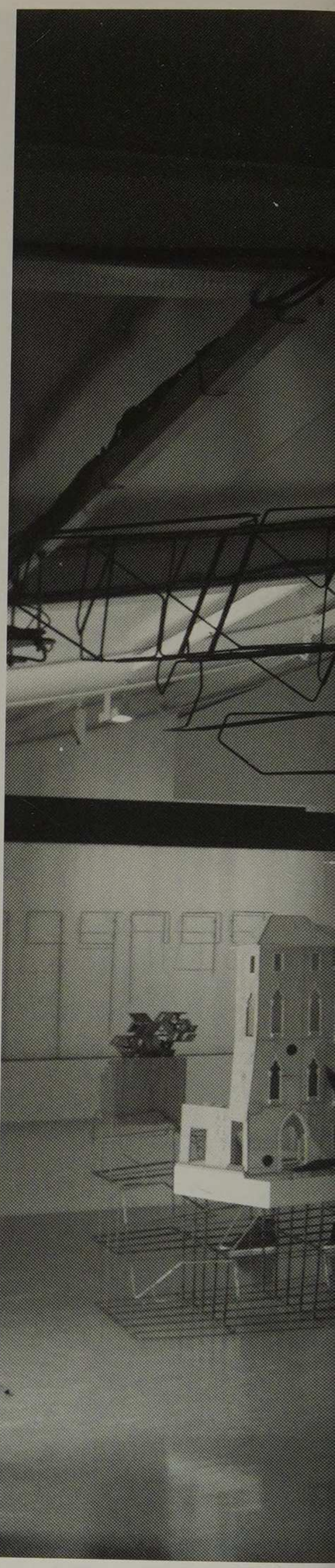
A robot bender cold-forms the steel rods

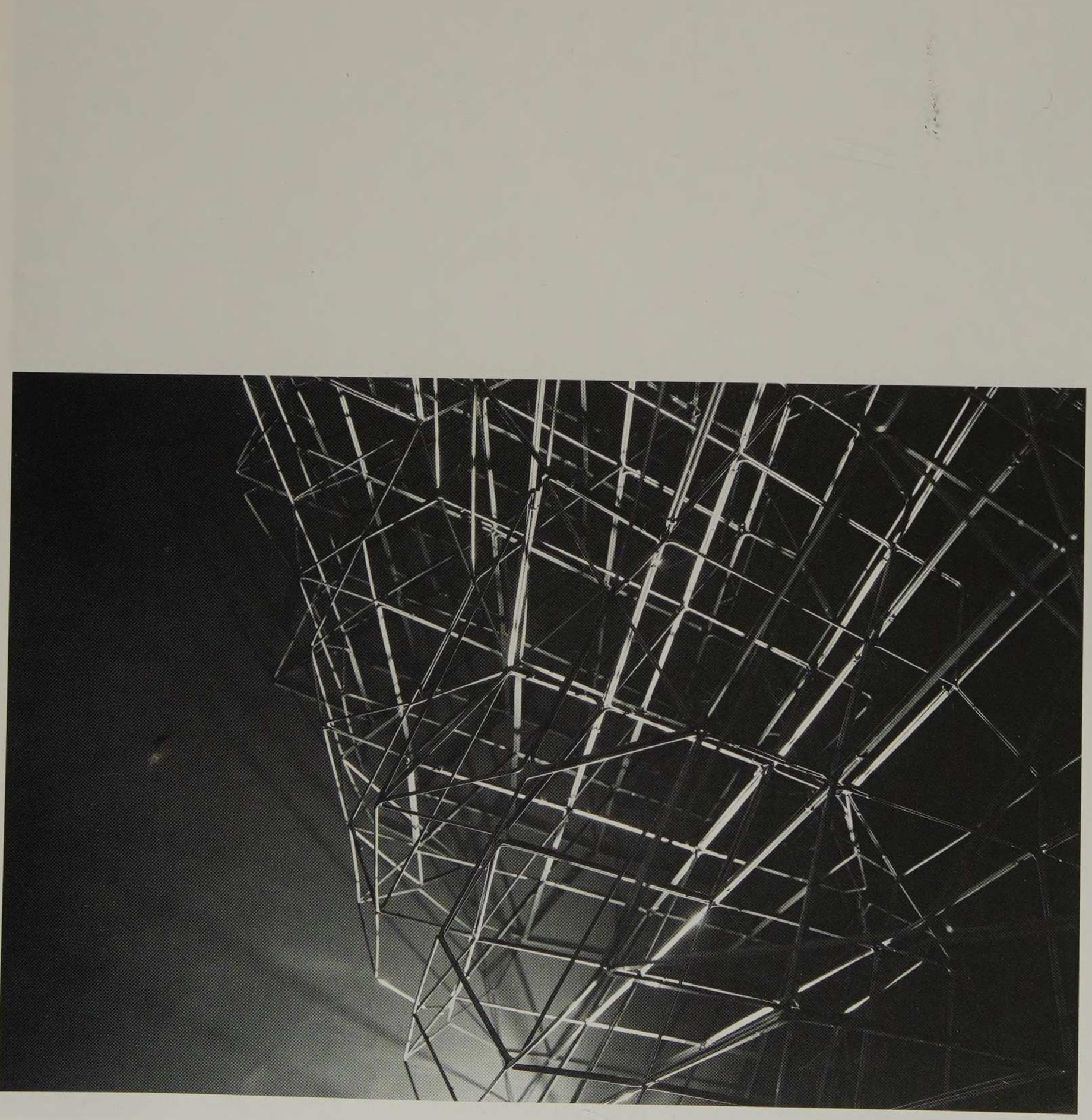


Assembling the project in the Venice Architecture Biennale's Australian Pavilion

View of the installation

Their excruciating level of control in fact enabled the architects to introduce extreme instability into the experience of the work. The grid twists and expands as it rises, creating perspectival distortions. Ladders, grains, and densities were made selectively visible to produce conflicting readings. From certain vantage points, components align and the installation seems to dissolve into a light, geometrically regular lattice; from others, the visual field thickens to reveal patterns that sweep hyperbolically through the structure. Aberration emerges out of order, and vice-versa.





Detail of the installation

View of the installation

3. We drove all night trying to find a way home. Eventually we realized that with the current infrastructure, our methods were not just unsound, they no longer appeared to really be methods at all. We had to walk home. It reminded us of that story from our childhood: after wandering through a dream that allowed us to conjure up all of our wildest fantasies in the world, one after another with real abandon, we found that we could no longer maintain these illusions. Unable to draw our way out of the problem (unable to find a way home), we changed methods entirely, thinking only of our bedroom window and what that would look like from the inside looking out. We sat in bed and posted our dreams online for everyone to see.

HEDGING YOUR BETS: INSURANCE, ARCHITECTURE, AND ACTUARIAL SCIENCE

ELIHU RUBIN

As individuals, we strive to learn from our own mistakes. Intellectual communities benefit from a collection of errors; the paradigm shifts when it can bear the weight of them no longer. The study of failed strategies may guide agents of statecraft, warcraft, industry, and commerce. Among business enterprises, one industry in particular has made the study of error the source of its profits. Life insurance companies have developed a systematic approach to minimizing error—actuarial science—that leverages human mortality for financial gain. If the actuarial data holds true, the provision of financial security can support a profit-making enterprise.[1]

1 Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: The University of Chicago Press, 1962).
I thank Joseph Clarke for his invitation to contribute and his keen editorial guidance. I received many helpful suggestions for this essay; its errors are mine alone.

The unpredictability of an individual life is a risk for the insurer. Insurance companies manage this risk by spreading it among a large set of policy-holders. By insuring plenty of young and healthy people, the insurance company hedges its bets on those poor souls who, dying prematurely, will cost it money. The evidence is more than anecdotal; the lifespan of each policy-holder also serves as a data point. Actuaries pore over death statistics in an effort to hone the company's rates of premium (the periodic payment made to secure the insurance policy): the more thorough the mortality database, the more accurate the premiums ***Fig.1***. A life insurance company's biggest mistake

TABLE IV-A

MORTALITY OF BARTENDERS BY PRINCIPAL CAUSES 1907-1910

PROPORTIONATE MORTALITY BY CAUSES AND AGES

Cause of Death	Ages 15 and over		Ages 15-24		Ages 25-44		Ages 45-64		Ages 65 and over	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Typhoid	24	2.1	3	6.8	19	2.3	2	0.8	—	—
Alcoholism	78	6.7	1	2.3	65	7.7	12	4.6	—	—
Cancer	27	2.3	—	—	8	.9	17	6.6	2	12.5
Tuberculosis	364	31.3	15	34.1	307	36.4	42	16.2	—	—
Old Age	1	.1	—	—	—	—	1	.4	—	—
Apoplexy and Paralysis	53	4.6	—	—	32	3.8	19	7.3	2	12.5
Other Nervous Diseases	30	2.6	—	—	21	2.5	7	2.7	2	12.5
Heart Diseases	71	6.1	1	2.3	51	6.0	15	5.8	4	25.0
Pneumonia	106	9.1	2	4.5	76	9.0	25	9.7	3	18.8
Other Respiratory Diseases	24	2.1	—	—	18	2.1	6	2.3	—	—
Liver Diseases	66	5.7	2	4.5	42	5.0	22	8.5	—	—
Other Digestive Diseases	44	3.8	2	4.5	32	3.8	9	3.5	1	6.3
Urinary Diseases	135	11.6	5	11.4	85	10.1	44	17.0	1	6.3
Accidents	41	3.5	4	9.1	28	3.3	8	3.1	1	6.3
Suicide	31	2.7	3	6.8	19	2.3	9	3.5	—	—
All Other Causes	68	5.8	6	13.6	41	4.9	21	8.1	—	—
All Causes	1163	100.0	44	100.0	844	100.0	259	100.0	16	100.0

TABLE IV-B

MORTALITY OF SALOONKEEPERS BY PRINCIPAL CAUSES 1907-1910

PROPORTIONATE MORTALITY BY CAUSES AND AGES

Cause of Death	Ages 15 and over		Ages 15-24		Ages 25-44		Ages 45-64		Ages 65 and over	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Typhoid	6	0.9	—	—	5	1.5	1	0.3	—	—
Alcoholism	29	4.4	—	—	20	6.2	9	2.9	—	—
Cancer	32	4.8	—	—	4	1.2	25	8.1	3	8.8
Tuberculosis	122	18.3	—	—	91	28.2	30	9.8	1	2.9
Old Age	—	—	—	—	—	—	—	—	—	—
Apoplexy and Paralysis	38	5.7	—	—	14	4.3	21	6.8	3	8.8
Other Nervous Diseases	15	2.3	—	—	6	1.9	9	2.9	—	—
Heart Diseases	45	6.8	—	—	17	5.3	23	7.5	5	14.7
Pneumonia	43	6.5	—	—	26	8.0	14	4.6	3	8.8
Other Respiratory Diseases	19	2.9	—	—	7	2.2	11	3.6	1	2.9
Liver Diseases	74	11.1	1	100.0	31	9.6	37	12.1	5	14.7
Other Digestive Diseases	33	5.0	—	—	17	5.3	13	4.2	3	8.8
Urinary Diseases	107	16.1	—	—	38	11.8	63	20.5	6	17.6
Accidents	15	2.3	—	—	9	2.8	6	2.0	—	—
Suicide	28	4.2	—	—	11	3.4	15	4.9	2	5.9
All Other Causes	59	9.0	—	—	27	8.4	30	9.8	2	5.9
All Causes	665	100.0	1	100.0	323	100.0	307	100.0	34	100.0

26

TABLE V-A

MORTALITY OF COAL MINERS BY PRINCIPAL CAUSES 1907-1910

PROPORTIONATE MORTALITY BY CAUSES AND AGES

Cause of Death	Ages 15 and over		Ages 15-24		Ages 25-44		Ages 45-64		Ages 65 and over	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Typhoid	34	2.0	10	6.5	17	4.5	7	0.8	—	—
Alcoholism	10	.6	—	—	3	.8	6	.7	1	0.3
Cancer	46	2.7	—	—	2	.5	35	4.0	9	2.8
Tuberculosis	191	11.1	8	5.2	57	15.2	107	12.2	19	6.0
Old Age	4	.2	—	—	—	—	1	.1	3	.9
Apoplexy and Paralysis	105	6.1	1	.6	7	1.9	60	6.9	37	11.6
Other Nervous Diseases	28	1.6	5	3.2	7	1.9	13	1.5	3	.9
Heart Diseases	117	6.8	—	—	17	4.5	65	7.4	35	11.0
Pneumonia	196	11.4	13	8.4	37	9.8	115	13.2	31	9.7
Other Respiratory Diseases	161	9.3	1	.6	13	3.5	96	11.0	51	16.0
Liver Diseases	43	2.5	—	—	8	2.1	32	3.7	3	.9
Other Digestive Diseases	67	3.9	4	2.6	14	3.7	23	2.6	26	8.2
Urinary Diseases	137	8.0	5	3.2	16	4.3	80	9.2	36	11.3
Accidents	394	22.9	90	58.1	144	38.3	143	16.4	17	5.3
Suicide	16	.9	2	1.3	6	1.6	7	.8	1	.3
All Other Causes	174	10.1	16	10.3	28	7.4	84	9.6	46	14.5
All Causes	1723	100.0	155	100.0	376	100.0	874	100.0	318	100.0

TABLE V-B

MORTALITY OF IRON AND STEEL WORKERS BY PRINCIPAL CAUSES 1907-1910

PROPORTIONATE MORTALITY BY CAUSES AND AGES

Cause of Death	Ages 15 and over		Ages 15-24		Ages 25-44		Ages 45-64		Ages 65 and over	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Typhoid	28	2.2	14	9.3	13	2.5	1	0.2	—	—
Alcoholism	13	1.0	—	—	5	1.0	7	1.6	1	0.5
Cancer	60	4.6	1	.7	18	3.5	31	7.0	10	5.4
Tuberculosis	252	19.4	43	28.7	155	29.9	48	10.8	6	3.2
Old Age	11	.8	—	—	—	—	1	.2	10	5.4
Apoplexy and Paralysis	92	7.1	2	1.3	21	4.1	35	7.9	34	18.4
Other Nervous Diseases	37	2.9	2	1.3	13	2.5	20	4.5	2	1.1
Heart Diseases	114	8.8	10	6.7	26	5.0	53	11.9	25	13.5
Pneumonia	126	9.7	13	8.7	42	8.1	57	12.8	14	7.6
Other Respiratory Diseases	36	2.8	—	—	9	1.7	13	2.9	14	7.6
Liver Diseases	30	2.3	—	—	11	2.1	14	3.1	5	2.7
Other Digestive Diseases	60	4.6	10	6.7	15	2.9	25	5.6	10	5.4
Urinary Diseases	129	9.9	4	2.7	41	7.9	56	12.6	28	15.1
Accidents	198	15.3	40	26.7	106	20.5	42	9.4	10	5.4
Suicide	24	1.8	2	1.3	15	2.9	7	1.6	—	—
All Other Causes	88	6.8	9	6.0	28	5.4	35	7.9	16	8.6
All Causes	1298	100.0	150	100.0	518	100.0	445	100.0	185	100.0

27

Fig.1 *A mortality table produced by Prudential in 1912 reported that bartenders and saloonkeepers, on the left, were more susceptible to tuberculosis, pneumonia, and urinary diseases than the public at large. Coal miners and iron and steel workers, on the right, were disproportionately affected by accidents, making it more difficult to predict lifespan. This risk could be balanced by an adequate premium. A conservative rate would underestimate the number of years that a policy-holder would be around to make payment. These tables are taken from an exhibit made by Prudential for the International Congress on Hygiene and Demography*

is to underestimate the rates of premium necessary to keep the enterprise afloat.

The sale of policies and collection of premiums is only one part of the insurance business model. Drawn from the risk pool, these premiums pool again to form a reservoir of capital that must be spent to accrue profits. Insurance companies have historically been conservative in selecting those investments in order to guarantee both adequate profits and adequate reserves for unexpected contingencies ***Sidebar***. Risk is unavoidable in financial transactions, however, and insurers respond by hedging their bets.

Among the first investments for his fledgling enterprise, Prudential Insurance Company founder John F. Dryden purchased mortgages on urban property in late-nineteenth century Newark. Mortgages were considered safe investments because they were backed by real property; the

company assumed ownership in case of default. In this case, the built environment hedged against financial risk.

The strategy of hedging bets has had important ramifications for the insurance industry's extensive involvement in urban development. In the 1950s, for example, insurance companies invested in urban renewal and city reconstruction projects even as they underwrote suburban mortgages and developed regional shopping centers at the metropolitan fringe ***Fig.2***.

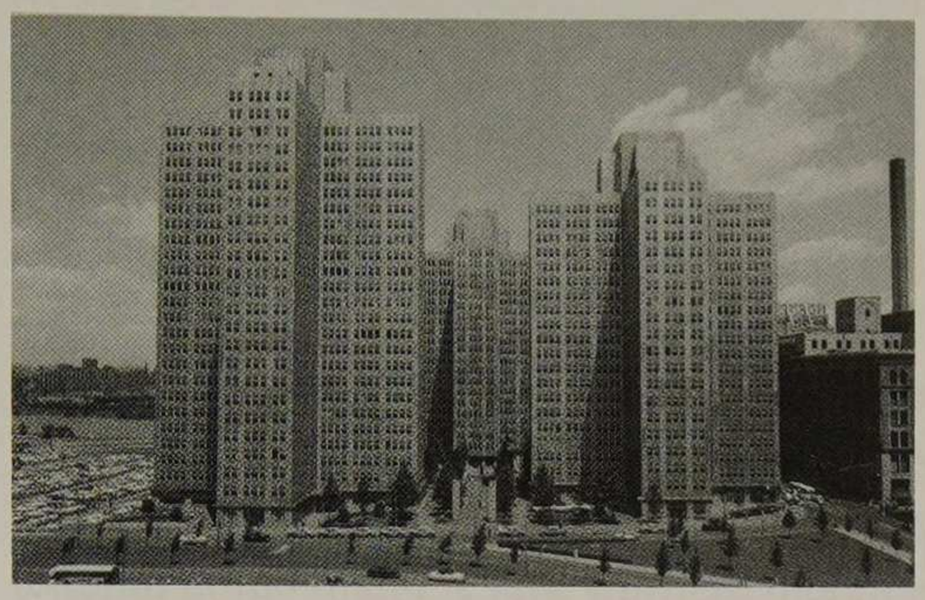


Fig.2 *Urban redevelopment sponsored by insurance companies included the Gateway Center in Pittsburgh, by Equitable Life Assurance Company, designed by Eggers and Higgins. The project replaced underutilized railroad infrastructure and was an important sign of confidence in Pittsburgh's economic future. The Gateway Center was not, however, very much appreciated as an architectural adornment to the city*

This strategy hedged a potentially errant bet on the economic future of either place—the center city, on the one hand, or the suburbs, on the other.[2]

Following actuarial science, which promises to offset the weak with the sturdy, insurers nose themselves forward by hedging against potential losses. This method does not eliminate errors. On the contrary, it assumes a course of near-constant error, a fact reflected in architecture and urban development. Mistaken for a slum, a viable neighborhood is condemned and displaced. Aiming for distinction, a building is derided by critics as an albatross. In this way, insurance exerts its extensive influence on the development and design of the built environment and the structures of ordinary life that weave their ways through it.

INDUSTRIAL INSURANCE AND THE RISK POOL

Long before Mark Zuckerberg (1984–), there was another Ivy League dropout who went on to start one of the world's largest and most profitable corporations: John Fairfield Dryden (1839–1911), who left Yale College in 1864 and went on to create the Prudential Life Insurance Company of America in 1875 ***Fig.3***. The parallels between Zuckerberg, the boy-chieftain, and Dryden, the insurance pioneer, go further than their shared status as dropout entrepreneurs. Both of them based businesses on the amassing and augmentation of a gigantic social network. In the case of Zuckerberg's Facebook, the immense volume of personal sharing is harvested for marketing potential. For Dryden's life insurance empire, each member ultimately provided new evidence of the predictors of human mortality that would refine an actuarial table.

Sidebar

"More than any other corporation, life insurance companies should be held to exact and strict accounting rules. The entry into a life insurance contract is an act of self-denial and an example of the noblest love of spouse or child. Often the policy is the only inheritance and the sole resource of widows and orphans. Life insurance institutions draw in a considerable portion of the savings of thousands of policyholders on the basis of contracts, several of which will not expire before a half or sometimes almost a whole century. Therefore, their solidity and solvency must be mathematically provable and indisputable."

In 1863, Dr. August Zillmer, actuary at the Germania Stock Company in Stettin, Prussia, opened his volume Contributions to the Theory of Life Insurance Premium Reserve *with this quotation. It is taken from the New York State Insurance Commissioner, in a decision that withdrew the license of the American Mutual Life Insurance Company of New Haven, Connecticut, to do business in the State of New York.*

"Man first thought of insuring his shipping against the risks of navigation. Then he insured his houses, his harvests, and his goods of all kinds against risk of fire. Then, as the idea of capital, and consequently also that of insurable interest, gradually emerged in a clear form out of the confused notions that previously obscured them, man understood that he himself was a capital which death could prematurely destroy, that in himself he embodied an insurable interest. He then devised life insurance, insurance that is to say against the premature destruction of human capital."

Albert Chauffon, Les Assurances, leur passé, leur present, leur avenir, *Paris, 1884, quoted in François Ewald, "Insurance and Risk," in Graham Burchell, Colin Gordon, and Peter Miller, eds.,* The Foucault Effect: Studies in Governmentality *(Chicago: University of Chicago Press, 1991).*

2 Historian Thomas Hanchett has argued that the balance of Prudential's capital went to the suburbs. In my book, I argue that Prudential consciously sought to anchor its regional portfolio in the city. See Thomas W. Hanchett, "Financing Suburbia: Prudential Insurance and the Post-World War II Transformation of the American City," *Journal of Urban History*, Vol. 26 No. 3, March 2000, 312–328 and Elihu Rubin, *Insuring the City: the Prudential Center and the postwar urban landscape* (New Haven: Yale University Press, 2012).

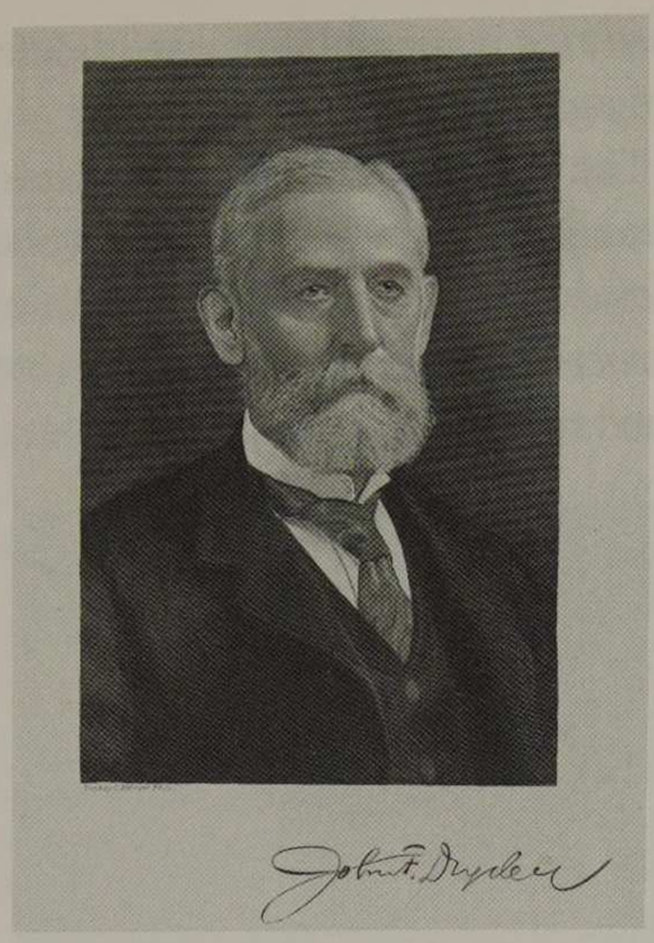


Fig.3 *John Fairfield Dryden (1839–1911), born in Maine, Yale drop-out, and founder of Prudential in 1875 in Newark, New Jersey*

Zuckerberg is sure of the social usefulness of the network he has created. For him, it is more than a tool for the accumulation of profit; it is also a way to facilitate vital human connections. John Dryden was equally convinced of the utility of the social network he invented that brought "industrial insurance"—insurance for the proletariat—to the United States. He believed that his company served a crucial social purpose by providing financial security for working class people. Dryden thought that life insurance was as good for its policy-holders as it was for the company: it cultivated the values of thrift, saving, and family responsibility in the poor, largely immigrant communities of the industrial city.

The similarities between Zuckerberg and Dryden end there. Facebook is dematerialized, ignoring physical spaces between people and making them very close through the Internet. In contrast, Dryden's network of insurance agents and policy-holders was doggedly material. The model of industrial insurance was based on the personal collection of small weekly premiums. Insurance agents literally pounded the pavement, making rounds—neighborhood to neighborhood, block to block, door to door—to collect modest payments from householders. At the heart of its business model, industrial life insurance was directly connected to the built environments and the growth of the cities in which it practiced ***Fig.4***. Having lost his father when

Fig.4 *An early Prudential postcard shows an agent on his rounds, collecting small weekly premiums on foot*

he was young, Dryden was sensitive to the plight of bereft families. Often poor families could barely scrape together enough money for a proper burial. Industrial insurance picked up where the guilds, fraternal orders, and burial societies of previous generations had left off. Prudential, in fact, was founded by Dryden in 1873 as they Widows and Orphans Friendly Society. Impressed by the application of actuarial science to the provision of social welfare practiced by England's Prudential Assurance Society, Dryden renamed his Newark-based company the Prudential Friendly Society in 1874 and incorporated it in 1875 as the Prudential Insurance Company of America.

Though he had left Yale without a degree in 1864, John Dryden retained important contacts with the New Haven institution. In 1874 he corresponded with John Clark, a professor of mathematics at Yale who was an expert on actuarial science. Dryden asked Clark to prepare the tables used to set the premiums for Prudential's first customers. Clark was careful to warn Dryden about the need for fiscal prudence. Many a fledgling insurance company had foundered under the weight of ill-timed deaths, unable to pay claims without going under. Clark warned, therefore, that the company must always maintain adequate financial reserves. Dryden evidently took this advice to heart: he delayed many months before paying Clark the $300 owed to him in compensation for his fiscal advice.[3]

One of the early challenges to life insurance was that not enough was known about American mortality. At first, Prudential relied on British data that reported the life spans and circumstances of a working populace. With a database so removed from Prudential's population of prospective customers, underwriting errors were inevitable. Over time, the insurer would amass its own archive of death notices. The individual policy-holders became statistics—the sheer collection of which was noted as a scientific achievement—and their lives and deaths transmogrified into calculable risks.

Like a morbid machine of self-learning, the insurance company grew more effective with each and every death. Dryden predicted that industrial insurance would "develop into an agency of still greater usefulness and assume more and more the character of a vast social institution through which most of the economic uncertainties of industrial life will be effectively provided for."[4] While hoping that its clients would live long and healthy lives, the insurer could yet only learn—and thus profit—from the circumstances of their deaths.

