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► Alvar Aalto. Villa Mairea. Chimney detail.

STANFORD ANDERSON

THINKING IN ARCHITECTURE

Abbé Laugier's claim that "in those arts which are not purely mechanical it is not sufficient to know how to work; it is above all important to learn to think." But how should one think about architecture, or rather, think in architecture? Is there a specific architectural way of thinking? ... Can a design be a form of thinking? Or does it all boil down to subjective taste?