By the time the dropout returned to Yale in 1904 to deliver a lecture on "The Social Economy of Life Insurance," John Fairfield Dryden was a millionaire many times over and a United States Senator from New Jersey. He had made his fortune by hedging his bets and he had entered politics to hedge them further. Like many corporate titans of his day, Dryden sought political office both to expand his influence and to express his civic consciousness. As a senator, Dryden lobbied for federal oversight of the insurance industry

3 Clark wrote to Dryden in 1874 and stressed "the importance of keeping sacredly the proper reserve on all your policies." Earl Chapin May and Will Oursler, *The Prudential: A Story of Human Security* (Garden City, N.J.: Doubleday, 1950), 44.

4 John F. Dryden, "The Inception and Early Problems of Industrial Insurance," *Addresses and Papers on Life Insurance and Other Subjects* (Newark, New Jersey: The Prudential Insurance Company of America, 1909).

in an effort to avoid cumbersome state-by-state regulation.[5] Dryden saw the future of industrial insurance as a "universal thrift function in the life of the people." His advocacy of federal oversight was driven by his conviction that private companies were best suited to provide social welfare for the nation at large, knitting the entire nation into a giant risk pool. In the twentieth century, insurance men would resist efforts for a government-provided safety net. Dryden would have agreed that only a competitive system—organized by corporations and governed by actuarial science—could usher in an effective risk society in which citizens of the modern, industrial state shared responsibility for each other.[6]

THE ARCHITECTURE OF INSURANCE

Affiliating themselves with the working people of the industrial metropolis—serving as their benevolent guarantor—sparked a strong sense of public purpose in insurance company executives. Leaders of the insurance industry did not view their companies as ordinary private enterprises that sought profit above all, but rather as quasi-public institutions that held the people's money in trust. The self-conception of insurance companies as public stewards was reflected in the buildings they constructed to house their own operations.

As Prudential grew, the company rented progressively larger quarters in downtown Newark. By 1890, John Dryden was ready to invest in a big headquarters structure. Prudential and its architect, George Post, wanted to make sure that the public perceived its building—and the institution it housed—as a massive, unassailable structure. The result was a hulking stone fortress that borrowed motifs from French chateau architecture, like arched dormers and cylindrical turrets, along with the rough-hewn stone archways that were made popular by H. H. Richardson ***Fig.5***. Heavy surface design and ornate

Fig.5 *The Prudential Building, Newark, 1892, George Post. It was destroyed in 1960 to make for a new headquarters structure in the same place*

interior spaces masked the fact that Post had designed an entirely modern, iron-framed structure, complete with the latest innovations in office amenities, including a network of pneumatic ducts for the quick circulation of documents.

It is impossible to tell the story of architecture in American cities without stressing the role that insurance companies played as patrons—not only in big cities like Chicago, New York, and Boston, but in mid-size cities and emerging towns across the United States ***Fig.6***. The circumstances

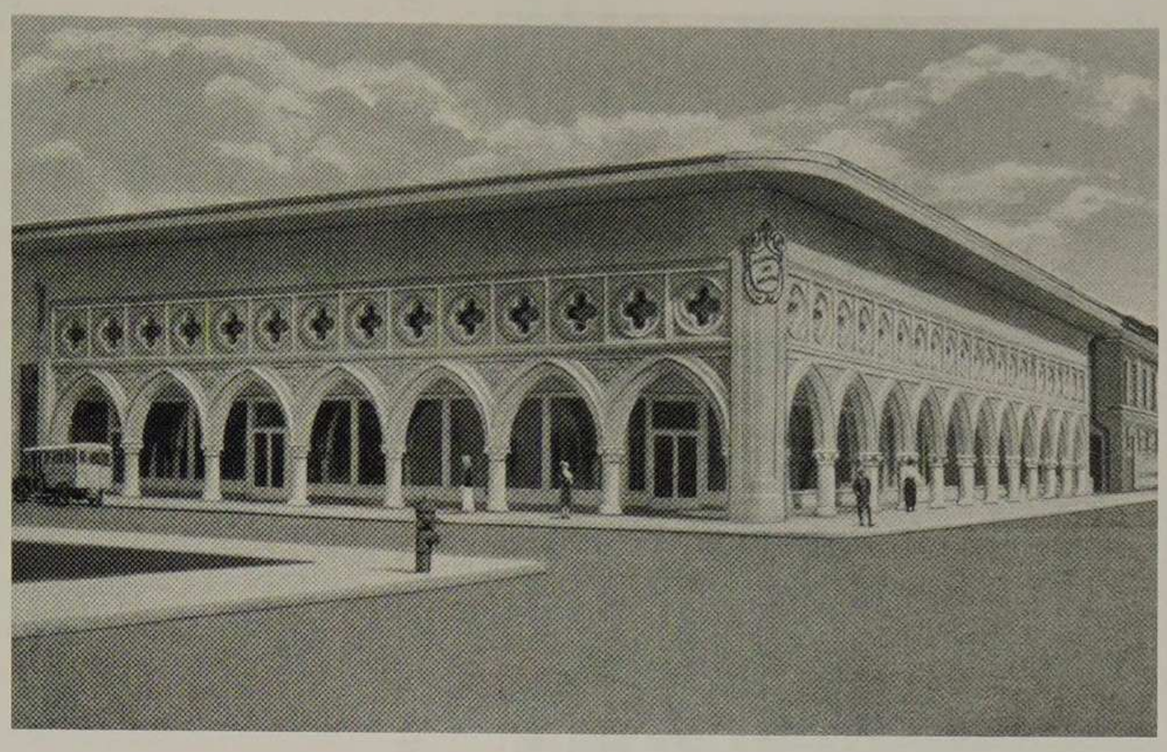


Fig.6 *The Occidental Life Insurance Company building of Albuquerque, 1917, designed by Henry C. Trost in a Venetian Gothic style. My guess is that Trost was inspired by Metropolitan Life's 1909 tower in New York, which drew on the image of the Venetian campanile. The box-like Doge's Palace, however, was a more appropriate model for the horizontally sprawling city of Albuquerque, which did not merit the height of a tower*

of death were of no predictive value if they were not accurately recorded; from the start, insurance companies needed large amounts of office space for clerks, actuaries, and files. They had the organizational need and the financial wherewithal for large, impressive buildings that also branded the company.

Growing quickly in the years after its founding in 1859, the Equitable Life Assurance Society of New York held a competition in 1867 to solicit designs for a new headquarters building on Broadway in the lower Manhattan business district. The winners of the competition, Arthur Gilman

5 Despite Dryden's efforts, insurance regulation in America has remained primarily a state function. More recently, however, the statute intended to increase accountability in the wake of the 2008 financial crisis—the Dodd-Frank law—created the Financial Stability Oversight Council (FSOC) to name certain financial companies as "systematically important" and thus subject to extra regulatory oversight from the Federal Reserve. The American International Group (AIG), the large insurer and financial services company that received more than $180 billion in bailout funds, was the first to be tagged as a systemic risk and subject to federal oversight. In October 2012, the FSOC, led by Treasury Secretary Timothy Geithner, notified Prudential that it had entered the final stage of consideration as a "systematically important" financial institution. John Dryden would have had mixed feelings. On the one hand, insurance companies were finally being treated as a federal matter having to do with the well-being of the entire citizenship of the country. On the other hand, federal regulation had come at the heels of widespread malfeasance. "Prudential in Final Stage of U.S. Systemic-Risk Review," *Bloomberg News*, October 19, 2012.

6 "John F. Dryden Dies, Worth $50,000,000," *New York Times*, November 25, 1911. Dryden's lecture was part of a series that brought the study of insurance methods and practices to Yale, led by John K. Gore, who was also Prudential's chief actuary. *Yale Insurance Lectures* (New Haven, CT: The Tuttle, Morehouse & Taylor Press, 1904). Dryden made his case for federal oversight of insurance in "The Regulation of Insurance by Congress," *Addresses and Papers on Life Insurance*. On private and public systems of social welfare in twentieth century America see Jennifer Klein, *For All These Rights: Business, Labor, and the Shaping of America's Public-Private Welfare State* (Princeton: Princeton University Press, 2003). On the "risk society" as an attribute of modern social life, see Ulrich Beck, *Risk Society: Towards a New Modernity* (New York: Sage Publications, Ltd., 1992); Anthony Giddens, *Modernity and Self-Identity* (Cambridge, UK: Polity Press, 1991); and the essays in *Embracing Risk: The Changing Culture of Insurance and Responsibility*, eds. Tom Baker and Jonathan Simon (Chicago: University of Chicago Press, 2002).

and Edward Kendall—they would ultimately join with George Post, too—had experience designing impressive monuments for both public and private clients. Gilman had designed Boston's City Hall in 1862 in a Second Empire style modeled on Napoleon III's additions to the Louvre in Paris. The design of the Equitable building followed in this fashion ***Fig.7***.

Fig.7 *Equitable Building, New York (Arthur Gilman and Edward Kendall with George Post, 1867)*

At ten stories, the Equitable was one of the first tall buildings in New York—an early skyscraper of masonry construction. The building's double-height windows, neo-classical detailing, granite façade, and mansard roof were intended as cosmopolitan symbols of prosperity and good taste that could apply to public and private institutions alike. A marble sculpture perched above the entrance portico featured the company's emblem: a guardian angel that protected a widow and an orphan. Investments like Equitable's helped establish lower Manhattan as the world's preeminent business district. Similarly styled buildings were constructed by insurance companies in cities across the country and anchored their business districts.

Moving with alacrity to demonstrate their strength and ability in times of crisis, life insurance companies were among the first to rebuild after urban fires. In Boston, for example, after the fire of 1872 gutted its business district, insurance companies were quick to establish a new business location near the Post Office and Sub-Treasury Building that the federal government was then constructing. New England Mutual Life Insurance Company, based in Boston, and New York-based Mutual Life Insurance Company erected

matching Second Empire style structures on Post Office Square. With its 234-foot clock tower, the branch office of the New York company topped the local company's headquarters, but together the two buildings made a strong statement of confidence in the city's prospects for economic recovery *Fig.8* [7].

Fig.8 *New England Mutual Life Insurance Company and the Mutual Life Insurance Company of New York erected matching Second Empire style structures on Post Office Square in Boston soon after the fire of 1872*

As they expanded to reach new markets, insurance companies constructed branch offices that were impressive structures on their own. A good example is William LeBaron Jenney's design for the Chicago offices of Home Life Insurance, built in 1885 for the New York-based company founded in 1860 *Fig.9*. Architectural historians have debated the claim that the Home Life was the first example of an iron frame that carried the entire weight of the structure. Jenney's clients were sufficiently worried about the novel technique of skeleton-framed construction that they insisted on independent engineers to verify its soundness. Home Life moved forward only after Daniel Burnham, the dean of Chicago's architectural community, provided the necessary assurances.[8]

Branch offices and headquarters structures alike promoted a company's role in civic culture and advertised the soundness of its product: financial security. A few companies directly deployed the image of

7 On urban recovery after fire in nineteenth century cities, see Christine Meisner Rosen, *The Limits of Power: Great Fires and the Process of City Growth in America* (Cambridge, UK: Cambridge University Press, 1986). New York's Equitable also built in Boston, hiring Arthur Gilman to design its Boston branch in 1872. See Douglass Shand-Tucci, *Built in Boston: City and Suburb, 1800–2000* (Amherst: University of Massachusetts Press, 1999), 43.

8 Historians have argued that the iron frame was anchored in masonry piers that carried some of the weight, suggesting that the Home Life building was not a pure skeleton-cage structure. Theodore Turak, "Remembrances of the Home Insurance Building," *Journal of the Society of Architectural Historians*, Vol. 44, No. 1 (March, 1985), 60–65; Gerald R. Larson and Roula Mouroudellis Geraniotis, "Toward a Better Understanding of the Evolution of the Iron Skeleton Frame in Chicago," *Journal of the Society of Architectural Historians*, Vol. 46, No. 1 (March, 1987), 39–48.

Fig.9 *William LeBaron Jenney's design for the Home Life Insurance Company building in Chicago, 1885, is considered by many to be the first structure supported entirely by its iron frame*

their buildings for marketing purposes, perhaps none more effectively than Metropolitan Life and its 1909 skyscraper designed by Napolean LeBrun and Sons. The Met Life building was patterned after the campanile on Saint Mark's Square in Venice. Instead of housing the bell tower of a church, however, Met Life's shaft accommodated some of the most desirable office space in the city, built as a speculation by the company ***Fig.10***. Vice President Haley Fiske called the tower "an advertisement that didn't stand the company a cent

Fig.10 *Metropolitan Life Tower (Napolean LeBrun and Sons, 1909)*

because the tenants footed the bill."[9] Architects added a large clock face to each side of the square tower and capped the pyramidal spire with a searchlight. Met Life billed it as "the light that never fails." Like Prudential's Rock of Gibraltar logo, the Metropolitan's tower represented sureness and constancy ***Fig.11***.

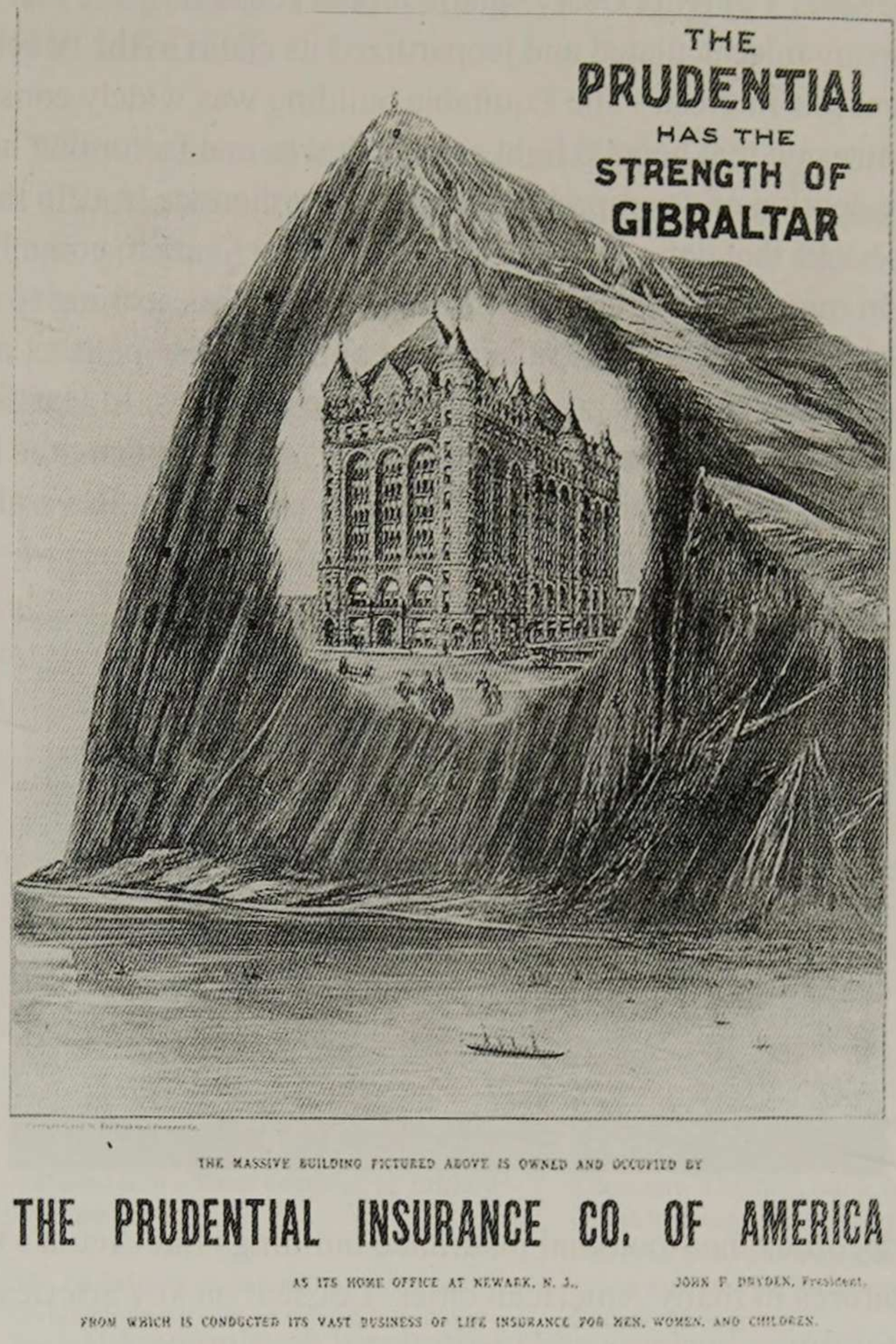


Fig.11 *An ad man from J. Walter Thompson hit on the Rock of Gibraltar as Prudential's emblem in 1896 and the image was quickly branded across the country. In this advertisement, the company's Newark headquarters is embedded in the Rock*

Met Life's iconic tower punctuated the company's move from downtown to a midtown site facing Madison Square Park at Twenty-third Street. The company began to assemble land there in the 1890s, when it was still a residential area. Met Life's building was not only a statement of fiscal confidence, but also a deliberate real estate strategy to expand New York's financial center northward. Other business buildings followed. In 1902, Daniel Burnham's Flatiron Building staked out the southwest corner of Madison Square Park, where Broadway cut through the grid. In 1928 the New York Life Insurance Company built a large headquarters at the northeast corner of the park, at Twenty-Sixth Street, designed by Cass Gilbert and crowned with an octagonal pyramid roof that shone like gold.

9 Marquis James, *The Metropolitan: A Study in Business Growth* (New York: Viking, 1947), 174. On the Met Life tower, see Roberta Moudry, "Architecture as Cultural Design: The Architecture and Urbanism of the Metropolitan Life Insurance Company," Ph.D. dissertion, Cornell University, 1995.

The northward drift of the business district was a sign that downtown was getting crowded. Downtown property owners, feeling the squeeze, maxed out available sites. The Equitable signaled this state of affairs in 1915 when it replaced its original ten-story structure on Broadway, which had been destroyed by fire, with a massive building that rose forty stories straight up from the sidewalk. Vying for every square foot of rentable space that it could get, the company miscalculated and jeopardized its claim to the benevolent part of "benevolent self-interest." The Equitable building was widely considered to be a bulky intrusion that hogged light and air; it was one factor that hastened New York's adoption of a comprehensive zoning ordinance in 1916 that brought forth the set-backs that defined urban architecture for years to come.[10]

In many smaller cities, insurance companies seeking to expand found large sites outside the central city and built mid-rise palaces in landscaped grounds that posed as proper suburban institutions. In Hartford in the 1920s, Aetna Insurance Company hired James Gamble Rogers, the brilliant architect of Yale's residential colleges, to design a Georgian Revival mansion in a residential area west of downtown ***Fig.12***.[11]

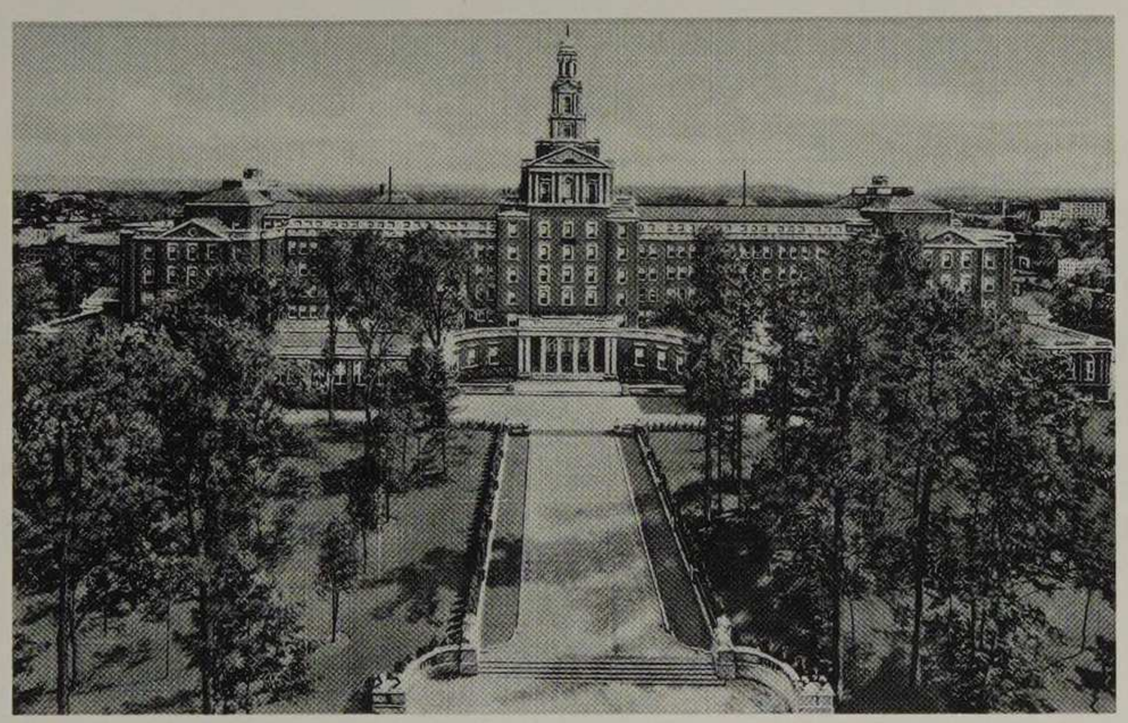


Fig.12 *Aetna Life Insurance, Hartford, Connecticut (James Gamble Rogers, 1929)*

Sober and decorous, neo-colonial insurance buildings like Aetna's became common features in many American cities. Located on key arteries, they set the course for future business and institutional development.[12]

Aetna's move from the central business district to a "midtown" location pointed to a next step: leaving the city altogether, a trend exemplified by Connecticut General's move from downtown Hartford to a campus in Bloomfield, five miles away. The decision to head for the verdant hills outside the city reflected a widely-shared disenchantment with urban environments at mid-century. Connecticut General president Frazar Wilde believed that by placing employees in more relaxed and less congested surroundings, the new setting would facilitate the more efficient processing of insurance policies. By abandoning a long tradition of prestigious towers in urban locations, Wilde took a risk on a new type of building and an incipient metropolitan form. To manage this risk, the executive hired architects from Skidmore, Owings & Merrill, a firm that balanced corporate bigness with a reputation for high quality modern design. Wilde hedged on the building's isolation by

internalizing many amenities of the city—food, entertainment, parks and gardens—to make the campus a desirable place for workers. He arranged for buses to bring employees, many of whom were accustomed to traveling downtown by streetcar, to the suburban campus.[13]

INSURING THE CITY: PRUDENTIAL'S MID-CENTURY HEDGE

When Prudential built its Regional Home Offices (RHOs) in the 1950s, in an effort to decentralize and decongest its Newark-based headquarters, the company hedged its bets in more ways than one. It was considered folly in the atomic age to concentrate all business activities in one location. At the scale of the firm, large headquarters bottled up talent; decentralization hedged bets on emerging corporate leaders. The RHOs also brought Prudential closer to its clientele, shored-up local markets, and asserted the company as a national brand ***Fig.13***.

In each location the building ensembles hedged between two architectural traditions: the landmark urban tower and the commodious suburban estate. By locating on large lots in midtown locations, Prudential could build signature towers—always with its name emblazoned across the top—in convenient and amenable campus settings. Prudential established this model first in Los Angeles, in 1948, and then in Houston, Jacksonville, Minneapolis, Chicago and Boston, where in 1957 the insurance company announced

10 In 1960 the Equitable finally moved to midtown—Seventh Avenue between Fifty-first and Fifty-second Streets, a stone's throw from Rockefeller Center—and into a glass slab designed by Skidmore, Owings and Merrill. The building was taken down in 1985 by its then owner Paine Webber and replaced with a tower designed by Edward Larabee Barnes.

11 As patrons, Yale and the insurance companies were not so different. Both harbored long-term views in terms of the value and stability of real estate, and both sought to project institutional surety. James Gamble Rogers's designs for Pierson College (1933) and Timothy Dwight College (1935) in particular resembled the Georgian architecture of the Aetna headquarters building.

12 There are many examples of neo-Georgian (or colonial revival) insurance buildings from the 1920s and 30s, especially in the Northeast. These buildings featured porticos, pediments, spires, cupolas, gold domes, and plenty of red brick. One probable source for these structures was eighteenth century public architecture like the state capitols designed by Charles Bulfinch for Boston and Hartford. Key examples of the colonial revival in New Haven included the Security Insurance Company building, designed in 1924 by Henry Killam Murphy on Whitney Avenue. It was among the first business structures erected on that stately boulevard. The building was recently demolished—along with a 1950s addition by Douglas Orr—to make way for a new building for the Yale School of Management designed by Norman Foster. The colonial revival was also used for public school buildings, including Hamden High School, designed in 1935 by New Haven-based architect Roy W. Foote for a large site on Dixwell Avenue. In 1928, the Union and New Haven Trust Company, a leading bank, hired Cross & Cross to design a Georgian skyscraper that rose twelve stories (the tallest in the city at that time) at the corner of Elm and Church Streets.

13 The architect Natalie de Blois is credited as a project architect and, with Gordon Bunshaft and others, was instrumental in the building's design. To mark the dedication of the new building, Connecticut General president Frazar Wilde organized a symposium, "The New Highways: Challenge to the Metropolitan Region" and offered his own suburban estate as one answer to these problems. On the move of corporations to the suburbs, see Louise Mozingo, *Pastoral Capitalism: A History of Suburban Corporate Landscapes* (Cambridge, Mass.: The MIT Press, 2011); and on Connecticut General, Alexandra Lange, "Tower Typewriter and Trademark: Architects, Designers, and the Corporate Utopia, 1956–1964," Ph.D. dissertation, Institute of Fine Arts, New York University, May 2005. See also "Back to the Garden: Corporate Modernism in Context," 2001, video by American Beat and produced for "Saving Corporate Modernism," Yale School of Architecture Gallery, available here: http://americanbeatfilms.wordpress.com/films-2/back-to-the-garden/

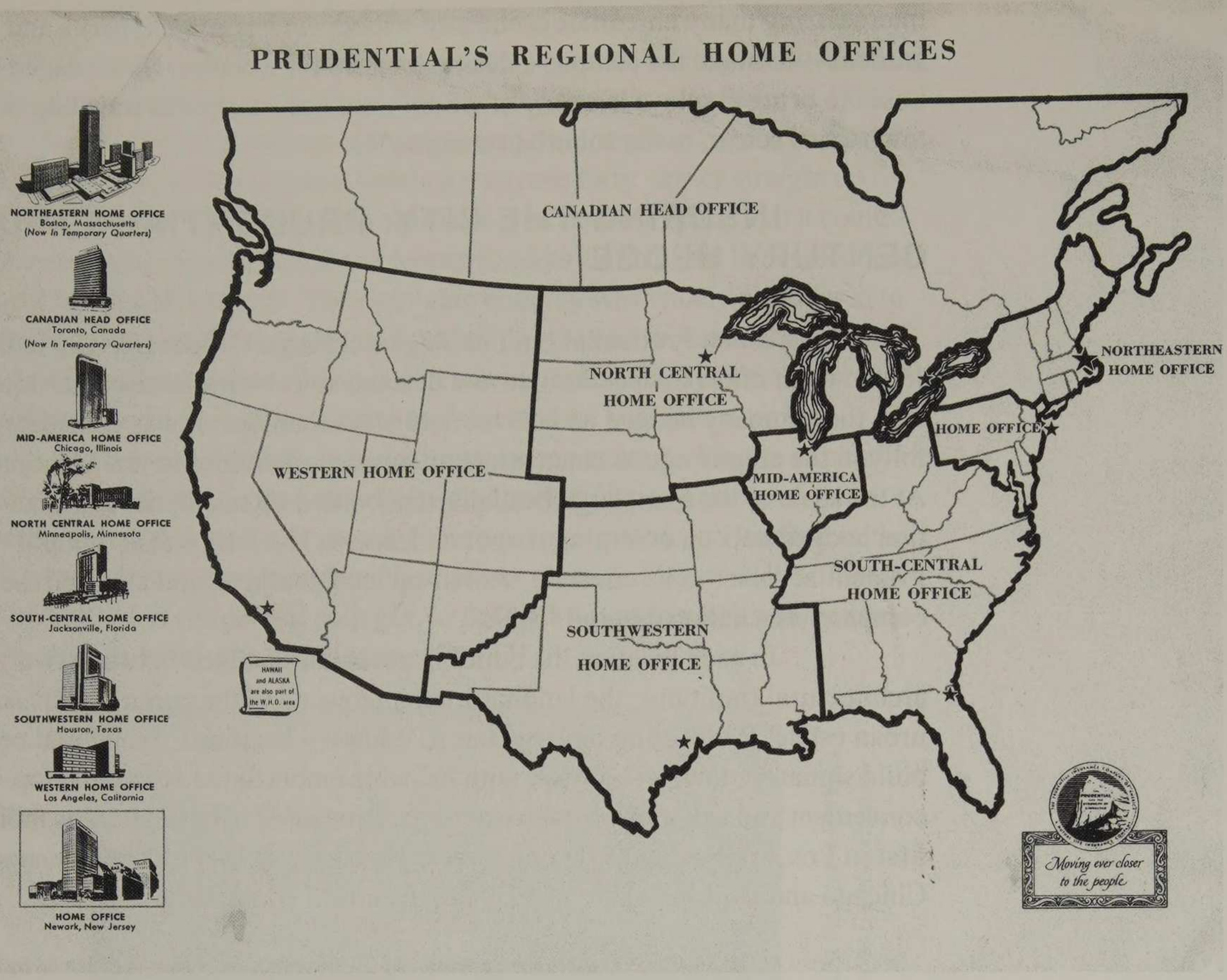


Fig.13 *Prudential's Regional Home Office plan was first proposed in 1945 by a Vice President in the company's "methods department." By 1965, the company had built six Regional Home Offices in the United States and one in Canada*

ambitious plans for a complex of buildings on the site of a dormant railroad yard in the Back Bay.[14]

Prudential acquired the Boston site—twenty-eight acres of fanning tracks and auxiliary structures—in a private transaction with its owners, the Boston and Albany Railroad.[15] The insurance company was not the first, however, to consider building there. Real estate developer Roger Stevens, who had experience with large urban renewal projects, assembled a team of the world's most influential modernist architects to elaborate a proposal for the site. The team included Walter Gropius and Pietro Belluschi—leading lights of the academic architectural establishment—and Walter Bogner, Hugh Stubbins, Carl Koch, and members of The Architects Collaborative. The Boston Center Architects, as the team called itself, took the opportunity to implement long-simmering ideas about how to rebuild the core of the modern city ***Fig.14***.[16]

Gropius, Belluschi, and their colleagues certainly wanted to work with American business clients. (Belluschi, in particular, had experience in this area.) The Boston Center Architects modeled themselves on a collaborative. But this professional structure raised questions in the minds of Prudential executives: Who would take orders from the client? How would a directive descend the chain of command to the construction site? Prudential wasn't sure

Fig.14 *Photomontage of the Back Bay Center (Boston Center Architects, 1954)*

of the answer. Furthermore, the possibility that these influential tastemakers would design a Back Bay Center to advance their own agenda was too great a risk for the insurance company to take.[17]

At the end of the day, Prudential executives felt more comfortable interacting with an architectural organization that mirrored its own hierarchical corporate culture. And so Prudential placed its bets with Charles Luckman, who had been president of Lever Brothers before returning to his roots as an architect. The design of what would become the Prudential Center was only one part of the overall challenge of the redevelopment of Boston—already a risky proposition for the insurance company from both a financial as well as a political perspective. One way that Prudential hedged its bet on a city with an uncertain future was by insisting on tax clemency. Hiring Luckman and his firm, with its experience in delivering large and complicated projects on budget, represented a further hedge on the risk of such a project.[18]

Though considered the safer bet, Luckman championed urbanistic principles that were not all that different from those of his more distinguished peers. Where Walter Gropius and Siegfried Giedion called for the "Humanization" of cities, Luckman promoted his own brand of "Humanation," which involved the provision of unprogrammed open space for the enjoyment of pedestrians. Luckman's team of engineers and designers developed a car-based

14 On Prudential's regional home office program, see Rubin, *Insuring the City*, chapter one.

15 At that time the B&A was owned by the New York Central Railroad and under the leadership of Robert Young.

16 Roger Stevens was the initial developer of New Haven's Church Street redevelopment project. See Dain Lewis, "The Developer's Game: The Private Sector and the Church Street Project, 1955–1964," Senior Essay, Department of History, Yale College, April 9, 2007.

17 On Belluschi's Portland- and later Boston-based practice, see Meredith Clausen, *Pietro Belluschi: Modern American Architect* (Cambridge, Mass.: MIT Press, 1999).

18 Charles Luckman was president of Lever Brothers before returning to architecture in 1950 when he joined with former University of Illinois classmate William Pereira. Together, Pereira & Luckman worked on a series of large planning and design projects for the military, aviation industry, and business. When Pereira left in 1958 to form his own firm, the Prudential Center project went to Charles Luckman Associates. As far as his concept of "humanation," Luckman pointed to his role as client for the Lever House building on Park Avenue, designed by Skidmore, Owings & Merrill, as a formative experience. He took full credit for conceiving the design of that building and the idea of eschewing street-level retail to give people a generous urban plaza. Rubin, *Insuring the City*, 172–182.

enclave, circumnavigated by a ring road, and sitting on a podium of parking garages—organizing principles that mirrored those contemplated by the Boston Center Architects for the Back Bay Center. And like its conceptual predecessor, the Prudential Center marked a significant remaking and modernization of the city along new lines: a mixed-use complex with offices, residential towers, a hotel and convention center complex, and public plazas ***Fig.15***. Where the Back

Fig.15 *Prudential Center, Boston (Charles Luckman Associates with Hoyle, Doran & Berry, 1965)*

Bay Center called for an enclosed shopping mall, however, Charles Luckman Architects extended two open-air retail plazas to the north and south of the central tower. The plazas never worked. They were not well coordinated with the Prudential Center's retail anchors, Saks and Lord & Taylor. Windswept and inhospitable, by the mid-1980s Prudential was already making plans to renovate and rehabilitate the Center.

As originally built, neither the architecture nor the urban design of the "Pru" won many admirers. "Insensitive," "anti-urban," and "ugly;" these rebukes and more were hurled at the Prudential Center. Was it an error to hire Luckman? Would the complex proposed by Gropius and his comrades have been welcomed by critics? Or, in retrospect, might it have been attacked, too—like the Pan Am tower in New York, built by the same team—for its bluster and disregard of its surroundings?[19]

After thirty years of extensive renovations and additions, the Prudential Center looks almost nothing like it did in 1965—when the central tower and western portions were dedicated—or even in 1980, when several additional buildings were in place. The Pru has proven to be a restless and resilient landscape. Would the Back Bay Center, a more precisely tuned machine, have proven as open or amenable an armature for alteration? Probably not. In the first place, the Back Bay Center might not have been built as fully conceived by its architects. Responding to outside circumstances, Prudential moved ahead with the project incrementally; Luckman's firm and its bureaucratic design process allowed for that ***Fig.16***. Like it or not, the Pru has adapted to changing real estate requirements and to the shifting tides of effective urban design. Indeed, the banality of the landscape that Luckman

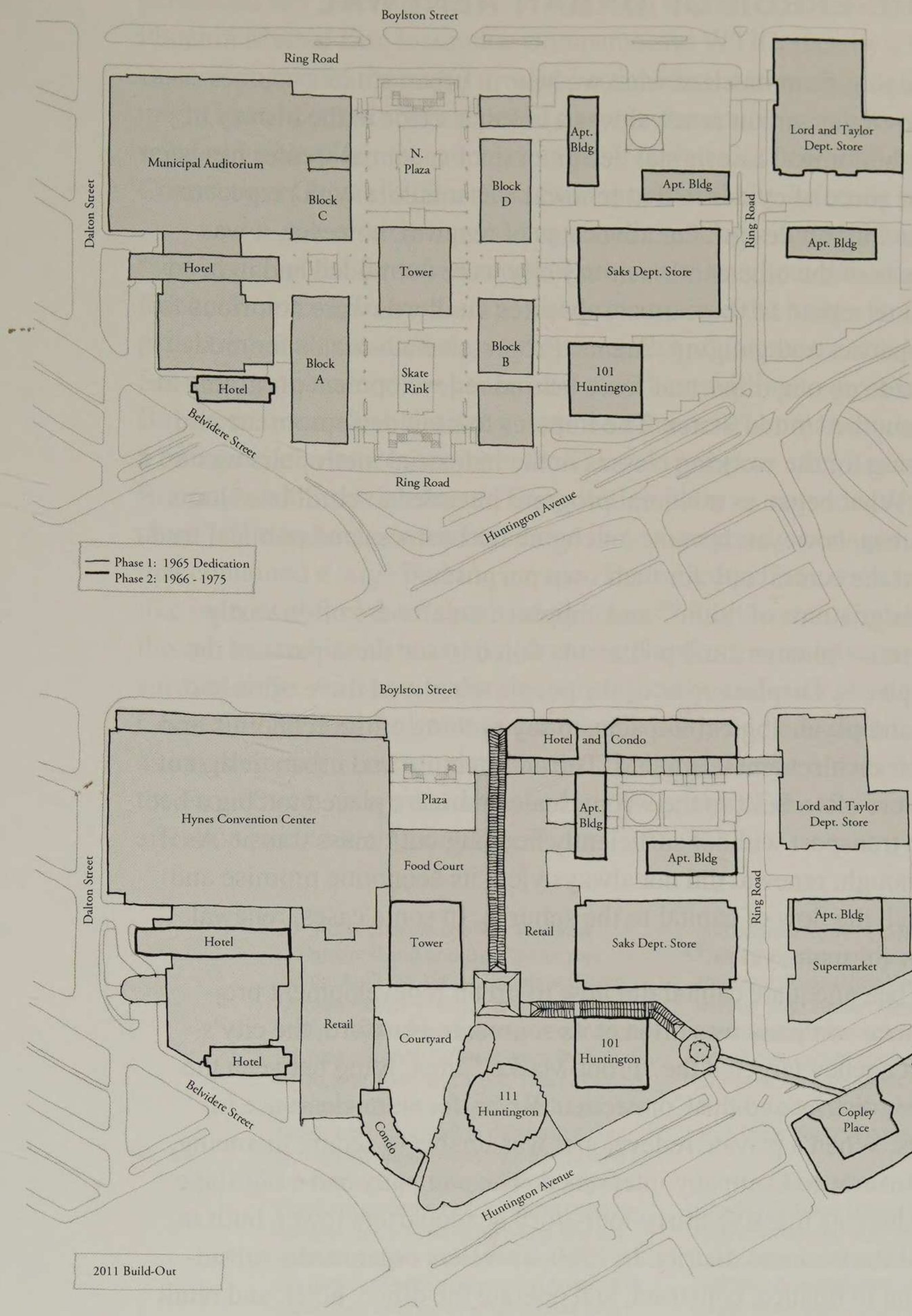


Fig.16 *The Prudential Center plans, then and now, drawn by Amy DeDonato and James Andrachuk*

designed ensured that preservationists would never protect it as a sacred cow. In contrast, if connoisseurs had deemed the Back Bay Center "good design," its owners might have found it much more difficult to make it over. By hedging its architectural bets with Luckman, Prudential may have been better able to correct the errors that became evident over the years.

19 On the public reception of the Pan Am building, see Meredith Clausen, *The Pan Am Building and the Shattering of the Modernist Dream* (Cambridge, Mass.: The MIT Press, 2006). Vincent Scully called the building Gropius's *coup de grâce* to Park Avenue; Scully, *American Architecture and Urbanism* (New York: Henry Holt and Company, 1988), 180.

THE ERROR OF URBAN RENEWAL

Judging from much of what we hear in urban studies courses and conferences today, urban renewal was a colossal error in the history of American city-building. The original design of the Prudential Center has been put forth as one piece of evidence that renewal was a failure with respect to architectural and urban design. For advocates of renewal, however, it was evident that parts of the nineteenth-century city were outmoded and in need of replacement or repair. In these areas, absentee landlords were notorious for neglecting properties and gouging tenants. Progressive advocates for modern housing made up one important force behind redevelopment programs in cities throughout the United States. The impetus to provide appropriate and equitable housing for the working classes in the industrial metropolis was a laudable idea. What began as a federal program intended to eliminate slums and blighted areas, however, became an engine for business and political leaders to refashion the central city for their own purposes.[20]

Designations of "slum" and "blighted area" were often vastly errant misnomers—planners and politicians failed to see these parts of the city as useful places. Displacement of the people who lived there often had violent social and psychological impacts, to say nothing of the economic and political disenfranchisement it implied. The architecture and urban design of the new city were often built to the wrong scale. Planners placed too big a bet on automotive transport without sufficiently hedging with mass transit. As if that weren't enough, renewal did not always yield its economic promise and failed to staunch the flow of capital to the suburbs. In some cases, renewal sites lay fallow for many years.[21]

When adequate capital did flow to urban redevelopment projects, an insurance company was often at its source. In Hartford, the city's redevelopment agency targeted the "Front-Market" area, lying between the central business district and the Connecticut River, for slum clearance in the early 1950s. When a private redeveloper was unable to secure financing, the Travelers Insurance Company intervened. The company had a big stake in Hartford, where its massive thirty-four-story headquarters tower, built in 1919, anchored the business district. In 1960, Travelers organized a subsidiary corporation to finance, construct, and operate the office, hotel, and retail complex that would be called Constitution Plaza ***Fig.17***. The insurance company

Fig.17 *Constitution Plaza, Hartford (Charles DuBose, coordinating architect, 1964)*

persuaded key local businesses—including Connecticut Bank and Trust, Phoenix Mutual Life Insurance Company, and WTIC, the city's largest broadcaster—to stay in the city. Travelers' commitment to saving the city from what might have been an urban renewal fiasco—the double scar of a cleared site without viable plans for reconstruction—served as a powerful counterpoint to Connecticut General's departure from the central city a decade earlier.[22]

A few early reports suggested that Constitution Plaza might "serve as a model for urban renewal projects throughout the country." Writing for the *New York Times*, George Taloumis praised the lushly landscaped pedestrian mall elevated above the street.[23] Architectural critic Mildred Schmertz applauded "the generosity of a client willing to pay for plazas."[24] But sheer space alone did not guarantee a successful urban environment. In a biting review for *Progressive Architecture* one year after its completion, Robert A. M. Stern lambasted Constitution Plaza as an "urbanistic nightmare." The buildings were bland and they were poorly arranged on a podium that contained a large parking garage. The raised plazas created a "fortress-like inaccessibility from the existing streets," Stern wrote. Constitution Plaza, though located in the heart of downtown Hartford, seemed removed from its surroundings. As Stern wrote, "psychologically, and even physically, perhaps, Constitution Plaza is almost as completely divorced from the life of Hartford as any shopping center in the suburbs." Meanwhile, the former residents of the Front Street area were dispersed to other parts of the city without adequate attention paid to their rehousing.[25]

20 Ada Louise Huxtable, "Renewal in Boston: Good and Bad," *New York Times*, April 19, 1964. Catherine Bauer, *Modern Housing* (New York: Houghton Mifflin, 1934). The legislative and financial sources of urban renewal were the Housing Acts of 1949 and 1954, Title I of which reimbursed local redevelopment agencies two-thirds of the cost to demolish slums or blighted urban areas. Not all the land in a redevelopment area had to be blighted. Planners placed a high value on comprehensive, broad-sweeping plans and not piecemeal improvements. Because of this, the history of urban renewal in America is littered with stories of small battles over particular properties, including business properties whose proprietors insisted were not at all blighted but were active and thriving pieces of the downtown business and shopping district.

21 Key reports on urban renewal include Herbert Gans, *The Urban Villagers: Group and Class in the Life of Italian-Americans* (New York: Free Press, 1962); Marc Fried, "Grieving for a Lost Home," in *The Urban Condition*, ed. Leonard J. Duhl (New York: Basic, 1963); Chester Hartmann, "The Housing of Relocated Families," in *Urban Renewal: People, Politics, and Plannng*, ed. Jewel Bellush and Murray Hasknecht (New York: Clarion, 1968); Jane Jacobs, *The Death and Life of Great American Cities* (New York: Vintage, 1961); Martin Anderson, *The Federal Bulldozer: A Critical Analysis of Urban Renewal, 1949–1962* (New York: McGraw-Hill, 1962); and Jeanne Lowe, *Cities in a Race with Time: Progress and Poverty in America's Renewal Cities* (New York: Vintage, 1967). In New York, Robert Moses was famously intransigent to the accommodation of transit even when rights-of-way were available. See Robert A. Caro, *The Power Broker: Robert Moses and the Fall of New York* (New York: Vintage Books, 1975).

22 For Constitution Plaza, architect Charles DuBose planned the twelve-acre downtown center with office and commercial buildings, underground garages for eighteen hundred cars, and a sequence of landscaped walks and plazas. Buildings were designed by several of New York's leading commercial firms, including Kahn & Jacobs and Emery Roth & Sons. The complex was closely tied to state highway plans and the ramps from Interstate 91, careening beside the Connecticut River, neatly linked to the parking garages that formed the ensemble's podium.

23 Geroge Taloumis, "Gardens Grow in the Hub of Hartford," *New York Times*, November 15, 1964.

24 Mildred Schmertz, "Insuring the Growth of Hartford," *Architectural Record* (March 1964).

25 Robert A. M. Stern, "Constitution Plaza after One Year," *Progressive Architecture* 46 (December 1965), 166–183.

As an economic investment, Constitution Plaza has had its ups and downs—a recent report noted an 82% business occupancy rate, a relatively high number for downtown Hartford. And while some have argued that the Front Street area did not merit physical preservation, a consensus has formed—in the case of Hartford and in many similar instances across the United States—that the principal error of urban renewal was the destruction of neighborhoods and the failure to recognize them as viable social networks.[26]

Over time, the error of renewal-era demolition has been amplified in real estate terms. Evidence of this may be found in urban neighborhoods that were spared the wrecking ball. In cities that are succeeding—even as they flourish unevenly—areas that survived renewal are often among the most desirable and expensive parts of town. The diverse and rooted West Village neighborhood described by Jane Jacobs, for example, has gradually become, for the most part, an exclusive enclave for the well-to-do and highly mobile. There has been significant human displacement in areas like this, only at a much slower rate than during the renewal period.

In some respects, political and business leaders in cities have learned from the excesses of urban renewal. Although land takings by cities and their corporate clientele continue, wholesale clearance is avoided and architectural preservation is widely recognized as a means for upscale redevelopment. Blank plazas are out; cozy streetscapes and "neighborhood fabric" are in. Urban highways are of the past; bike lanes are *au courant*. Autocratic planning is disavowed; community workshops are trumpeted. It would be another mistake, however, to think that error could be eliminated from urban planning and development. Bicycles may turn out to be better than cars for the long-term sustainability of American cities. Observers should take heed, however, when planners in thrall to bike mobility mimic the certitude of highway planners from sixty years ago.

MUTUALITY AND MORAL HAZARD

Prudential founder John Dryden believed that life insurance extended a moral opportunity to its buyers, a chance to tax oneself altruistically in the short-term for the long-term care of others. Insurance was an invitation to enter into a relationship of mutual care with fellow citizens. Together, enough participants could effectively eliminate risk by sharing it completely.[27]

The flipside to moral opportunity is moral hazard. Are people with insurance more likely to engage in risky behavior? Does the aegis of security spur recklessness, or does it do so only for the morally inept? Moral hazard is part and parcel to the operations of actuarial science: it implies the diffusion of responsibility, which makes the risk pool more risky.

Bigness is essential to an effective risk pool. To hedge on its own rapid growth, Prudential constructed Regional Home Offices in the 1950s to maximize the physical connection between the company and its clients and to help unearth local investment opportunities. Amongst its own people, decentralization was intended to address moral hazard, as well; it was one way to demand accountability from executives.[28]

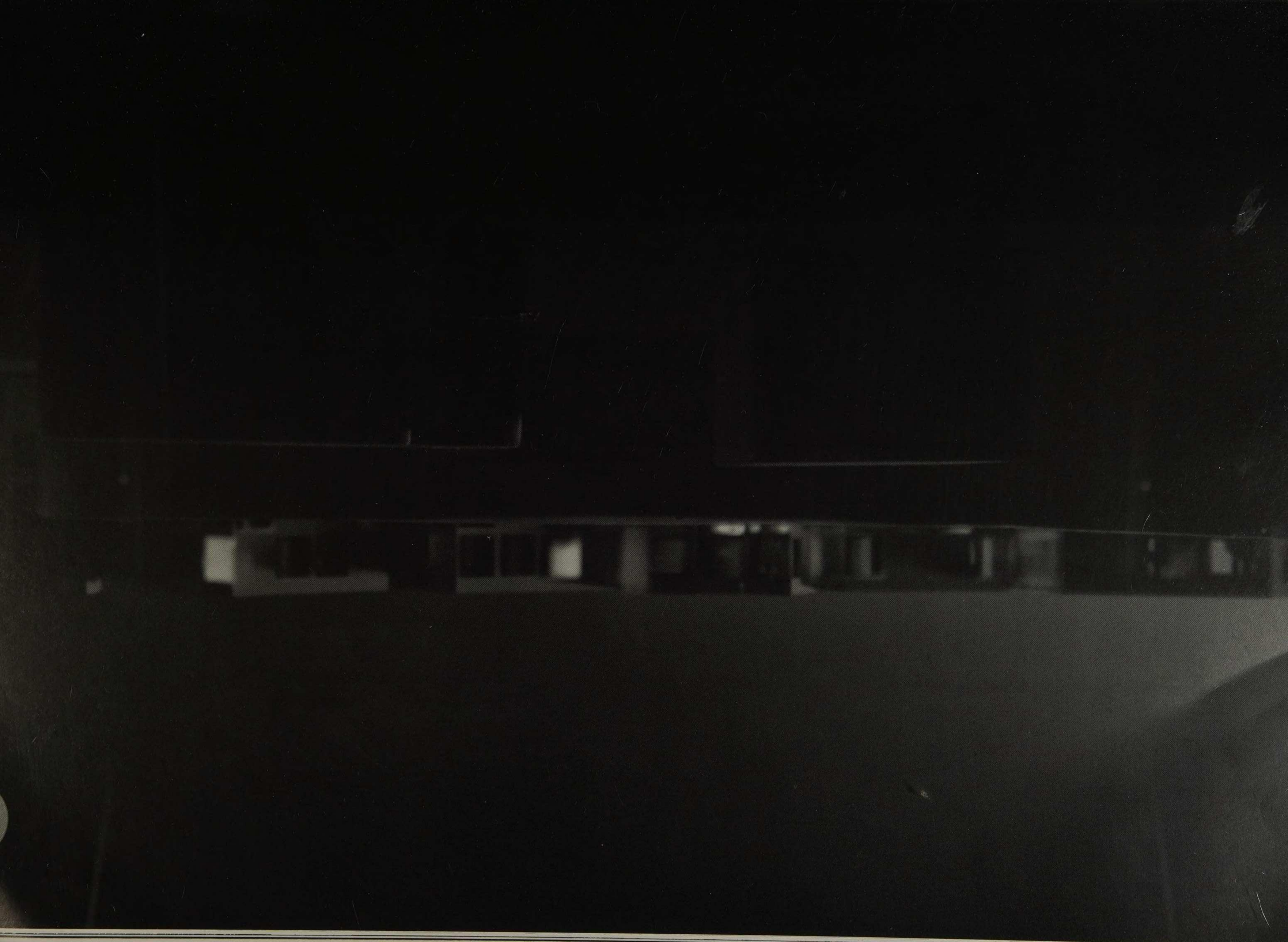
The recent financial crisis and enduring economic recession, however, suggest that moral hazard is at work within the vast financial conglomerates that have emerged, in part, from nineteenth century insurance companies. The foundational unit of insurance company prosperity, the home mortgage, has been sliced and diced into an opaque financial product whose risks could no longer be accurately calculated.

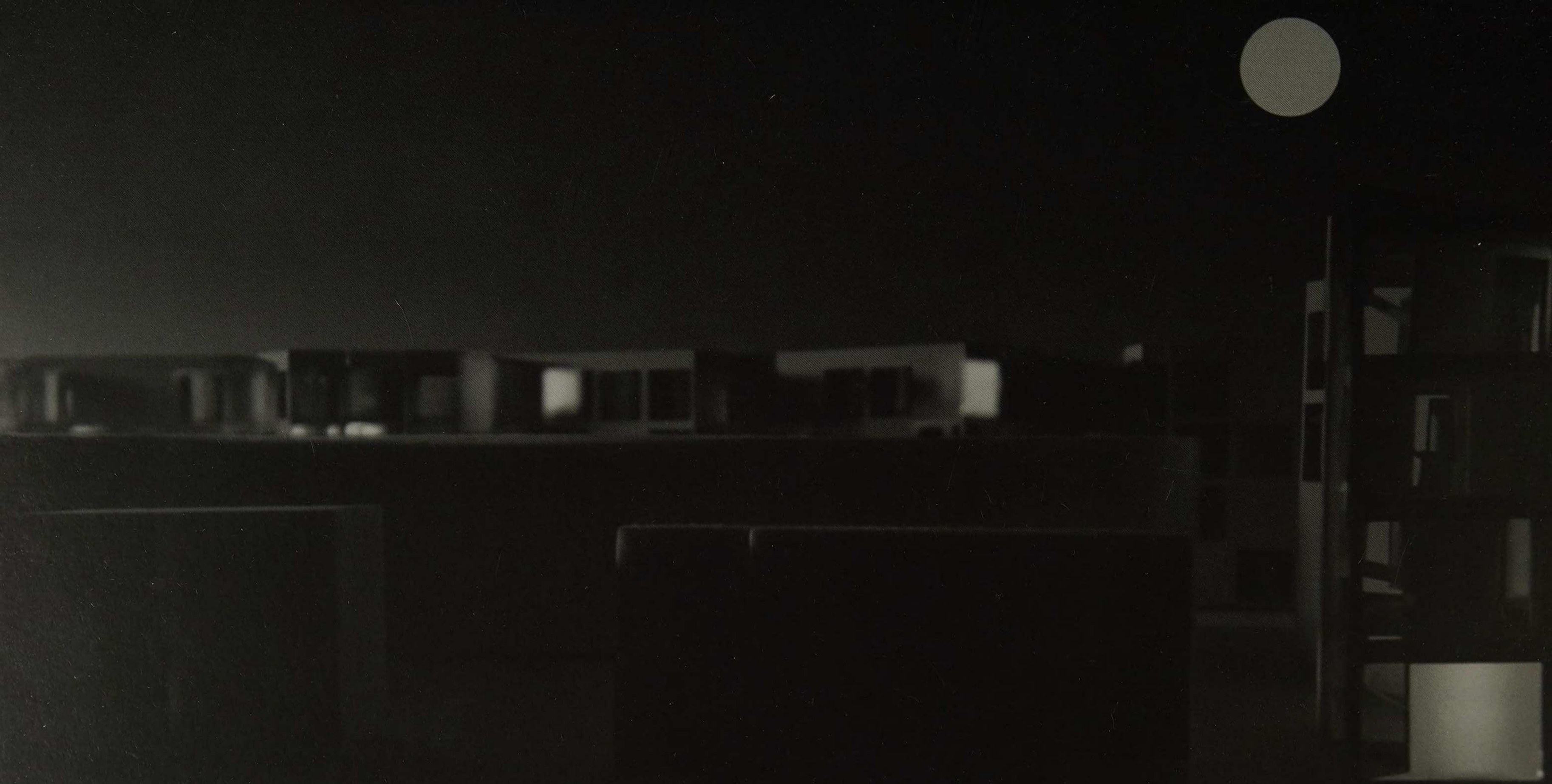
John Dryden's prophecy that insurance would grow very large had come to pass. By the start of the twenty-first century, a few of these corporations had grown "too big to fail"—so thoroughly interconnected with the broader financial life of the nation and beyond that failure would ripple across the economy like falling dominos. For insurance purposes, bigness was required to amass actuarial data: the business of mutuality depended on it. As an attribute of a financial organization, however, bigness fostered an environment of moral hazard by breaking the link between intangible investments and real places.

26 Kenneth R. Gosselin, "Hartford's Constitution Plaza: Mistake or Something Else?" *Hartford Courant*, August 1, 2012. At least one historian has argued that executives at Travelers Insurance, hedging their bets on the project, were not as ambitious as they might have been in planning Constitution Plaza and sabotaged the project by resisting the inclusion of housing—an error avoided at the Prudential Center—and also by jettisoning a "land bridge" to Main Street. See Wilson H. Faude, "Series of Missteps Led Hartford's Constitution Plaza off the Path to Success," *Hartford Courant*, July 22, 2007.

27 Quite a few insurance companies internalized the principle of mutuality in corporate structure. Mutual companies, technically owned by policy-members, surpassed stock companies as the dominant form of insurance organization in the 1840s. Following the Armstrong Hearings of 1905, which investigated suspect insurance company practices, several important stock companies went through a process of mutualization, including both Prudential and Metropolitan Life in 1915. It was a process that historian Morton Keller called "corporate purification." See Keller, *The Life Insurance Enterprise, 1885–1910* (Cambridge: The Belknap Press of Harvard University Press, 1963), 271. After more than eighty years as a mutual company, Prudential began a demutualization process in 1999 and became a private company once again. In 2001 Prudential stock was issued on the New York Stock Exchange under the symbol PRU.

28 It must be said that Prudential executives were not immune to the pitfalls of moral hazard. In fact, the president who oversaw Prudential's decentralization, Carrol Shanks, was forced to resign in 1960 after it came out that he had unfairly profited from insider dealings with the Georgia-Pacific Corporation, a timbering concern on whose board he served.





7. Jane wouldn't stop berating Ed that community participation produces great cities, but we couldn't think of a single example. Ed tried to ignore Jane, he turned to Hilary and said "Architecture is caught within a double bind between a politics of service (community, capital, etc...) and the politics of aesthetics (cultural narratives). One problem is that their politics operate at totally different time scales, aesthetics are much slower than service. Our politics consists entirely in the awkward relationship between two (at least) contradictory terms through which the subject is defined."

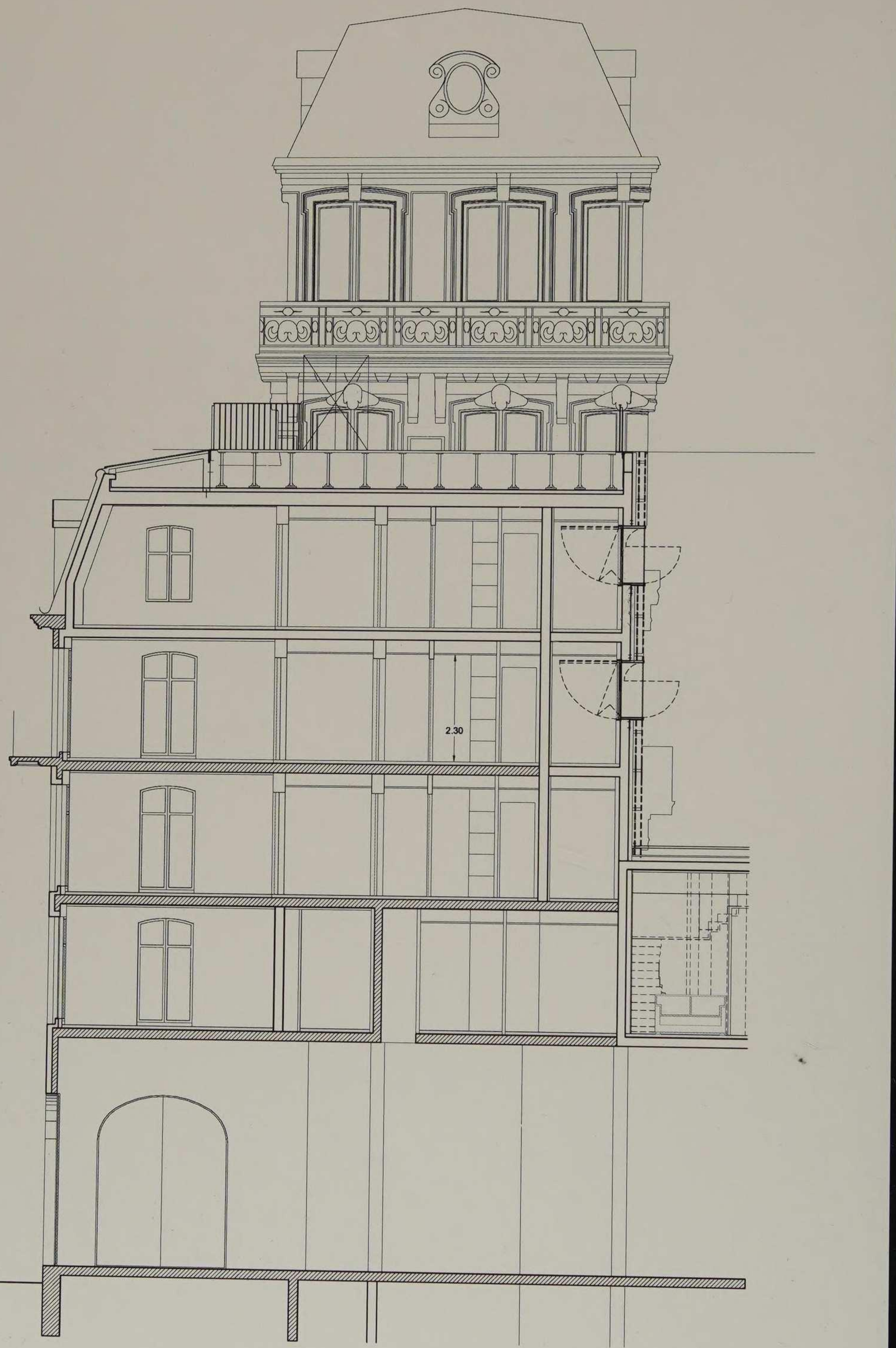
FOQUET'S BARRIÈRE HOTEL

MAISON EDOUARD FRANÇOIS

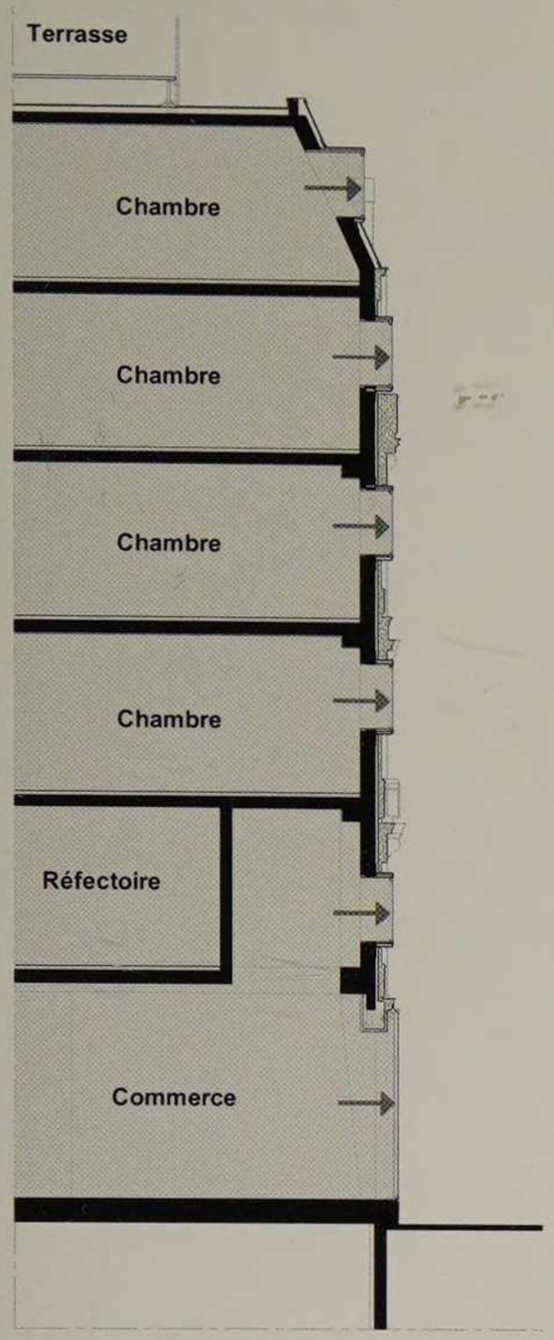
ERROR

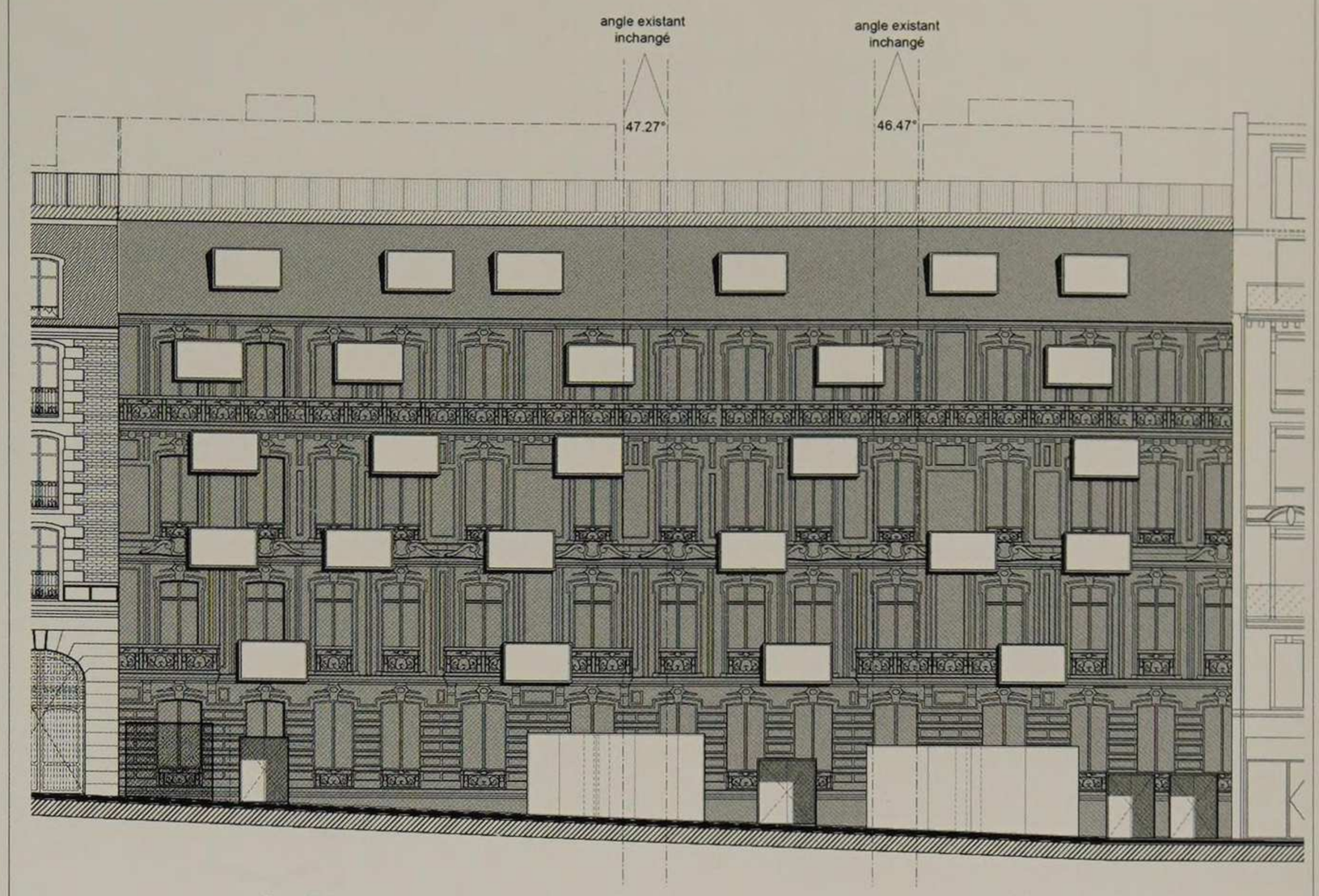
Façade detail. Credit: Maison Edouard François

Entrance. Credit: Maison Edouard François



Transverse section. Credit: Maison Edouard François





Sectional diagram and unfolded elevation.
Credit: Maison Edouard François

An "absurd machine" is what Giambattista Piranesi imagined the bourgeois city to be. Manfredo Tafuri corroborates this prophecy in "Toward a Critique of Architectural Ideology,"[1] locating its epitome in 19th-century metropolises. Nowhere was this clearer than in Paris, as Baron Georges-Eugène Haussmann's boulevards punctured the medieval fabric of the city, paving the way for modern bourgeois society and the capitalist economy.

1 Manfredo Tafuri, "Toward a Critique of Architectural Ideology," *Contropiano* 1 (January–April 1969).

Over a century and a half later, Edouard François's windows puncture a precast version of Haussmann's iconic building façades, framing ideal views for the international business elite who frequent Foquet's Barrière Hotel. Extravagant interiors shine through the bas-relief exterior, irrespective of the faux-Haussmannian windows that appear to be boarded up by concrete. Maison Edouard François calls the concept moulé-troué (cast and punctured), whose primary purpose is to maintain the outward unity of the block while maximizing the visual comfort of the rooms. Error, it seems, lies not so much in alignment as in urban values. Time preserves absurdity.

—

Location—Paris, France
Architect—Maison Edouard François
Completed—2006
Client—Groupe Lucien Barrière, Groupe Accor
Landscape Architect—Pré Carré
Lighting—Light Cibles
Program—Palace with 107 rooms (55 suites) with a restaurant-bar, gardens, spa, and parking
Area—16,000 m² of usable floor area
Budget—60 million €

View from Rue Vernet.
Credit: Maison Edouard François

Left
Façade detail.
Credit: Maison Edouard François

Above
View from roof garden.
Credit: Maison Edouard François

Right
Detail of vertical aluminum branches in hotel courtyard.
Credit: Maison Edouard François

THEORY OF THE IMPOSSIBILITY OF A THEORY OF ERROR

ASLI SERBEST
& MONA MAHALL

Architecture's relationship to error was long defined in terms of a normative tool set intended to prevent it. The most effective—yet aesthetic— error tool in the Western architectural tradition was the classical canon, because it was prophy-lactic: handbooks of columnar orders and theories of proportion established a rhetorical system for discriminating between beautiful and ugly, proper and improper, right and wrong. Modern culture placed this traditional dualism in question. Modernity in architecture started with the destabilization of the classical canon at the end of the 17th century, with the famous *Querelle des Anciens et des Modernes*. This meant a deep break with the past and its clear opposition between right and wrong. Since then, architecture has become an object of negotiation, and its forms can no longer—if they ever could in the first place—be determined by a prophylactic canon of values passed on from history.

FROM ERROR TO CHANCE

The first step into modernity was to regard the past as a tradition—a tradition interpreted, however, from one's relative position, potentially addressing the distant past of antiquity, the close past of classicism, or neither, according to a given work's self-understanding. Indeed, modern art and architecture are established by the rejection of the historical tradition; and in regarding error as deviation from this tradition, from the old, it was only a small further step to interpret it as a valuable innovation, as new. Modern art and architecture are founded on a valorization of the error as avant-garde.

The classical dualism between right and wrong has given way to a temporal distinction between old and new, and it is only the new that matters in modern culture. This is the fundamental shift at work in the tendency of modern architectural discourse to dismiss historicism in favor of novel, stripped-down forms. Austrian architect Adolf Loos (1870–1933) rejected historical forms in favor of white walls and simple cubatures; therefore, he advanced a theory of cultural evolution in which formal reduction corresponded to spiritual progress. Whereas older, primitive cultures were in need of decoration, modern society should abandon it and confine itself to clean, plain forms. Connecting aesthetics and ethics, Loos called for a modern culture with a new style that rejected the old as obsolete. It was actually his house at the Michaelerplatz in Vienna that was famously criticized for lacking "eyebrows."

Since Loos's day, theorists in all fields have recognized the modern "cultural revolution," be it Friedrich Nietzsche with his "transvaluation of values"[1] or Georg Simmel in his approach to fashion. For Simmel, modernity meant emphasis on the present, established through a break with the past. The new is valorized through the increased power of fashion and its permanent call for change.[2] This means that even the difference between old and new is no longer a strict or stable dualism, as the new turns out to be the old, or the other way round, depending on one's context, time, and perspective.

When it is no longer clear what is right or wrong,[3] a theory of error becomes impossible. Such, at least, was the conclusion of the metascientific efforts of cybernetics,[4] the mid-20th-century theory of communication and control in machines and living beings. Cybernetic thinkers from all disciplines aimed at developing alternative models to the dualistic structure of Western thinking: Radical constructivists, rethinking Nietzschean thoughts, introduced the observer as a figure of limited truth who cannot finally decide on right and wrong. Logicians tried to replace the two-valued system with a multi-valued model. Philosophers of technology studied communication processes shared by machines and living beings. If there has ever been something like a theory of error, it was subsumed by that of noise, as the American mathematician Norbert Wiener investigated its appearance in stochastic processes and chance events. It is no coincidence that word "chance" also denotes "opportunity"; indeed, celebrating opportunity already assumes the revaluation of error. The English psychiatrist William Ross Ashby, a largely forgotten

but highly influential pioneer in cybernetics, suggested that error-making was among the most important information-gathering processes.[5]

For him, error was not valueless or senseless disinformation, but rather invaluable information for an evolving system or organism. The better-known cyberneticist Gordon Pask maintained that error should be regarded as a figure of innovation or contradiction against the foil of a given context or environment ***Fig.1***.[6] The Austrian physicist Heinz von Foerster went farther, describing the cultural system as a black box which is neither calculable nor predictable.[7] The future of such a system is fundamentally not decidable and its problems cannot be solved by knowledge ***Fig.2***.

Polish philosopher and science fiction author Stanisław Lem elaborated this principle in his *Philosophy of Chance*, a theory of literature that favored a cybernetic model over the classical approach. As a scientific theory of the artistic production process, the book aims to combine two inherently separate fields, which probably explains why the *Philosophy of Chance* has been neglected by both cyberneticists and art theorists. It has not been translated into English, although it contains radical ideas that seem highly relevant to present-day design processes of art and architecture. During the heydey of cybernetics, Lem (1921–2006) churned out works from speculative fiction, satirical novels, and short stories to sociological essays. In his fiction, Lem dealt with ironic reflections of modern life: technocratic societies broken down by hyper-intelligent machines, the absurdity of comprehending extraterrestrials, the probability of exploring the entirety of a universe in which humans are just a small spot. His non-fiction works explore information theory, artificial intelligence, biological engineering, and the science of cybernetics. In an interview he explained that cybernetics was a banned issue regarded "as a false capitalist science"[8] in the early 1950s by the communist government and Soviet science. For this reason he coined "mechanioristics," a camouflage term for cybernetics—a trick that was naturally noticed by the editors, who, for some time, refused to publish his works. Lem kept on researching in the fields of cybernetics, however, and later co-founded

1 Friedrich Nietzsche, *Jenseits von Gut und Böse: Vorspiel einer Philosophie der Zukunft* (Leipzig, 1886).

2 Georg Simmel, "Philosophie der Mode" (1905) in *Georg Simmel: Gesamtausgabe, Michael Behr, Volkhard Krech, and Gert Schmidt* (ed.), Frankfurt am Main: Suhrkamp Verlag, 1995, Band 10, 17.

3 Mona Mahall and Asli Serbest, *How Architecture Learned To Speculate* (Stuttgart, 2009).

4 William Ross Ashby gives a lucid defintion: "Many a book has borne the title 'Theory of Machines,' but it usually contains information about *mechanical* things, about levers and cogs. Cybernetics, too, is a 'theory of machines,' but it treats not things but *ways of behaving*. It does not ask 'what *is* this thing?' but '*what does it do?*' Thus it is very interested in such a statement as 'this variable is undergoing a simple harmonic oscillation,' and is much less concerned with whether the variable is the position of a point on a wheel, or a potential in an electric circuit. It is thus essentially functional and behaviouristic." William Ross Ashby, *An Introduction to Cybernetics* (London: Chapman and Hall, 1957), 1.

5 William Ross Ashby, "Feedback, Adaptation and Stability: Selected passaged from *Design for a Brain: The Origin of Adaptive Behaviour* (1960)." Available at http://www.panarchy.org/ashby/adaptation.1960.html.

6 Gordon Pask and S. Curran, *Micro-man: Computers and the Evolution of Consciousness* (New York: Macmillan, 1982).

7 Heinz von Foerster, *KybernEthik (Berlin: Merve, 1993).*

8 Peter Engel, "An Interview With Stanisław Lem," *The Missouri Review*, 7, 2 (1984): 218–237.

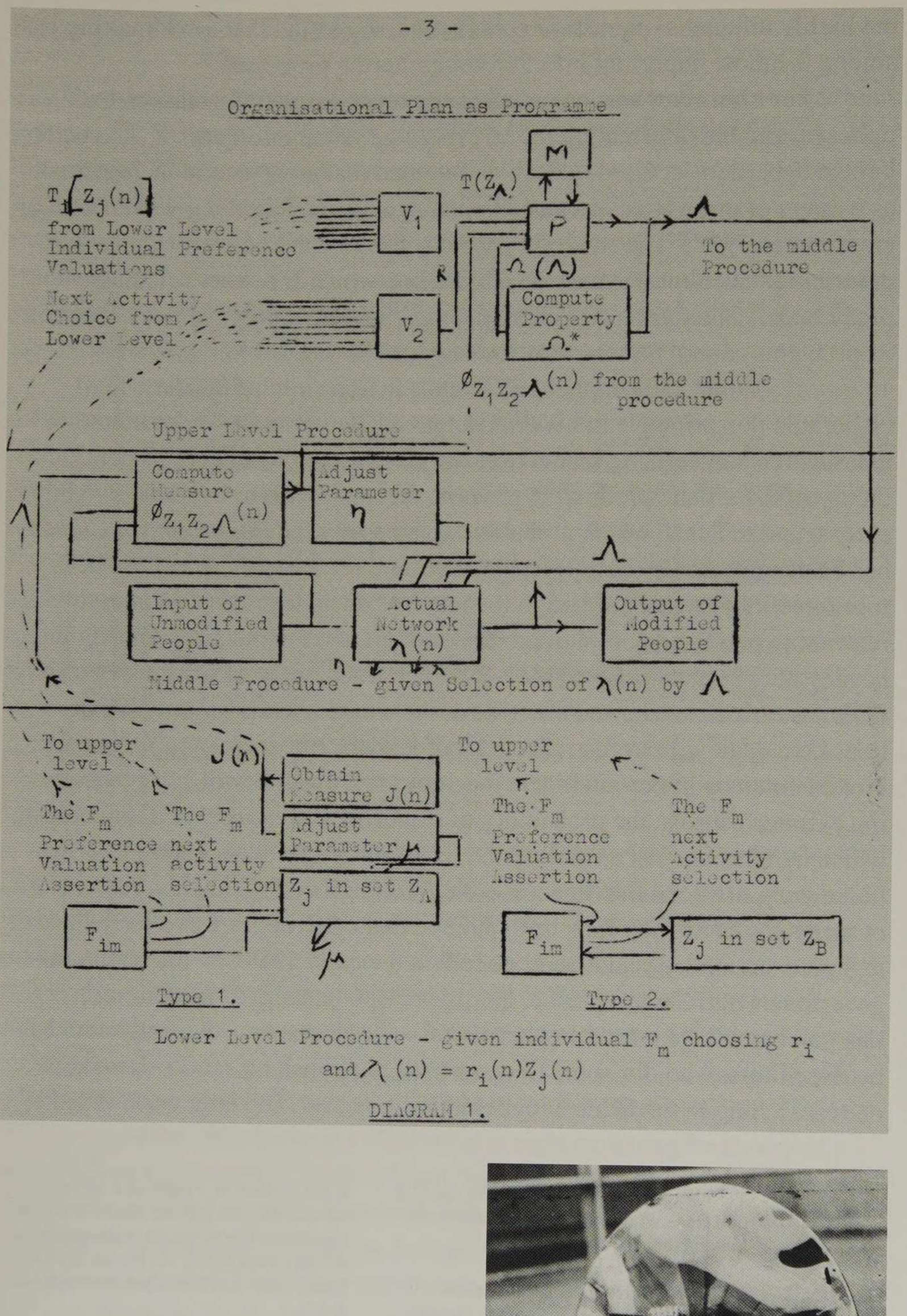


DIAGRAM 1.

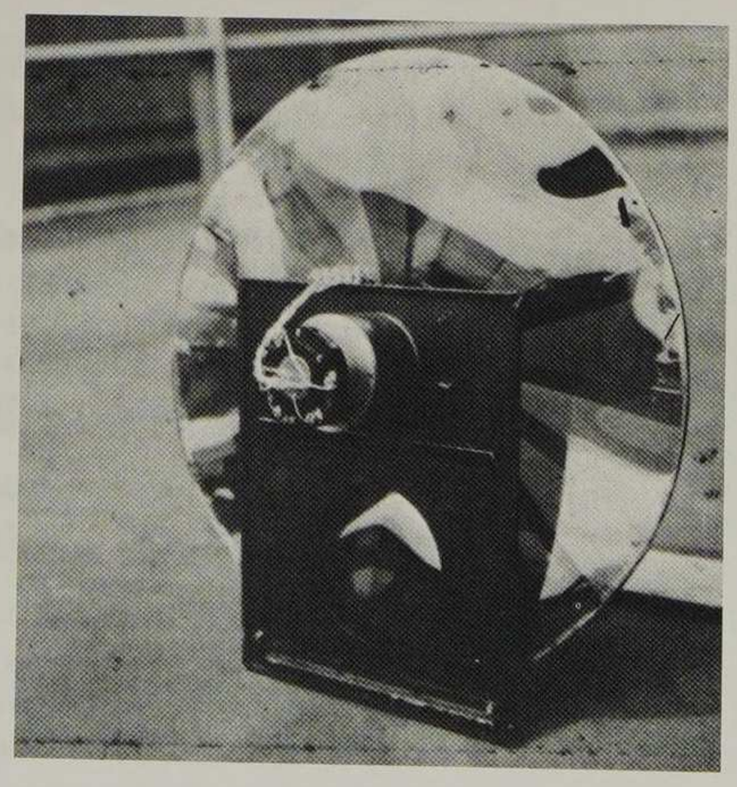


Fig.1 *Notre Gordon Pask was an influential theorist of sixties architecture—he was the resident cybernetician to Cedric Price's Fun Palace and developed an organizational plan (above)—introducing concepts of interactivity and artificial intelligence. Most relevant to the topic of error, he also designed so-called maverick machines, arguing: "Mavericks are machines that embody theoretical principles or technical inventions which deviate from the mainstream of computer development, but are nevertheless of value." One example is Musicolour, a sound-actuated interactive light show from 1953 (below). Gordon Pask and S. Curran,* Microman: Computers and the Evolution of Consciousness *(New York, 1982), 133*

Fig. 2 *French caricaturist Grandville illustrated the modern condition of unpredictability, instability, and preliminarity in fashion. The question of error, of values in general, is evoked by a wheel of fortune that is now responsible for the discrimination between right and wrong. Unpredictable modernity is, as Walter Benjamin has described it, the time of fashion*

the Polish Cybernetic Association. In 1964, he published one of his most important non-fiction books, *Summa Technologiae*, consisting of philosophical essays on cybernetics and biology. *Filozofia Przypadku* (*Philosophy of Chance*) followed in 1968.

Rather than narrowly explaining Lem's approach, we discuss it here in terms of a general theory of design in art and architecture, illustrated through cybernetically-influenced aesthetic experiments from the 1960s to the 1980s.

THE WORK AS HOMEOSTAT

Like von Foerster, Lem regards literature as a stochastic black box rather than a deterministic discipline.[9] This means that authors are faced with a complex, unpredictable system in which they participate not as omniscient observers, but as players in a systemic game that is bigger than they are, involved in processes that cannot be determined or advanced by knowledge alone. Instead, Lem introduces chance, a concept familiar from empirical research, into stochastic processes and the evolution of complex systems ***Fig. 3***.

9 Stanisław Lem, *Philosophie des Zufalls; Zu einer empirischen Theorie der Literatur*, vol. 1, (Polish original 1968), German translation by Friedrich Griese (Frankfurt am Main, 1983), 15.

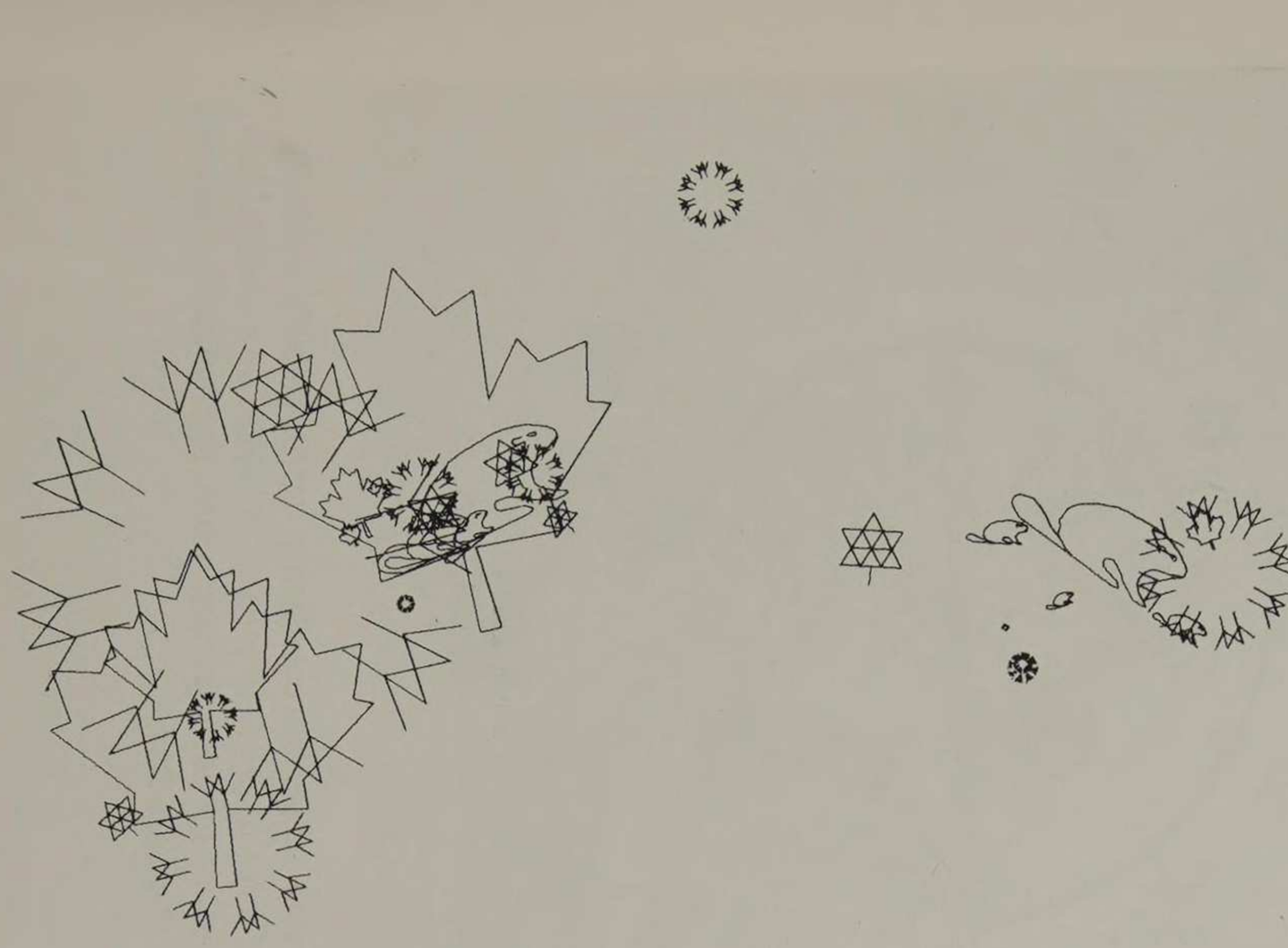


Fig.3 *Of course, the computer was the ideal tool to experiment with chance—or more specifically, with pseudo-random numbers—during the late 1960s. The numbers generated by the computer are technically-speaking not random, as they are produced with the help of determined system time. However, they seem random to us, as we cannot recognize any patterns in them. One early computer work of controlled randomness was "O Canada" by Leslie Mezei, exhibited in Jasia Reichardt's 1968 exhibition "Cybernetic Serendipity"*

Chance is the self-referring factor of every evolutionary process in which a system, while emerging, produces its own rules. Through it, a random initial condition turns into the norm, into the more-or-less permanent condition of a system. For Lem, the main question is how chance becomes the steersman—how chance becomes the destiny of a work.

He unfolds his concept of the creation of a work within three steps of an evolutionary process: a variety generator, a filter of criteria, and finally a program of given transformations.[10] The difference between human and natural evolution is one of efficiency: whereas nature does not have the brain to remember or anticipate states of the system and, therefore, can only learn in Markovian manner,[11] the human is able to learn from history and extrapolate into the future. Yet in the process of making (or better, becoming), a work can, according to Lem, be described as a *homeostat*.

Here Lem is referring to a cybernetic concept for complex systems first developed by William Ross Ashby in the 1940s.[12] Systems are complex when their factors are so dynamic and interconnected that the alteration of one may also change all of the others. Ashby's focus was the mental operation of the human brain, but Lem suggests that living organisms, the global economy, and literary works are all examples of such complex systems. Characteristic of these systems is their capacity for *homeostasis* (from the Greek ὅμοιος, *hómoios*, or "similar" and στάσις, *stásis*, or "standing still"), of processes of adaption, self-stabilization, and self-organization. These processes of adjustment and interaction help to balance changing environmental conditions and similar influences. The overall goal of such systems—think of blood pressure, for example—is to achieve and maintain stability. When deviations in essential values are caused by an external force such as an experimenter (or in this case an author), the system responds with incremental behavioral changes. As long as a state keeping these essential values within desirable limits has not been found, the system will continue its adaptive process.

Homeostasis had already been studied at the beginning of the 20th century by the American physiologist Walter Bradford Cannon, who observed the ability of living organisms to maintain a constant internal environment in the face of a changing external environment. Yet it was Ashby who built the first artificial homeostat, a kind of computer consisting of four interconnected Royal Air Force bomb control units with inputs and magnetically-driven water-filled potentiometers. The homeostat was designed to maintain its own stable operation under widely-varying conditions, adapting to environmental disturbances by randomly resetting its internal processes and organization. Key to its operation was a feedback loop established by four rotatable magnets which opened currents in special coils when they deviated from their target orientations. These currents, in turn, influenced the rotation of the magnets, whose interaction with each other was governed by pseudo-random selectors. Ashby's machine tolerated small amounts of noise, but sufficiently strong errors required large reactions in order for the homeostat to regain a stable condition. As an experimental unit designed to illustrate processes of self-organization, it succeeded in achieving a so-called ultrastable condition, but took a long time to adapt and was criticized for having no memory function.[13] Still, it exhibited the trial-and-error behavior that Lem would later adopt to describe the early process in the creation of a work. Ashby explained this feedback process of adaption or regulation with the example of a golfer "who is looking for a lost ball in an area known to contain it. The states are his positions in the area, and his rule is, for all the states but one, 'go on wandering'; for one however it is 'stop the wandering.' Though perhaps not ideal, the method is nonetheless capable of giving a simple regulation."[14] There is thus a random behavior generator and a selective mechanism that searches through these random behaviors for the one that is adaptive. Then there is the transformation rule, which says: If the state is adaptive, stick to it; otherwise, go on searching.

Lem took up the homeostat as a model for the production of a literary work, which included, as noted above, a variety generator that works randomly, a selective filter working according to certain criteria, and a transformation rule. It is clear that for this kind of regulation process, filtering (or selection) is of primary importance. What is called error turns into a searching strategy. Indeed, Ashby even considered renaming the procedure of trial and error "hunt and stick," for not only is the singular of trial misleading (as there are actually a lot of attempts) but also he wanted to emphasize that the process is goal-oriented.[15]

10 Stanisław Lem, *Philosophie des Zufalls: Zu einer empirischen Theorie der Literatur*, vol. 1, (Polish original 1968), German translation by Friedrich Griese (Frankfurt am Main, 1983), 74.

11 Georg Simmel, "Philosophie der Mode" (1905) in *Georg Simmel: Gesamtausgabe* v.10, ed. Michael Behr, Volkhard Krech, and Gert Schmidt (Frankfurt am Main: Suhrkamp, 1995).

12 William Ross Ashby, *Design for a Brain: The Origin of Adaptive Behavior* (New York: Wiley, 1960).

13 Richard A. Terry and Barney L. Capehart, "A Return to the Homeostat," *IEEE Proceedings of Seventh Symposium on Adaptive Processes* (UCLA, Dec. 16–18, 1968).

14 William Ross Ashby, *An Introduction to Cybernetics* (London: Chapman and Hall, 1957), 231.

15 *Ibid.*, 230.

Of course, Lem had to extrapolate from Ashby's homeostat in order to represent fully what happens in the creation of a work. In *Philosophy of Chance*, he characterizes the process of writing, in which older parts feed back younger ones, as an author-text coupling. This coupling includes a multitude of homeostatic reactions—possible evolutionary paths to the work—which decrease during the course of writing. Lem illustrates that, unlike in natural homeostasis, the work behaves as if it remembered what happened in earlier passages when new decisions must be made. The past influences the emerging sections via the author's brain, modifying and controlling the process either as a support or a handicap to the author.[16]

Intention can be described as what lies between the subjective position of the author (his or her general obsessions) and the concrete theme of a work. We can understand it as the subjective fiction that is challenged by the real work. Most important to Lem is the gap between intention and work: if the generation of variety—the filtering and transformation in the process of creation—were under total control of the author, the whole work could be determined in advance. This state of omniscience never occurs in practice. Creation is a strange and undetermined process of construction, in which the work can be regarded as a complex system of interconnected variables ***Fig. 4***.

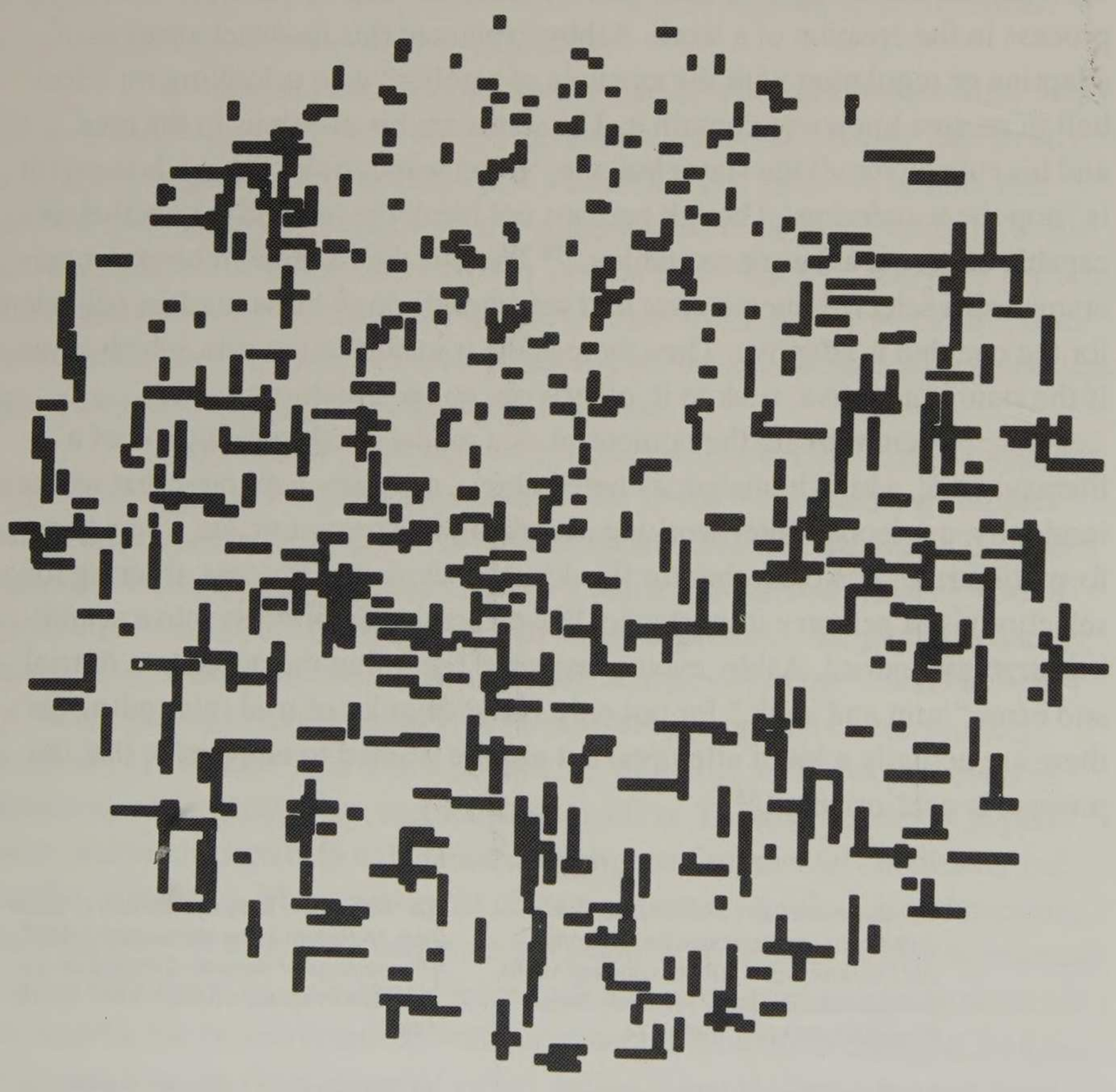


Fig.4 *Contemporary digital design strategies of evolution and performance seem to find their own tradition in the context of Lem's cybernetic theory of creation. Conceptually, nothing has changed; only the tools have been improved. Still, the charming aesthetics of early computer graphics seems fresher than most recent digital architectures. Computer Composition with Lines, created by A. Michael Noll in 1964, is a prime example*

In terms of information theory, the work is a self-adjusting cybernetic system. The author's task is to develop a structure—this holds very true for architecture—that cannot be conceived all of a sudden. He or she is actually behaving in the sense of game theory, through trial and error as described by Ashby. In trying different variants that affect the micro structure (tactics) and the macro structure (strategy), the author applies a "mini max rule," seeking to gain as much as possible while losing as little as possible. When, at a certain point, the work starts to live, the early phase of trial and error is replaced by a kind of automatization determining superior goals and parameters, which must then be observed by the author. Control theory allows the mechanisms of self-organization to be recognized: a work has gained a certain consequence and moves in a certain direction. The number of possible variants of development is significantly reduced. Starting from a vague intention that determines the decisions in the process of creation in a random way at first, the work grows into an organism less sensitive to disturbance by random decisions or noise. The work stabilizes in a balanced, self-organizing state—a true homeostat. Lem insists that chance is essential to attain this stable state. As long as the informational system has not reached its balance, it is in a process of auto-transformation, on an odyssey that does not stop until a stable state of homeostasis is found.

Applying Lem's insight to architecture, we could describe design as a formal search engine, operated by an architect who is not acting on the work but rather reacting to it. The design grows in a feedback process in which the architect—today's star cult notwithstanding—cannot be described as the genius creator. Rather, the architect participates in a process of oscillation that is to be brought into equilibrium. Reflection and recursion, as operations of feedback, are of great importance in this process, as is remembering what cannot be known by an individual participant, whose limited perspective allows her to interpret reality, but not to know it absolutely. The architect can only create subjective concepts, forms that are uncertain and negotiable—proposals, not solutions. And for each design process, the architect has to restart the search engine in order to stabilize the system.

The public has not usually been included in this "constructivist" model of the design process,[17] with the notable exception of certain projects in the 1960s. For example, English architect Cedric Price developed the Fun Palace project in dialogue with cybernetic ideas of feedback processes and approaches to participatory architecture. Variously described as a transformable machine and as a colossal toy, the project included the participation of the public in an open and unlimited building process. Price believed that advanced technology should turn buildings into what Lem would describe as homeostats, able to adapt continuously to changing needs and different uses: architecture as an open work of assembled modules and cranes, reacting in real time to the noise of a public that would become an inherent part of a self-organizing fun environment.

16 Stanisław Lem, *Philosophie des Zufalls: Zu einer empirischen Theorie der Literatur*, vol. 1, (Polish original 1968), German translation by Friedrich Griese, (Frankfurt am Main, 1983), 77.

17 See Humberto Maturana and Francisco Varela, *The Tree of Knowledge: The Biological Roots of Human Understanding* (Boston: Shambhala, 1987)

THE WORK AS PUBLIC PROCESS

Over the course of *Philosophy of Chance*, Lem's perspective shifts from production to reception, as he incorporates the reader into his theory. The work cannot be reduced to an "objective" material being, but is rather a complex function of the relations between its text and receiving context. As these relations are variable, the inner structure of the work is variable, too. In other words, a new work is not at once a work, but only becomes one through contact with the public.[18] To the receiving context, it is at first a formless, ambiguous, senseless—in short, *erroneous*—entity. To ask for the "true" structure or content would be no different, according to Lem, than asking for the number of lightenings before a thunderstorm.

The work's mode of existence is unknown as long as it is not sent and received. Yet even in its reception, a work is no "objective" work (just as a friend is never an "objective" friend).[19] Lem is not about to reject the real existence of the work; rather, he maintains that the reality of its existence is as sent and received. Other than in sending or receiving, there is no human expression. Literary studies, especially structuralist approaches, often attempt to create a theory of the work "as such," its researchers seeking a neutral position from which judgments seem possible. In contrast, Lem does not aim at a theory of the work, but rather at a constructivist theory of its sending and receiving. Whoever asks for not-received works could, as Lem illustrates, also ask for the taste of sugar, for a third world war, or for the existence of the typewriter during Neolithic times. There are potential answers, but not a single one that proves objectively true. The same can be said for the reading of a text: there are as many texts as readings of them.

The creation and reception of a work is always unique, because while every work has its author, this author has had a lot of "authors" him- or herself. The same holds true for the reader. Lem imagines quasi-concentric circles, in which any individual (writer or reader) can be taken as a center. Research cannot be limited to these ideal points, however, because a multitude of statistical processes, of historical and cultural phenomena of production and reception, make a work a work. What is at first indefinite and ambiguous is turned into a work by adaptation or alteration of cultural stereotypes.

> [H]ow does it ever happen that something which is less popular can, in the historical long run, hold its own against that which scores prompt successes and even contrives to silence its opponents? This results from the... natural selection in culture, strikingly similar to such selection in biological evolution... Books which in the eyes of their contemporaries are so alike as to be peers part company as the years go by; facile charm, being ephemeral, gives way at last to that which is more difficult to perceive. Thus regularities in the rise and decline of literary works come into being and give direction to the development of the spiritual culture of an age.[20]

While most works maintain aesthetic projects that cannot be permanently stabilized, it is possible for a tendency to emerge in the masses of a work's contacts with its receivers, coalescing into a stable reception. The sovereignty of any cultural creation does not belong to its immanent characteristics, but emerges at the border of the work, where it interfaces with existing—old—cultural patterns.

Here it is necessary to return to the concept of homeostasis, because it is clear that the stable state of a work is essentially also matter of the public. Even if the finished work is not altered—if the information on its material carrier remains fixed—it cannot be described in terms of structure or morphogenesis unless the reception process itself stabilizes. Morphogenesis can be described as the process of elaborating a system's form or structure in complex system-environment exchanges. Architecture's early stable structure was the classical canon. Modern architecture broke away from this temporary equilibrium in favor of an unstable process of deviation and differentiation. A work in radical difference to what came before—we call it new, or "erroneous" compared to the old—naturally provokes diametrically opposing judgments, and thus does not trigger stabilizing or structuring reception. Perhaps the most we can hope for is that it attracts attention of the public at all, which is quite difficult in the masses of works that are created nowadays.[21] Today, it is obviously not a problem of stabilization, which, as Lem admits, becomes increasingly difficult; it is primarily a problem of being noticed. What was formerly known as scandalous error ***Fig. 5*** might therefore be the best strategy for authors of today, who are at pains not to be overlooked by the public. It is the public that makes stars—never mind whether their work can be stabilized. In that, Lem is truly modern and, applied to contemporary architectural discourse, still explosive ***Fig. 6***.

18 Stanisław Lem, *Philosophie des Zufalls. Zu einer empirischen Theorie der Literatur*, vol. 1, (Polish original 1968), German translation by Friedrich Griese (Frankfurt am Main, 1983), 34.

19 *Ibid.*, 71.

20 Georg Simmel, "Philosophie der Mode" (1905) in Georg Simmel: Gesamtausgabe

21 Stanisław Lem, Philosophie des Zufalls: Zu einer empirischen Theorie der Literatur, vol. 1, (Polish original 1968), German translation by Friedrich Griese, Frankfurt am Main (1983), 237.

«kein fehler im system»

1

kein fehler im system
kein efhler im system
kein ehfler im system
kein ehlfer im system
kein ehletr im system
kein ehlerf im system
kein ehleri fm system
kein ehleri mf system
kein ehleri ms fystem
kein ehleri ms yfstem
kein ehleri ms ystfem
kein ehleri ms ystefm
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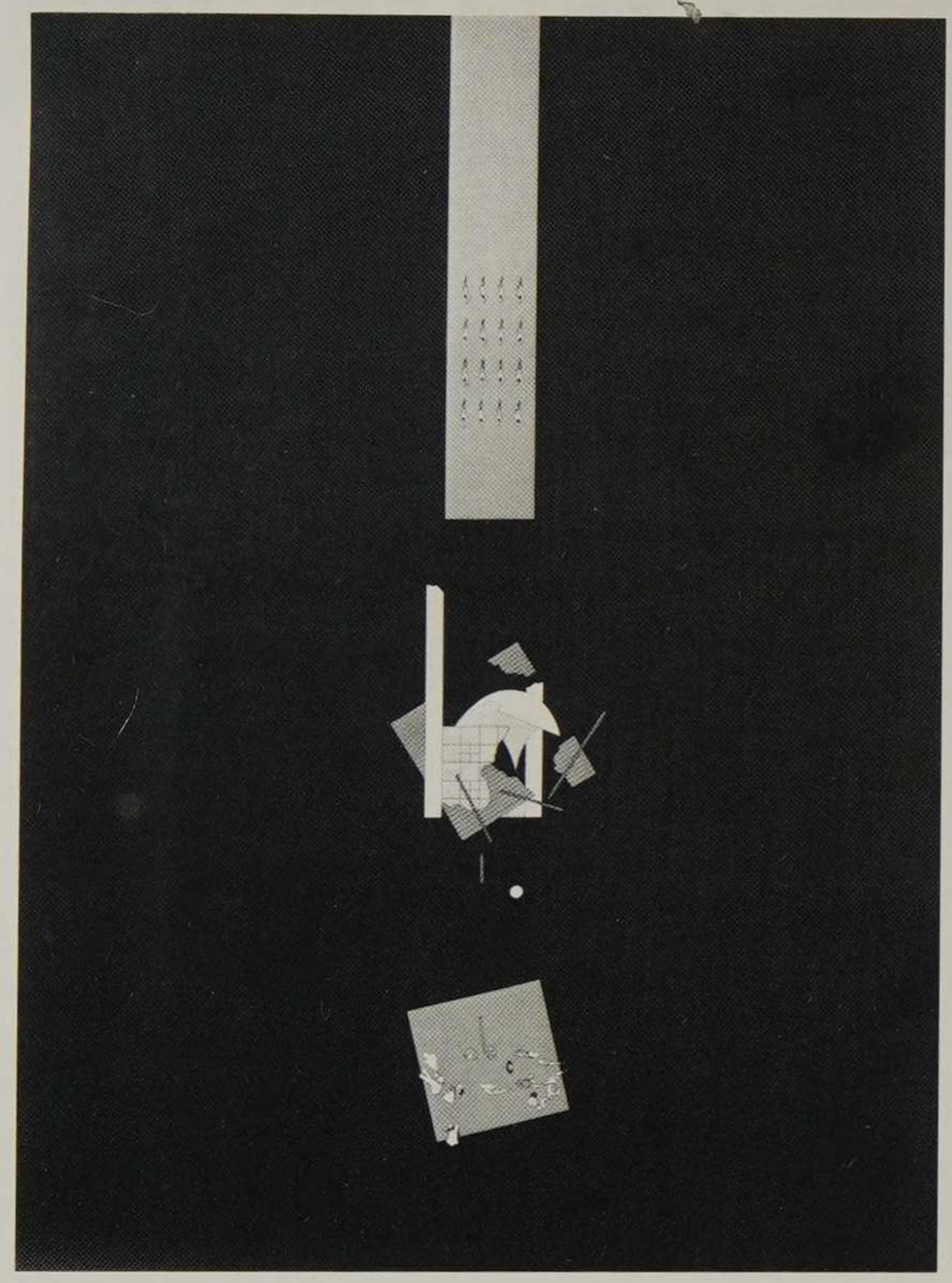


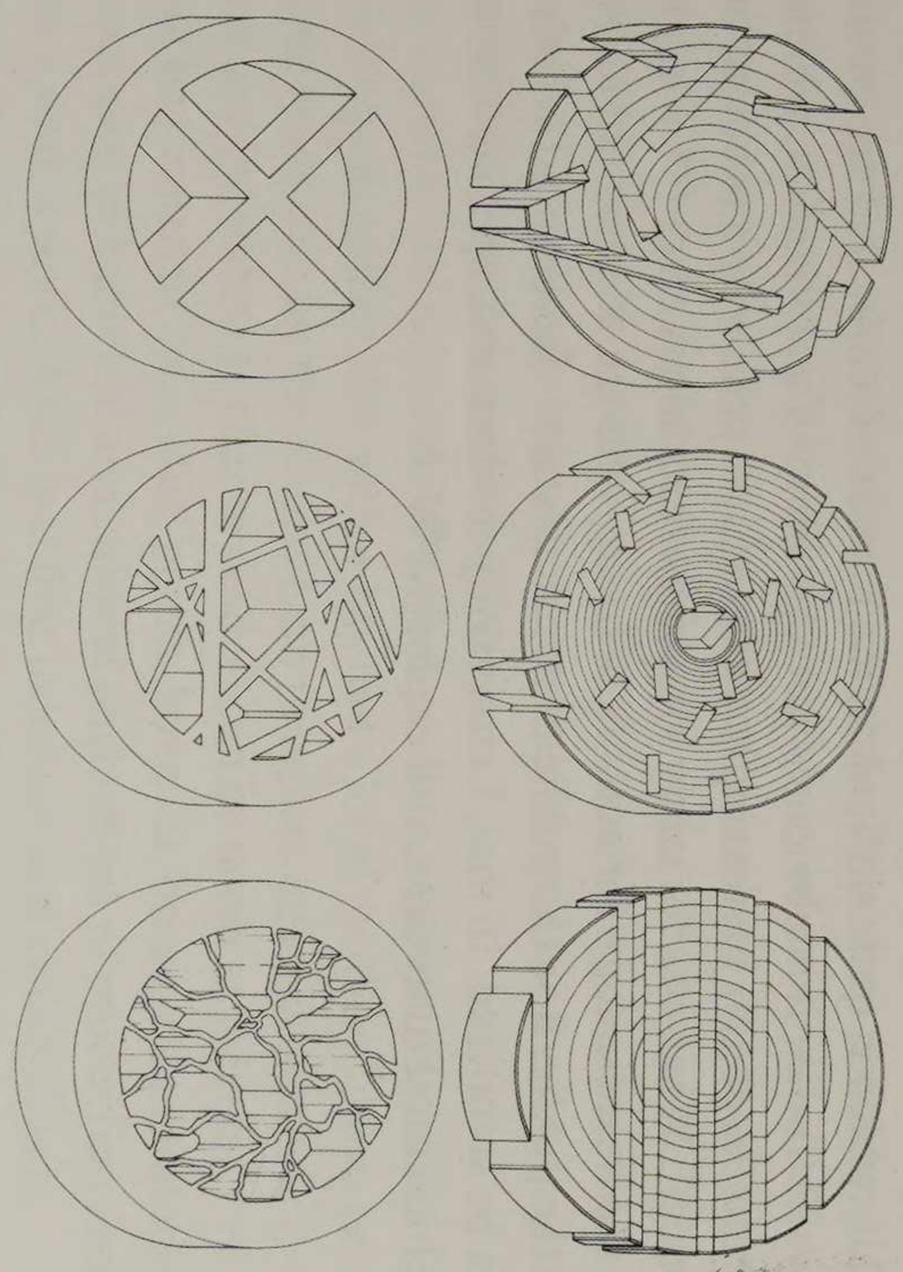
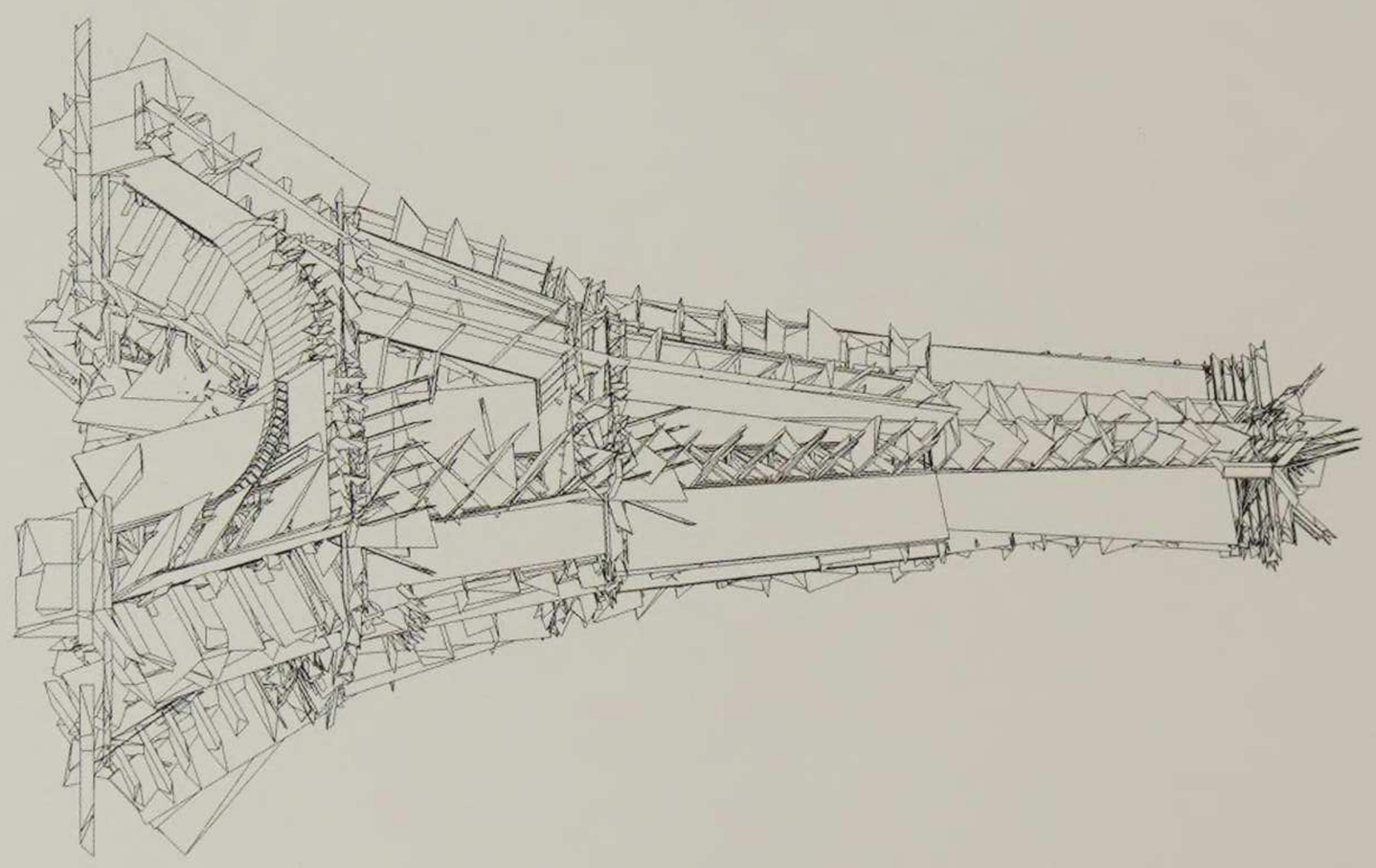


Fig.5 *Errors were turned into conceptual works of art long before cybernetic thinking. Examples include Mozart's* Würfelspiele, *Dada art, and modern music experiments. An early error example of Konkrete Poesie is called "kein fehler im system" by Eugen Gomringer, from the 1960s (above). Dieter Schaal developed "dead end passages emptying into circular blocks, fragmentary hemmed-in paths (graves), thoroughfares, crossings" (middle). And Rem Koolhaas created his "The Raft and Pool Collide" in 1972 (below)*



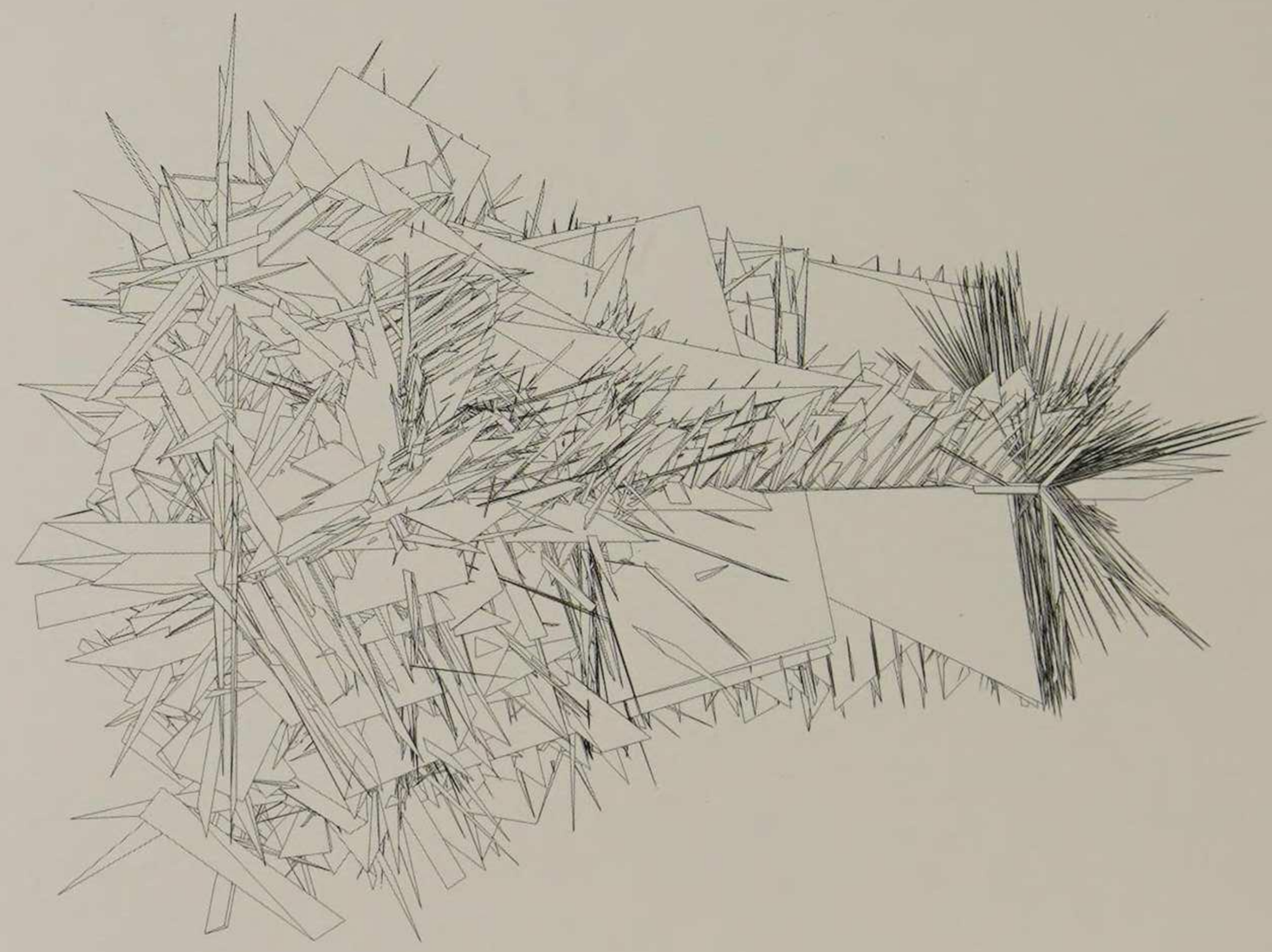
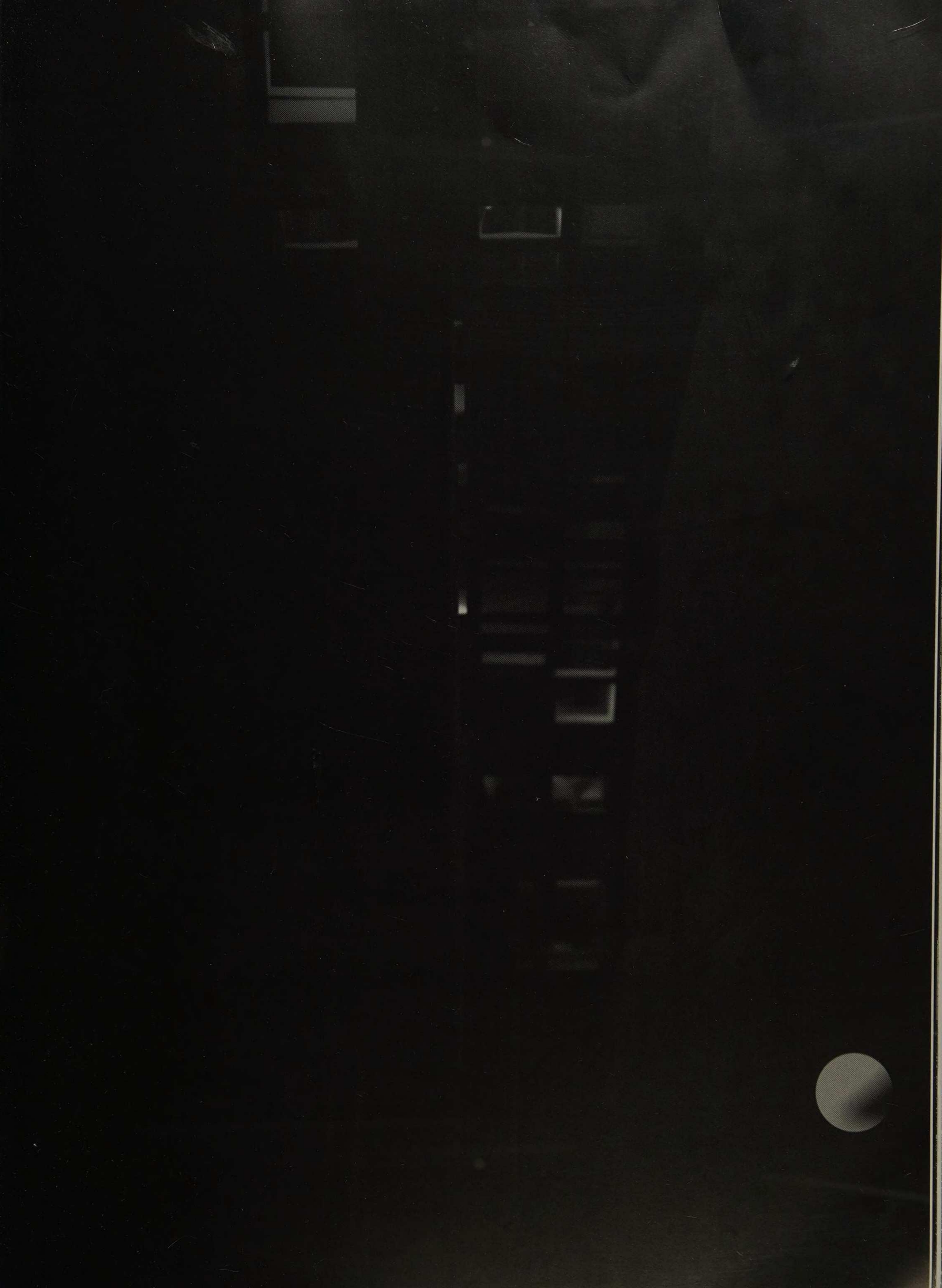
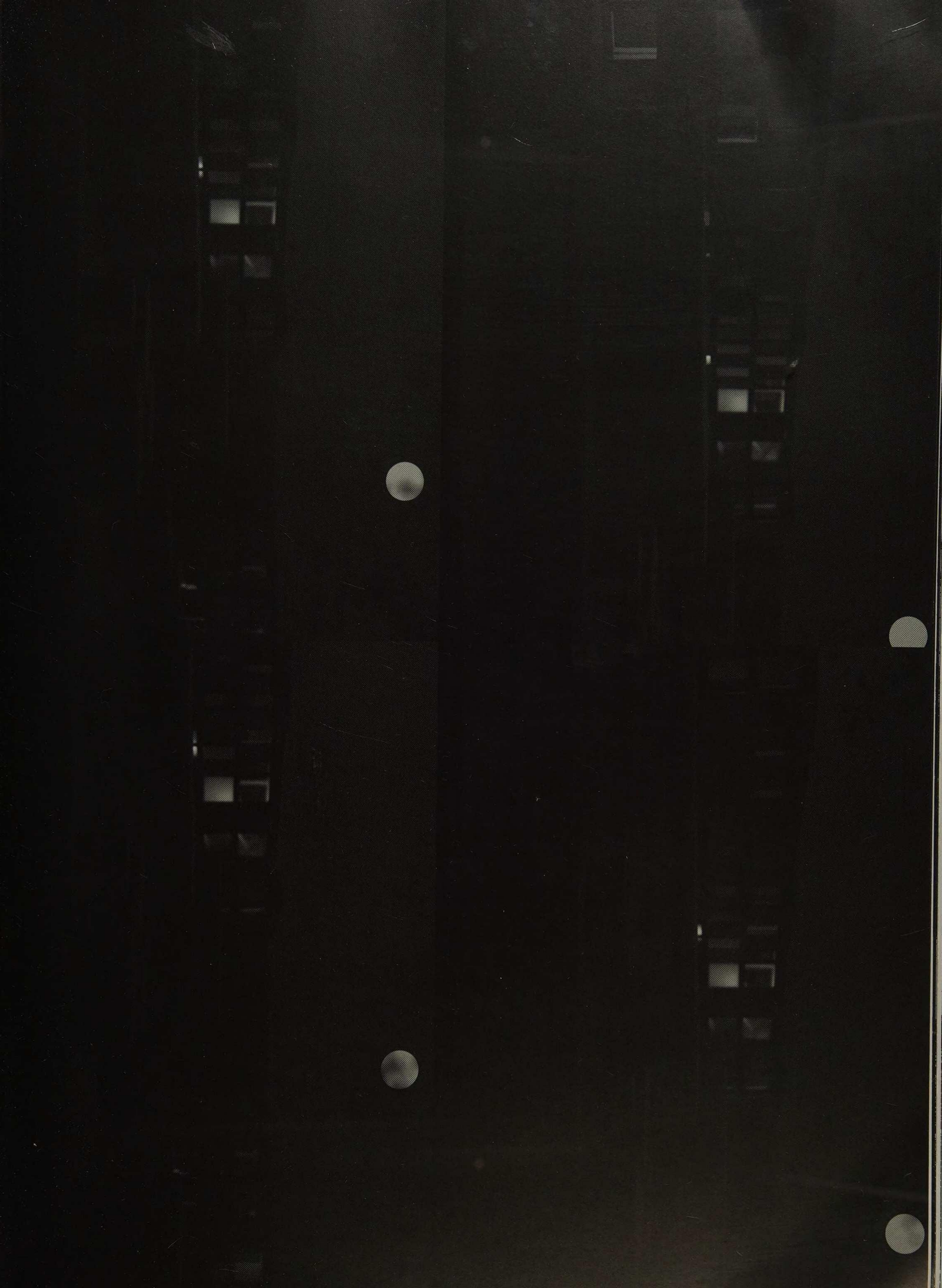


Fig.6 *Formal explosion has been a strategy of innovative form-finding for years—Mauser has developed a series of disturbed Eiffel Towers in 2008 (built with Processing). m-a-u-s-e-r.net*

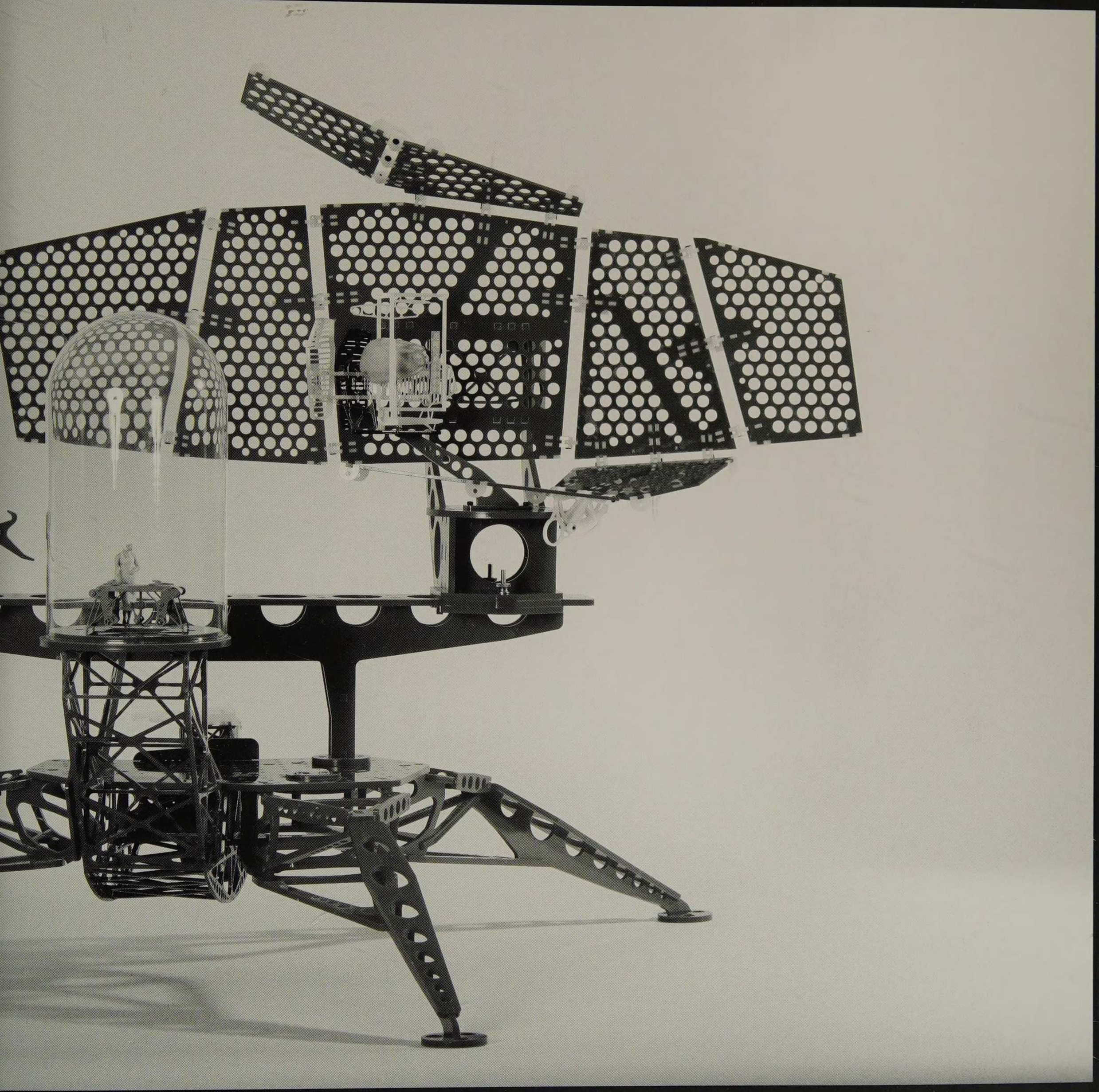




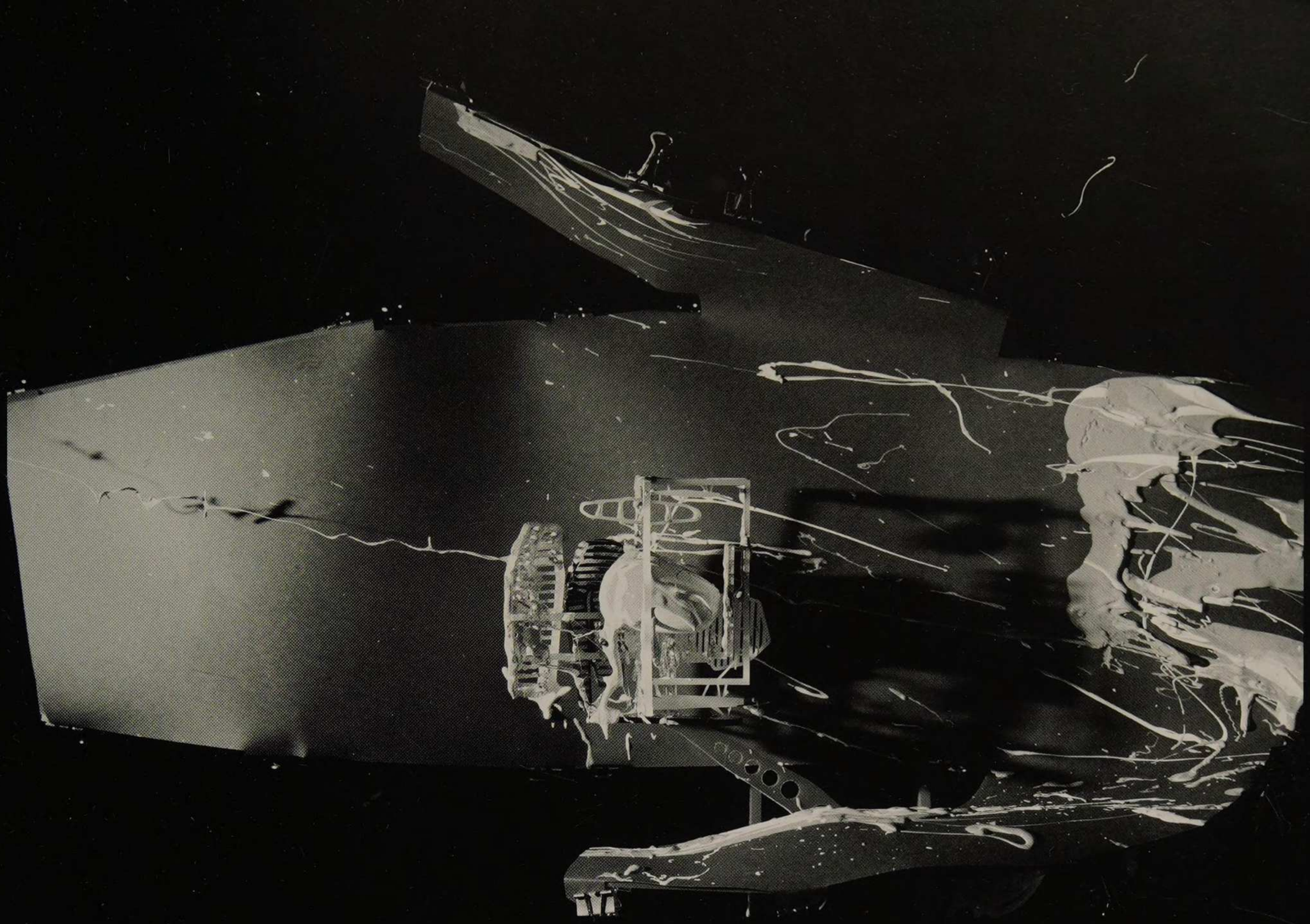
2. *Do you agree with the statement: After all, nature is better than art?*

MACHINES FOR INDETERMINATE ARCHITECTURE

NAT CHARD

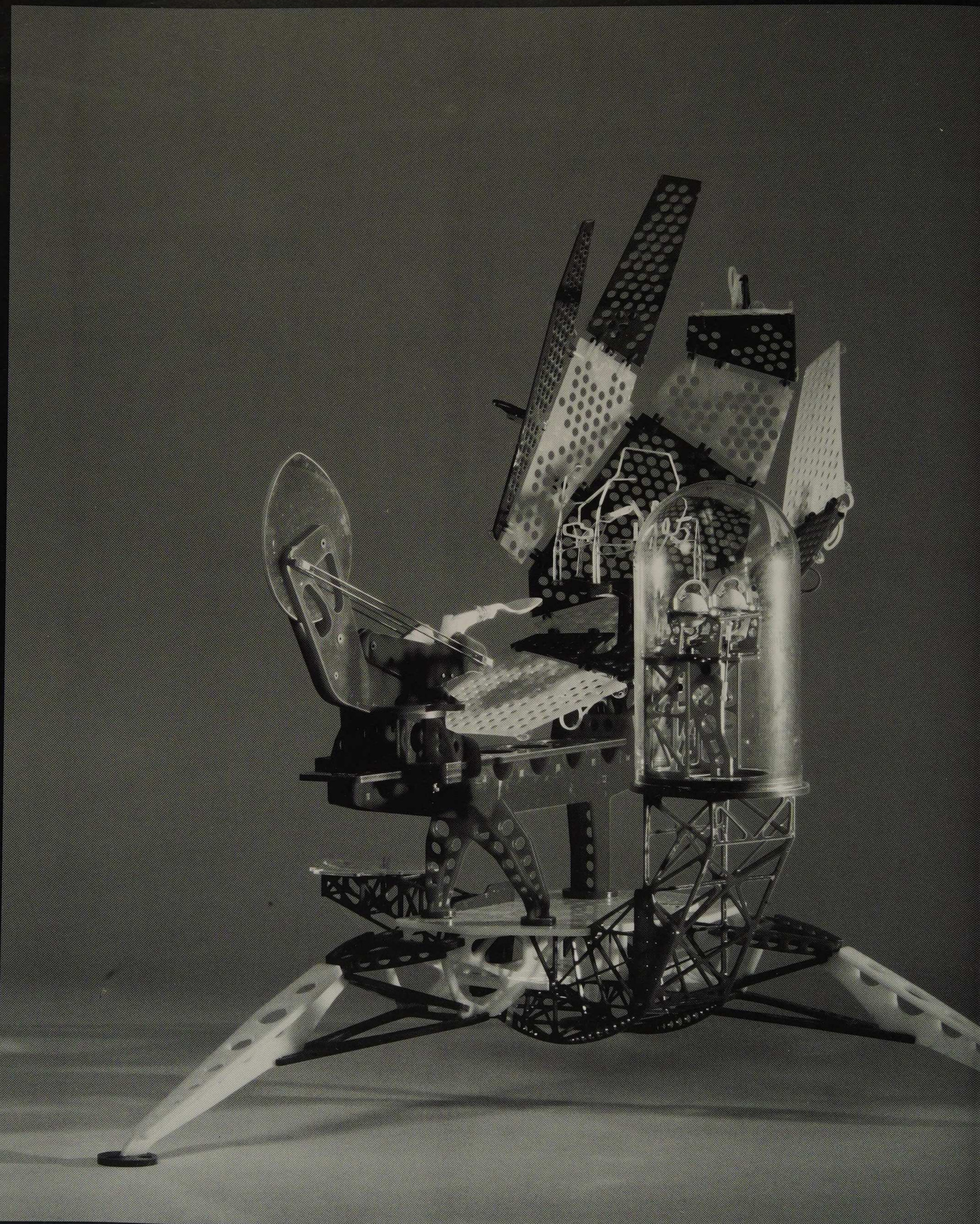


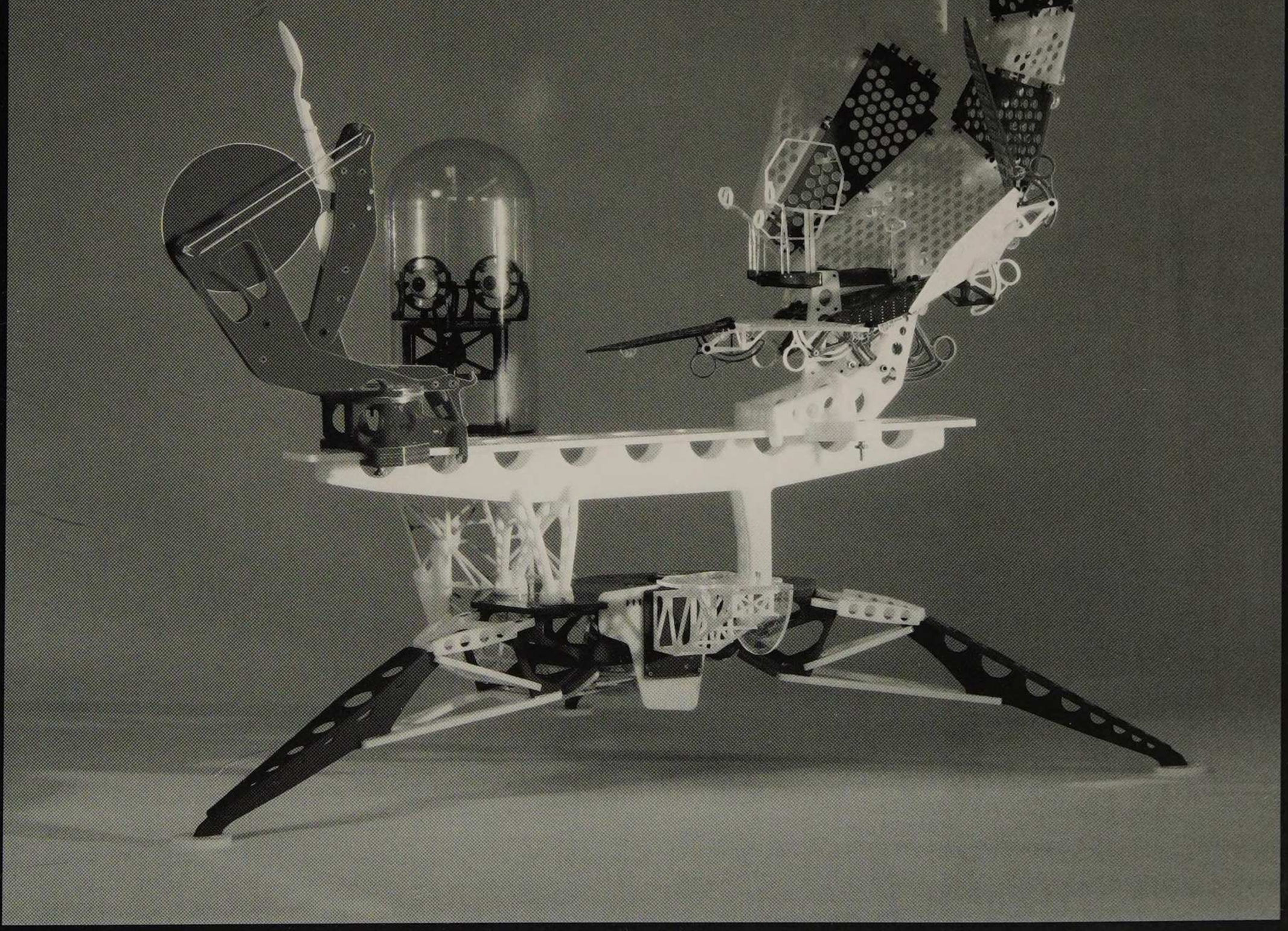
DRAWING INSTRUMENT SEVEN



If the act of drawing determines the output of architecture, the medium through which one draws must also affect the work. The tools for making architectural drawings have been refined over centuries, and they remain standard and precise. But if the ambition is to nurture the uncertain, the sublime, the indeterminate, and the unpredictable, then new tools are required.

My early attempts at addressing this problem worked with the projection of light, implicating the occupant in the work through a folding picture plane that could accept an idea on its own terms. The folds effectively took possession of projected content, but the unerring physics of light prevented a more intimate relationship with the drawing process.





DRAWING INSTRUMENT FIVE

NAT CHARD

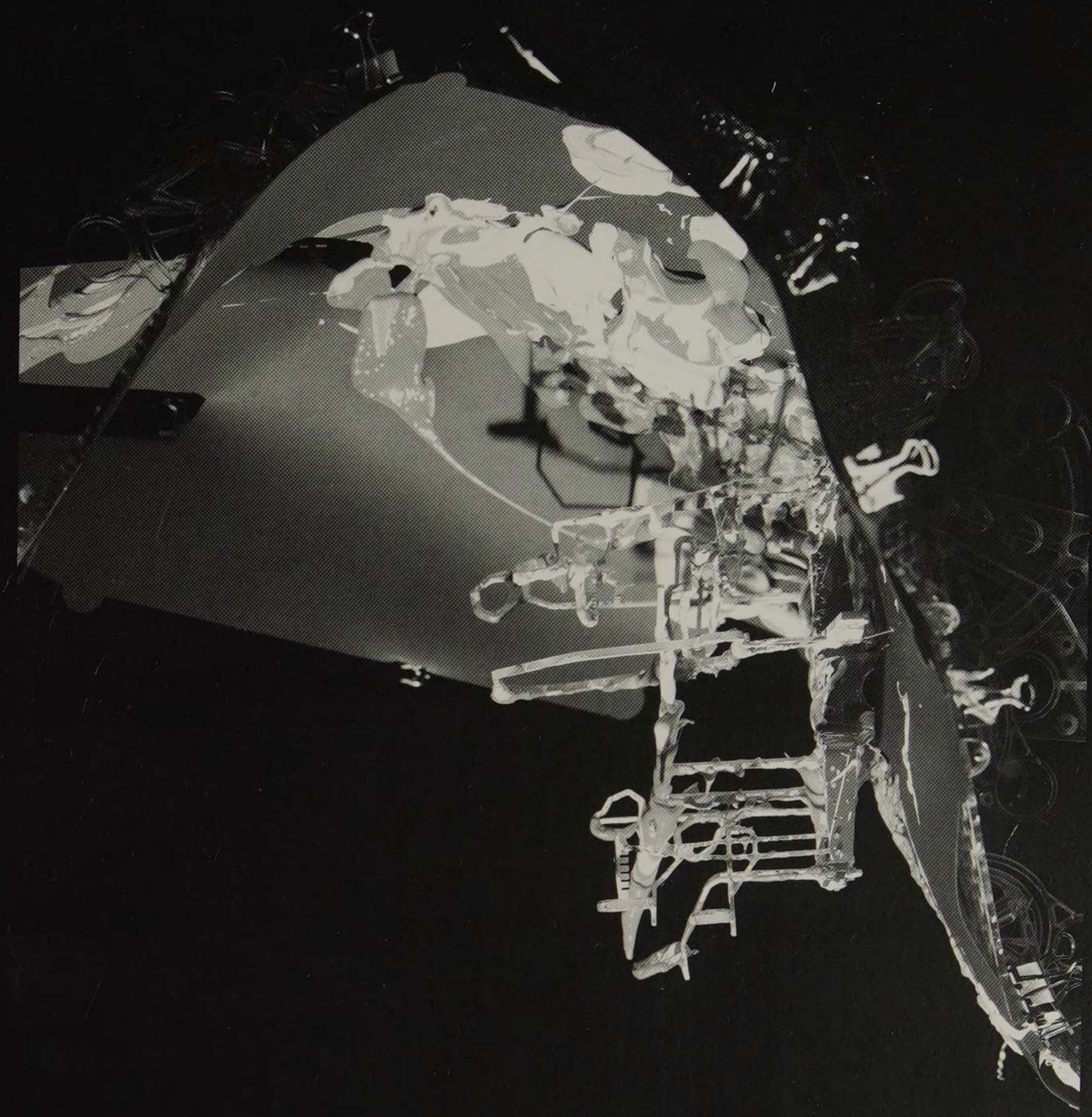
Instruments Five and Seven learn from the earlier instruments, but they project paint rather than light. Each instrument comprises a group of drawing pieces that amount to an architectural model, but they are altered to acknowledge the properties of the material thrown at them. Although light will cast a faithful shadow of an object, a material projection will form a splatter—the consequence of the collision between paint (occupation) and the drawing pieces (architecture).

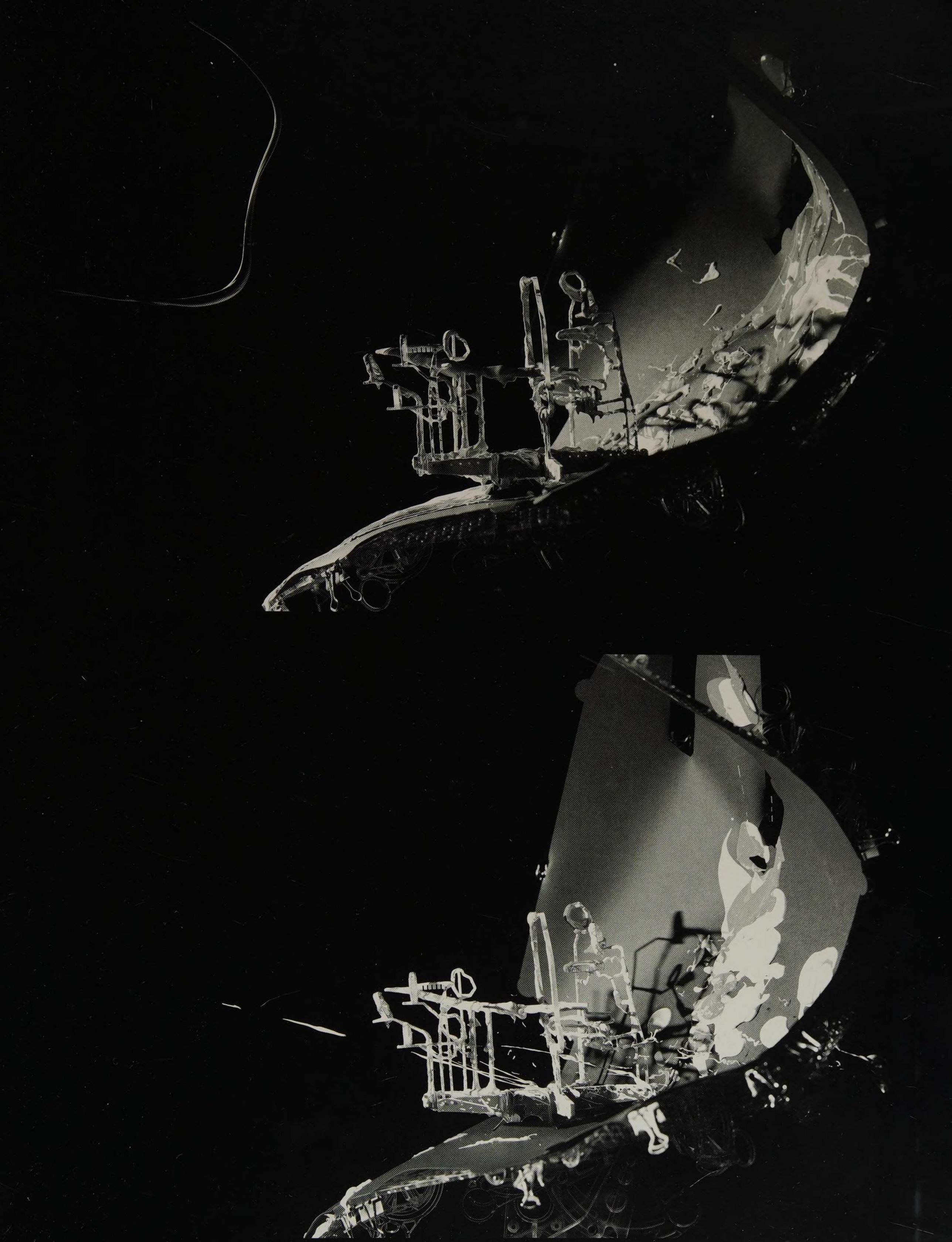
Forensic science traces narratives from the splatters of blood found at crime scenes. Likewise, my instruments throw latex paint—like blood, a non-Newtonian fluid—yielding a basis for unraveling the stories held in the drawings. The catapults that throw the paint from one instrument to the other have a repeatable aim, but the character of the flight and the nature of the splatter are unique to each throw.

High-speed flash photography (triggered manually, and therefore unreliable in its timing) sometimes captures the instant of collision—the camera captures roughly one in three throws of paint. Some of the drawing pieces are formed like hoops to catch a meniscus of paint that might burst later, after a throw of another color, for instance. Other pieces deflect or have a comb-like surface to collect the paint.

As the paint builds up, it alters the performance of the drawing pieces. The drawings register an occupation, a fleeting instant which the camera witnesses. Instrument Five collects the splatter behind the drawing pieces, rather like the position of the screen that collects a conventional shadow. The general throw of paint can obliterate the subtle splatter, so in Instrument Seven the picture plane captures the splatter alongside the drawing pieces.

My greatest satisfaction occurs when working with the instruments. The particular ambitions involved in setting up the instrument and the anticipation of the high-speed flash photography are met with surprises inherent in the process. The instruments nurture the very condition they set out to draw.





'THE DADAS TOUR PARIS': TOWARD AN EXPANDED DEFINITION OF THE DADA DIAGRAM[1]

SUSAN WAGER

On April 14, 1921, Paris journalists received a Dada press release with the following invitation:

> Today at 3 p.m. in the garden of the church Saint-Julien-le-Pauvre, rue Saint-Julien-le-Pauvre (Metro: Saint-Michel), Dada, inaugurating a series of Excursions in Paris, invites its friends and adversaries to tour with it, free of charge, the grounds of the church Saint-Julien-le-Pauvre.[2]

This Excursion, planned primarily by André Breton as part of the 1921 Great Dada Season, was the first of several projected Dada Tours and Excursions, the rest of which—including trips to the Louvre, the Gare Saint-Lazare, and the Parc des Buttes-Chaumont, and even invasions of domestic spaces—never came to pass.

1 Asté d'Esparbès, "Les Dadas Visitent Paris," *Comoedia*, April 14, 1921. I wish to thank Noam Elcott, Anne Higonnet, Lorenzo Buonanno, Colby Chamberlain, and Stephanie O'Rourke for their invaluable suggestions and advice regarding earlier versions of this paper. I am also deeply grateful for the thoughtful and incisive editorial guidance of Emma Jane Bloomfield and Joseph Clarke.

2 Cited in Michel Sanouillet, *Dada à Paris* (1965), ed. Anne Sanouillet (Paris: Flammarion, 1993), 254. Translation mine.

The event was, I argue, a type of diagram—a set of directional relationships between bodies—conceived in response to a spatio-temporal crisis associated with modernity, and meant to embrace errancy and chance. It is difficult to imagine how such an event could itself have been a failure, and yet, according to the Dadaists' later accounts, it was. Their reasoning points to the complexity of the Dadaist notion of failure, and to discrepancies between their stated intentions for, and actual execution of, the tour.

According to Breton, the Dada Excursions were meant to be moral provocations.[3] The artists would interrogate spaces they deemed banal or hackneyed, just as other manifestations of Dada, such as Hugo Ball's sound poetry or Marcel Duchamp's puns, disrupted the language of everyday speech, advertising, and war propaganda.[4] In their invasions of private homes, the Paris Dadaists planned to hold the behavior of bourgeois inhabitants to public accountability.[5] Even more incendiary was Louis Aragon's explicit deployment of the French Revolution as a conceptual analogue of the Dada Excursions. He wrote:

> We compared our intellectual state with that of the French Revolution. It was necessary to suddenly prepare and decree the Terror. And we decided not to wait until '93: the Terror, right away, in '89.[6]

Aragon's alignment of Dadaists with Jacobins indicates the sense of social and political urgency the group assigned to this project, and might explain its radical break with the confinement of earlier Dada performance to theaters and cabarets. Breton believed that Dada should, like any good revolutionary party, take to the streets, and that the city itself should become Dada's theater.[7]

The relatively early date of the visit to Saint-Julien-le-Pauvre—prior to the conception of Surrealist urban wandering and the Situationist *dérive*, and well before the development of 1950s happenings and 1970s performance art—precludes its easy classification.[8] While one might analyze the Dada Excursion through the lens of later avant-garde engagements with public space, it is worth considering the adoption of a more historically and culturally specific approach. Drawing on David Joselit's influential work on the importance of the diagram to the Dada movement, I propose that the diagram can serve as a heuristic for examining the Excursion.[9] My use of the term "diagram" does not refer to a visual drawing, but rather to a constellation of directional relationships between points or bodies. The Dada Excursion put these vectors into motion, turning them into something lived and experiential.

At the heart of this diagram, however, was a fundamental contradiction: an inability (or perhaps unwillingness) to accommodate the very contingency on which it was supposed to rely. The Dadaists erred from their own commitment to errancy, and in the process called the political underpinnings of the Excursion into question. While Deleuze and others have ascribed a utopian open-endedness to diagrams, the trip to Saint-Julien-le-Pauvre functioned not as a device for fomenting social rebellion but as something closer to a machine of control.

On April 3, 1921, 11 days prior to the Excursion to Saint-Julien-le-Pauvre, the organizers made a reconnaissance mission to the site to hatch a plan for the event.[10] The Dadaists decided that they would begin their tour by discussing the windows of a neighboring building. They would then fall silent, wandering around and staring at each other, until the audience was sufficiently frustrated. Other advance planning for the event included the preparation of envelopes containing various items—"sentences, portraits, calling cards, fabrics, landscapes, obscene drawings, even five-franc bills covered with erotic symbols"—to be distributed to the attendees at the end of the tour.[11] Georges Ribemont-Dessaignes decided to bring a Larousse dictionary to the event, from which he would read random entries in front of arbitrary architectural elements or sculptures.[12]

It seems, however, that these efforts at planning were inferior in importance to what was ultimately meant to structure the proceedings of the Excursion: the relationship between audience and performers. As T.J. Demos has written, one of the initial goals of Paris Dada was to "challenge the conventional active performer–passive audience relationship."[13] The Dadaists emphasized the relevance of this goal to the Saint-Julien Excursion both during and after the event. Breton wrote that he preferred the outdoor location of the performance to an indoor theater, for "the very act of going there entails a certain goodwill on [the audience's] part."[14] Breton valorizes the complicity of the audience in the Excursion; they have chosen to participate in this unconventional event and are thus agents in its execution. In a manifesto Breton read during the tour, he asked:

3 André Breton, "Artificial Hells. Inauguration of the '1921 Dada Season,'" trans. Matthew S. Witkovsky, *October* 105 (Summer 2003), 140.

4 Janine Mileaf and Matthew S. Witkovsky, "Paris," in *Dada: Zurich, Berlin, Hannover, Cologne, New York, Paris*, ed. Leah Dickerman (Washington: National Gallery of Art, Washington, 2005), 354.

5 Sanouillet, *Dada à Paris*, 251–252.

6 Louis Aragon, *Projet d'histoire littéraire contemporaine* (1923), ed. Marc Dachy (Paris: Gallimard, 1994), 103. Translation mine.

7 Matthew S. Witkovsky, "Dada Breton," *October* 105 (Summer 2003), 132.

8 T. J. Demos writes: "It would be easy to view the visit to St.-Julien…as a precursor to later and more familiar artistic forays into public space, such as the surrealist excursions to flea markets and covered arcades or the situationist *dérives*. But such an approach would be only partly justified…." T. J. Demos, "Dada's Event: Paris, 1921," in *Communities of Sense*, eds. Beth Hiderliter, William Kaizen, and Vered Maimon (Durham, NC: Duke University Press, 2009), 145.

9 David Joselit, "Dada's Diagrams," in *The Dada Seminars*, eds. Leah Dickerman and Matthew S. Witkovsky (Washington: National Gallery of Art, Washington and D.A.P., 2005).

10 Flyers advertising the excursion, distributed on the Boulevard Saint-Michel, indicated that the leaders of the Excursion would be: Gabrielle Buffet, Aragon, Hans Arp, Breton, Paul Éluard, Théodore Fraenkel, Jean Hussar, Benjamin Péret, Francis Picabia, Georges Ribemont-Dessaignes, Jacques Rigaut, Philippe Soupault, and Tristan Tzara. However, Michel Sanouillet and Georges Hugnet report that Picabia explicitly withdrew from the Tours and Excursions. See Sanouillet, 253. Also Georges Hugnet, *L'Aventure Dada (1916–1922)* (Paris: Galerie de l'Institut, 1957), 82. This, of course, calls into question the presence and absence of other names on the list. Raymond Duncan seems to have been involved in the event, though he is not mentioned on the flyer.

11 Sanouillet, *Dada à Paris*, 257–258. Translation mine.

12 Georges Ribemont-Dessaignes, *Déjà Jadis* (Paris: René Julliard, 1958), 94.

13 Demos, "Dada's Event," 155.

14 Breton, "Artificial Hells," 140.

> Is there a church of St. Julien? For our part, we do not know. It is you who have chosen this place. And yet we know quite well what we are doing. We know quite well to what we are bringing you.[15]

Here, Breton again insists on the agency of both spectators and performers, as if to assert that the relationship between the two is mutually active. Breton even asked, perhaps rhetorically, for the audience's input: "So tell us a bit about what you expect from us."[16] To structure the event such that it was dependent upon the relationships between audience members and performers is precisely what made it diagrammatic. By transposing the diagram into the lived world, the Dadaists conditioned the event to be contingent upon chance. Because the audience members were made active participants, the outcome of the Excursion would depend at least partially on their unpredictable behavior.

In his groundbreaking essay "Dada's Diagrams," David Joselit proposes that the diagram should be recognized as one of the three most important visual strategies of the Dada movement, together with photomontage and the readymade.[17] He focuses on manifestations of the diagrammatic in Dada's visual output. A hybrid of text and image, the Dada diagram is significant for Joselit because it reflects the fissure between textuality and visuality that coincided with the invention of cinema at the end of the 19th century.[18] Yet the possibility of an immaterial, non-visual, kinetic version of the Dada diagram is implicit in his examination of Marcel Duchamp's books-in-the-round and "*paroles en liberté*" as "enacted" diagrams. Duchamp constructed books in ways that incite the reader to turn them in space or flip them upside down, thus defying "the book's conventional architecture."[19]

One of the few pieces of material evidence to survive from the Saint-Julien-le-Pauvre Excursion—a flyer distributed by the Dadaists on the Boulevard Saint-Michel to advertise the event—can be seen as an example of an enacted Dada diagram. In addition to a paragraph explaining the event's purported motivation ("to remedy the incompetence of guides and suspect docents") and a list of participants, the flyer includes several apparently random and nonsensical phrases ("wash your breasts like gloves") dispersed across the surface of the page in various directions ***Fig.1***. In order to decipher it, the reader is forced to turn the flyer clockwise in space. One of the phrases even seems to evoke, albeit enigmatically, this vectoral play: "the top on top, the bottom on bottom." The flyer is diagrammatic not in the sense that it presents a visual diagram, but rather that its textual inscriptions act as vectors of orientation, propelling the reader to move the object from one spatial coordinate to another.[20]

A renewed look at Guillaume Apollinaire's[21] 1917 lecture "The New Spirit and the Poets"[22]—one of the key texts that Joselit employs in support of the diagram's importance to Dada—reveals the necessity for understanding the Dada diagram as not simply a visual strategy, but also a performative one. Joselit identifies Apollinaire's lecture as a response to the same "epistemological crisis" that Duchamp's and Francis Picabia's

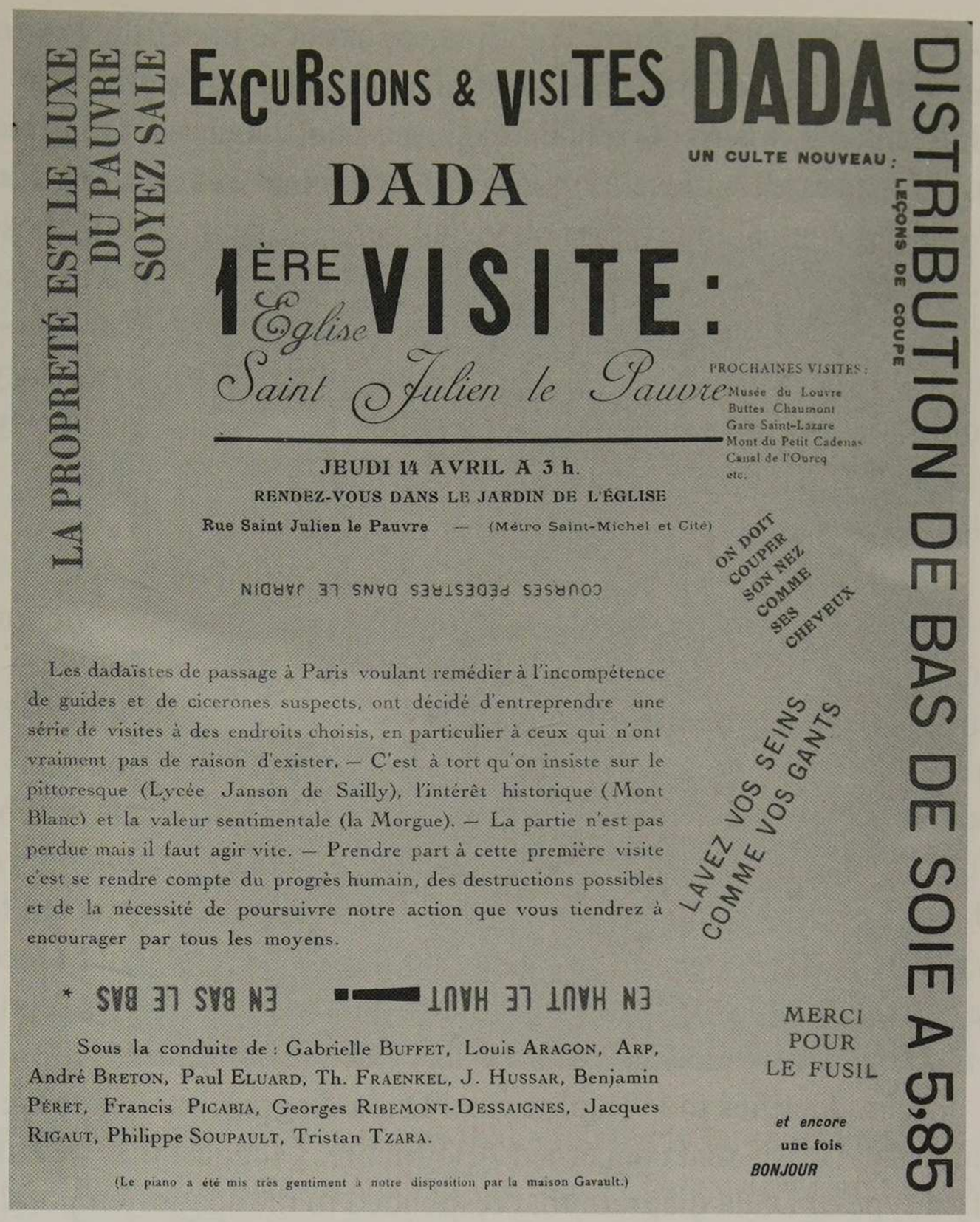


Fig.1 *Excursions & Visites Dada, 1ère visite: Eglise Saint-Julien-le-Pauvre. Prospectus for a mock guided tour conducted by the Paris Dadaists on April 14, 1921. International Dada Archive, Special Collections, University of Iowa Libraries*

15 Breton, "Artificial Hells," 140.

16 Cited in Sanouillet, 257. From Asté d'Esparbès, "Les disciples de 'Dada' à l'église Saint-Julien-le-Pauvre," *Comoedia*, April 15, 1921.

17 Joselit, 234.

18 *Ibid.*, 223.

19 *Ibid.*, 221.

20 This is not dissimilar to one of Joselit's examples of Duchamp's books-in-the-round: the 1919 *Unhappy Readymade*. The work consisted of a geometry book, which Duchamp sent to his sister, Suzanne, with instructions to hang it from her balcony so that "the wind could blow and tear its pages of geometric formulae, the rain drench them, and the sun bleach and fade them." Joselit explains: "if geometry is not *represented*, it has nevertheless been enacted through processes of puckering, folding, and furrowing caused by exposure to the weather. The diagrams visible in these documents are inscribed not by the printing press but by the elements. In a gesture of desublimation typical of Duchamp's art, his *Unhappy Readymade* thus twins mathematics with chance." While, for Duchamp, the pairing of rigid geometry with the vagaries of chance was productive and playful, we will see that this was not the case when impeccable planning encountered contingency during the Dada tour of Saint-Julien-le-Pauvre.

21 The invocation of Apollinaire in a discussion of Dada should be qualified. After Apollinaire's head injury in World War I, the poet became a vehement French nationalist and consequently wanted to distance himself from the "Germanness" of Dada. Moreover, we must approach a discussion of "L'Esprit nouveau et les poètes" in the context of Dada with caution. Apollinaire's attempt in the lecture to construct a new poetry (rather than negate the very concept of art itself) and his nationalist declaration that French poets are the only ones capable of constructing this new poetry are diametrically opposed to what we have come to understand as some of the central tenets of the Dada movement. See: Adrianna M. Paliyenko, "Apollinaire and Dada: Influence Matters," in *Paris Dada: The Barbarians Storm the Gates*, eds. Stephen C. Foster and Elmer Peterson (Farmington Hills, MI: Gale Group, 2001), 67–94.

22 Guillaume Apollinaire, "L'Esprit nouveau et les poètes," in *Oeuvres en prose complètes*, eds. Pierre Caizergues and Michel Décaudin (Paris: Gallimard, 1991), 2: 944–949.

diagrams addressed.[23] In his lecture, Apollinaire set out to prescribe how modern poetry should adapt to the new technologies of the early 20th century, including cinema, which compelled the individual subject to renegotiate his relationship to nature. As Joselit observes, Apollinaire was interested in the effects of technological innovation on visual perception, including those of the microscope, telescope, and x-radiography.[24] But Apollinaire was *also* intensely concerned with the effects of spatio-temporal technological innovation on human experience. In particular, he emphasized the revolutionary effect that the phonograph would have on poetic form, as well as the liberty that would be afforded the poet vis-à-vis space in "an epoch of telephone, wireless telegraphy, and aviation."[25]

The invention of these technologies had significant impact, sparking a revolution in kinetic, aural, and temporal experience. The importance of this seems to have been lost in English-language scholarship due to a mistranslation of Apollinaire's text by the critic Roger Shattuck in 1971. Where Apollinaire wrote: "one can predict the day when, the phonograph and cinema having become the only forms of recording in use, poets will have a freedom heretofore unknown," Shattuck mistakenly translated "*phonographe*" as "photograph," a slight but critical error that has gone uncorrected for forty years.[26] The phonograph's ability not only to record sound, but to record the passage of time itself, sets it radically apart from the photograph's seizure of a single moment, frozen in time.

Joselit identifies the visual-textual Dada diagram as a response to the visual-textual crisis that concerned Apollinaire. I suggest that we can also identify a type of Dada diagram that responded to the spatio-temporal crisis evoked by Apollinaire, and that the Dada Excursion is the quintessential example. As with the former type of diagram, relationality is a key characteristic of the enacted Dada diagram, but this time it is a lived relationality, one that plays out in real time and space and is thus subject to contingencies such as human error or meteorological unpredictability.

The visit to Saint-Julien-le-Pauvre took place on the afternoon of April 14, in front of a group of 50 to 200 spectators.[27] As we have seen, Breton wanted to embrace the Excursion's partial dependence on its audience and openness to errancy. But according to the Dadaists' later accounts, the event failed due to bad weather and excessive popularity. On its own, each of these is a perfectly logical explanation for failure, but together, they undo each other. It rained in Paris on the afternoon of April 14, and, understandably, this prevented the implementation of some, but not all, of the Dadaists' planned activities. Breton lamented:

> Whatever pleasure we took in [the event], the bad weather that day foiled our plans. It kept us from putting into action several of our ideas.[28]

Similarly, Ribemont-Dessaignes recalled that it was a "rather sad experience, not well favored by the weather."[29] While Ribemont-Dessaignes was still able to carry out his absurd Larousse-guided tour, the planned silence was replaced by the delivery of a manifesto by Breton, Tzara, and Raymond Duncan *Fig. 2*.

Fig. 2 *André Breton with Dadaists and audience members outside Saint-Julien-le-Pauvre*

The Dadaists were also unhappy that a relatively large audience of spectators showed up for the tour, in spite of the rain.[30] This was a sign that Dada had lost its shock effect—or more precisely, that its shock effect had ceased to repel Parisian audiences and had begun to attract them. Although we can presume that if it hadn't rained, even more spectators would have shown up for the event and thus compounded its failure, the rain was nonetheless a primary target for the Dadaists' blame. The Dadaists constructed a lose-lose situation—one in which error was fatal rather than productive.

Although the Dadaists intended for the visit to Saint-Julien to function as a social critique, there are fundamental differences between the diagrammatic tour and other socially critical conceptions of the diagram. Most famously, Peter Eisenman has theorized the diagram as a formal process that maps out and discloses the forces, movements, interiority, rhetoric, and organizational structures of architecture.[31] R. E. Somol describes Eisenman's

23 Joselit, 223.

24 Apollinaire, "L'Esprit nouveau," 945–9.

25 *Ibid.*, 945.

26 Guillaume Apollinaire, "The New Spirit and the Poets," in *Selected Writings of Guillaume Apollinaire*, trans. Roger Shattuck (New York: New Directions, 1971). Joselit reprints Shattuck's translation in "Dada's Diagrams," as does the English translator of Friedrich A. Kittler's *Discourse Networks 1800/1900*, trans. Michael Metteer with Chris Cullens (Stanford: Stanford University Press, 1990), 250.

27 50 according to Sanouillet; 200 according to Breton. Sanouillet, *Dada à Paris*, 256. Breton, "Artificial Hells," 141.

28 Breton and Witkovsky, "Artificial Hells," 141.

29 Ribemont-Dessaignes, *Dejà Jadis*, 94. Translation mine.

30 Breton, "Artificial Hells," 141

31 Peter Eisenman, *Diagram Diaries* (New York: Universe, 1999), 37.

project as a subjection of form "to perpetual revision through an exhaustive sequence of operations: transformation, decomposition...rotation, inversion, etc."[32] Through these operations, Eisenman "rewrites" existing architecture.[33] For him, diagrams offer the potential for socio-political critique.[34] Anthony Vidler pushes the diagram's social criticality even further, characterizing it as a utopian, potentially "potent political device."[35] Vidler's conception is directly informed by the utopian potentiality of Deleuze and Guattari's diagrammatic abstract machine. The diagrammatic, they write optimistically, "plays a piloting role. The diagrammatic or abstract machine does not function to represent, even something real, but rather constructs a real that is yet to come, a new type of reality."[36]

While Eisenman's diagrams track or evidence socially critical processes, the Dada Excursion attempted to *enact* processes of social critique. And while Vidler, Deleuze, and Guattari employ the language of the hypothetical, abstract, unreal, and deferred to describe the diagram, the diagrammatic Dada tour was live, real, and immediate. Although critics have drawn analogies between the Dada Excursion and *flânerie*—the 19th-century practice of aimlessly roaming the streets of Paris—the specificity of time and place outlined by the Dadaists for their tour (three o'clock in the garden of Saint-Julien-le-Pauvre) distinguishes it from the freeform, chance-driven stroll of the *flâneur*.[37] As Matthew Witkovsky has noted, "if the Surrealist experience of the street was largely deferred...the interaction with the city fostered by these Dada propositions instead resembles a live broadcast."[38] The Dada Excursion did not construct a "real that is yet to come"; it took place in the reality of the present. It was mapped onto real human bodies, and was thus dependent upon their unpredictable reactions and behavior. Paradoxically, the Dadaists' disappointment with the Excursion suggests that their ostensible openness to those unpredictable reactions belied rather rigid expectations for the audience's behavior.

I do not mean to suggest that the Dada Excursion was a manifestation of Michel Foucault's diagram [*diagramme*] mapped onto human bodies.[39] To summon Foucault's notion of disciplinary power would be to tread on dangerous territory. Nonetheless, it is striking to note that, in the leap from the hypothetical, bodiless diagram to the embodied diagram, the potential for social critique has been replaced by the implementation of social control. And although it would seem anathema to align the Dadaist attempt at liberation from capitalist oppression with a form of disciplinary control, it was at precisely this moment in the history of Dada that the movement underwent a momentous shift away from unfettered play toward rigid organization.[40] To cite but one example, a mere month after the Excursion, the Paris Dadaists went so far as to put the writer Maurice Barrès, a onetime Dada sympathist, on trial for his alleged betrayal of their cause. This more dogmatic and severe mood of Paris Dada resulted in the departure of some its members, notably Picabia. At the very least, the comparison with Foucault hints at why the diagrammatic Dada Excursion was not able to fulfill its revolutionary ambitions.

The age of Apollinaire's *esprit nouveau* was characterized not only by the invention of technology that allowed the traversal of time and space with radical immediacy, but also by the harnessing of that technology to effect the horrifying atrocities enacted on mankind during the First World War. The Dadaists were profoundly aware of and manifestly affected by the injuries and loss of life wrought by these technologies, as well as by the newly-felt disjuncture between space and time. In Aragon's alignment of the Dada Excursion with the French Revolution, he differentiated the two temporally. Aragon called for the Terror "suddenly" and "right away," temporal descriptors that can be aligned with the epoch of Apollinaire's *esprit nouveau*. Similarly, in the advertising flyer produced for the tour, Breton wrote: "we need to act fast." This imperative of expediency meant that, in practice, there was no room for error. What was intended as an event in which contingency and relationality would produce open-ended, potentially utopian results was, in the end, thwarted by the very specificity of time and place it set out to conquer.

32 R. E. Somol, "Introduction," in *Diagram Diaries*, 15.

33 *Ibid*., 14.

34 "Through the agency of the diagram... architecture has the possibility of not merely representing but transforming and being critical of...socio-political conditions." Eisenman, 37.

35 Anthony Vidler, "Diagrams of Utopia," in *The Activist Drawing: Retracing Situationist Architectures from Constant's New Babylon to Beyond*, eds. Catherine de Zegher and Mark Wigley (Cambridge, MA: MIT Press, 2001), 90.

36 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 142

37 The day after the tour, the journalist Paul Souday aligned the Dada Excursion with *flânerie*. See Paul Souday, "Dada-ïsme," *Le Temps*, 15 April 1921. More recently, Matthew S. Witkovsky made the same analogy, citing in particular Breton's "Baudelairean taste for wandering throughout the city." See Matthew S. Witkovsky, "Dada Breton," *October* 105 (Summer 2003): 131.

38 Witkovsky, "Dada Breton," 133.

39 In *Discipline and Punish*, Foucault uses the term "diagram" to refer to the disciplinary model of power. See Gilles Deleuze, *Foucault*, trans. Séan Hand (Minneapolis: University of Minnesota Press, 1988), 34.

40 Michel Sanouillet calls the Paris Dadaists' techniques "Machiavellian," refers to the "Dada dictatorship," and likens the Season to an enforcement of the law.

1. At first, it was difficult to find a way around this place.
More important than maps, we had to create an entirely different temporality.
[not sure what this means exactly] [An entirely new mythology, not a dream, not just looking backward or starting over, but operating on itself.] Methods for the production of instability (a.k.a. politics), through weird concoctions, oscillating frequencies and dirty frictions.
As everyone was sipping their coffee amongst the smoldering ruins, this was our best guess.
We had no idea where it would lead... [We need something hopeful here.]

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Pirro Ligorio (ca. 1513–1583) was an Italian artist, architect, and antiquarian. As superintendent of ancient monuments under Popes Paul IV and Pius IV, Ligorio created a renowned map of ancient Rome. In his architecture and scholarly criticism, he championed a rigorous, classicizing design approach, and his polemics against Michelangelo led to his dismissal from the papal court in 1568. His architectural legacy includes the Villa d'Este in Tivoli, the Casino of Pius IV at the Vatican, the excavation of Hadrian's Villa at Tivoli, and a number of influential renderings of Roman ruins.

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MOS Architects is an interdisciplinary practice led by Michael Meredith and Hilary Sample, engaging in architecture and design through an inclusive methodology of collaboration and experimentation. Their projects have been showcased in numerous publications, including *The New York Times*, *Architectural Record*, *Architect*, *A+U*, *Abitare*, *Domus*, and *Detail*, and exhibited at the Venice Biennale, SMOCA, MoMA, and the Art Institute of Chicago.

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supermanoeuvre is an architecture and innovation practice based in Sydney, Australia. Partners Dave Pigram, Iain Maxwell, and Chris Duffield have held leading roles on international projects from cultural and government institutions to stadiums and large-scale urban developments. Supermanoeuvre's work has been exhibited at New York's Storefront for Art and Architecture and the Beijing Architecture Biennale, and the partners have lectured at the Architectural Association, Columbia University, and Princeton University. Supermanoeuvre has won 2010 Design Build Challenge of the Young Architects Forum of Atlanta, the 2010 University of Michigan Research Through Making Grant, and the Digital Multimedia category of the Powerhouse Museum's International Lace Award 2010–2011. They were one of six practices to represent Australia at the 2012 Venice Architecture Biennale.

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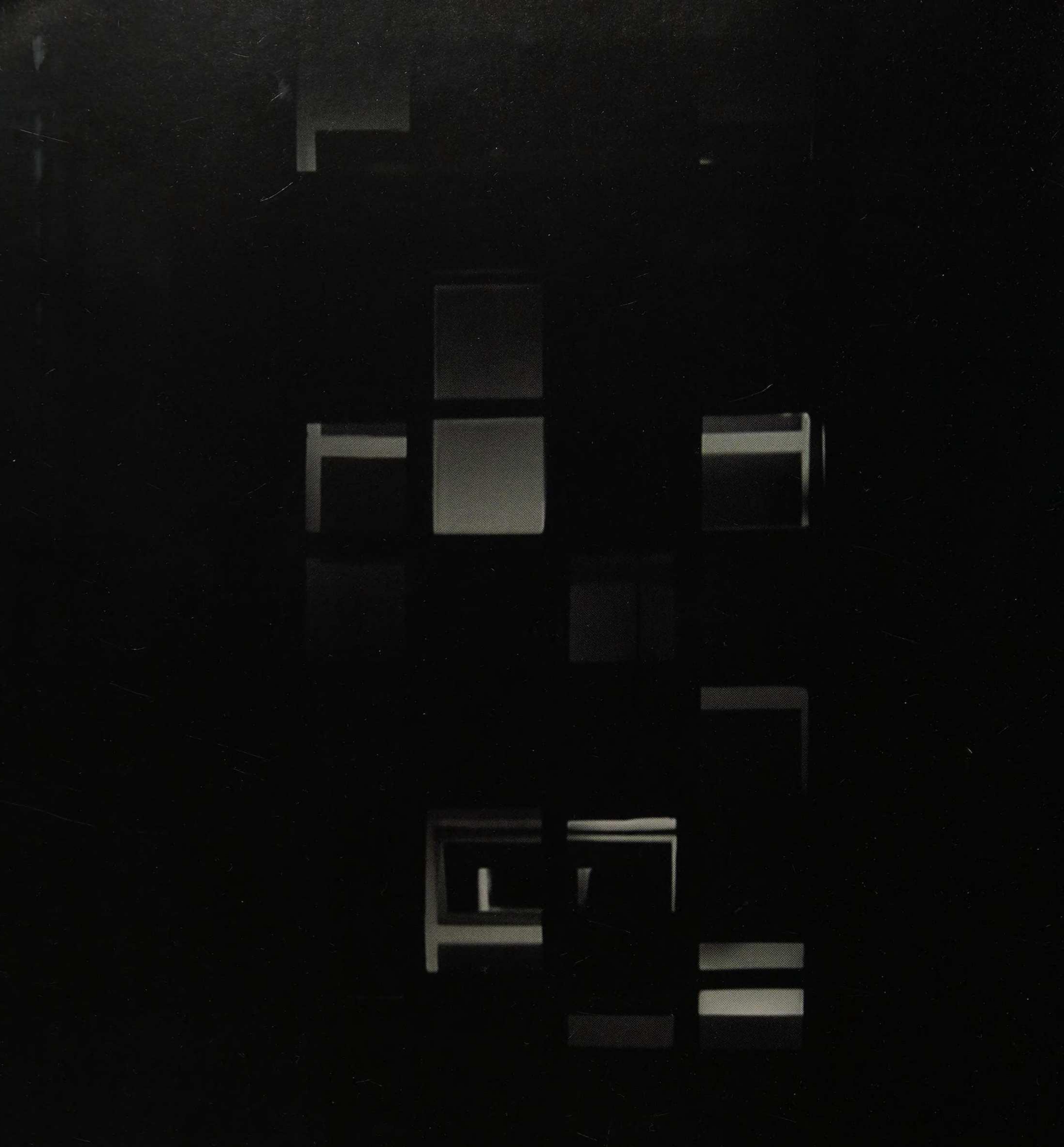

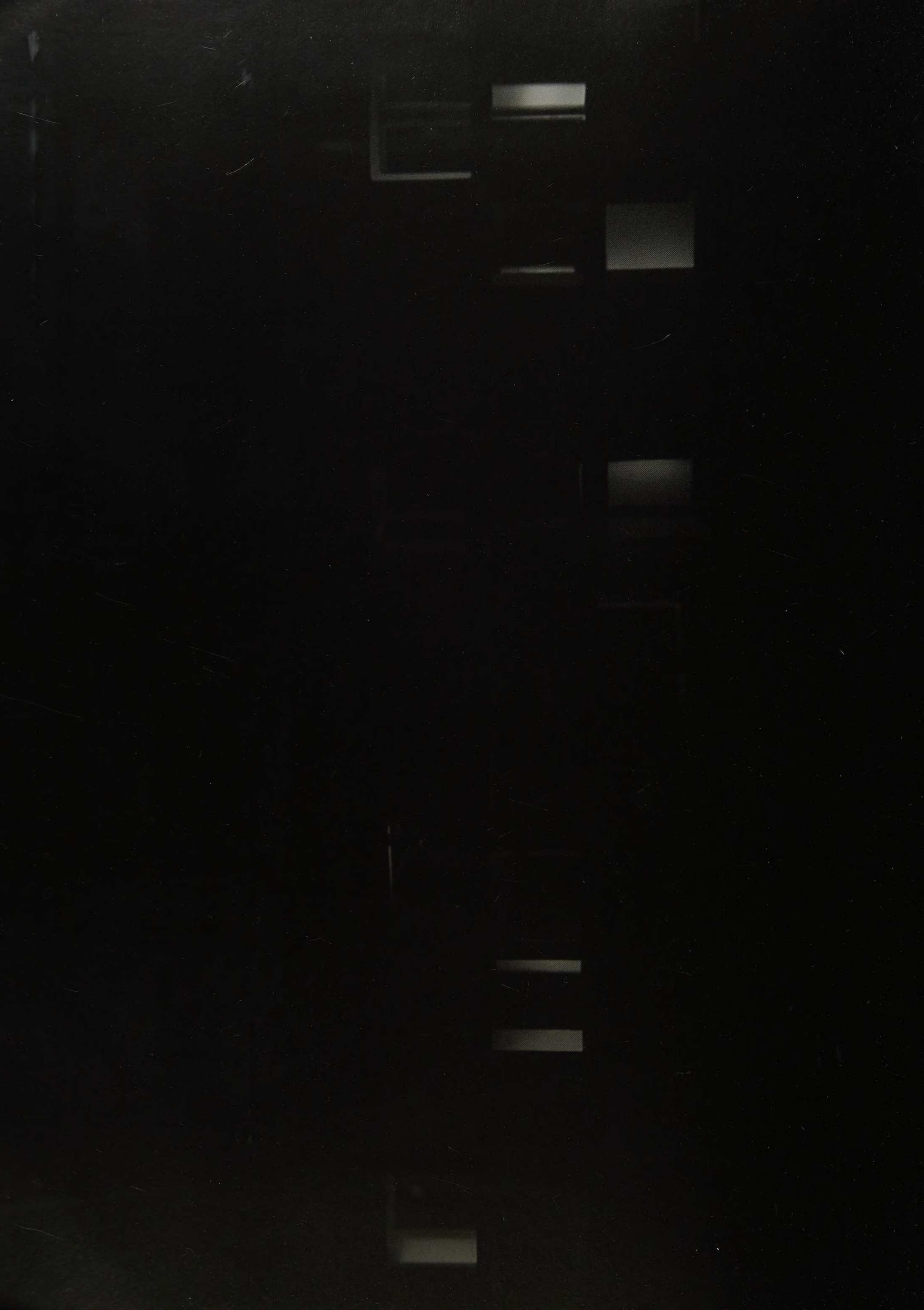

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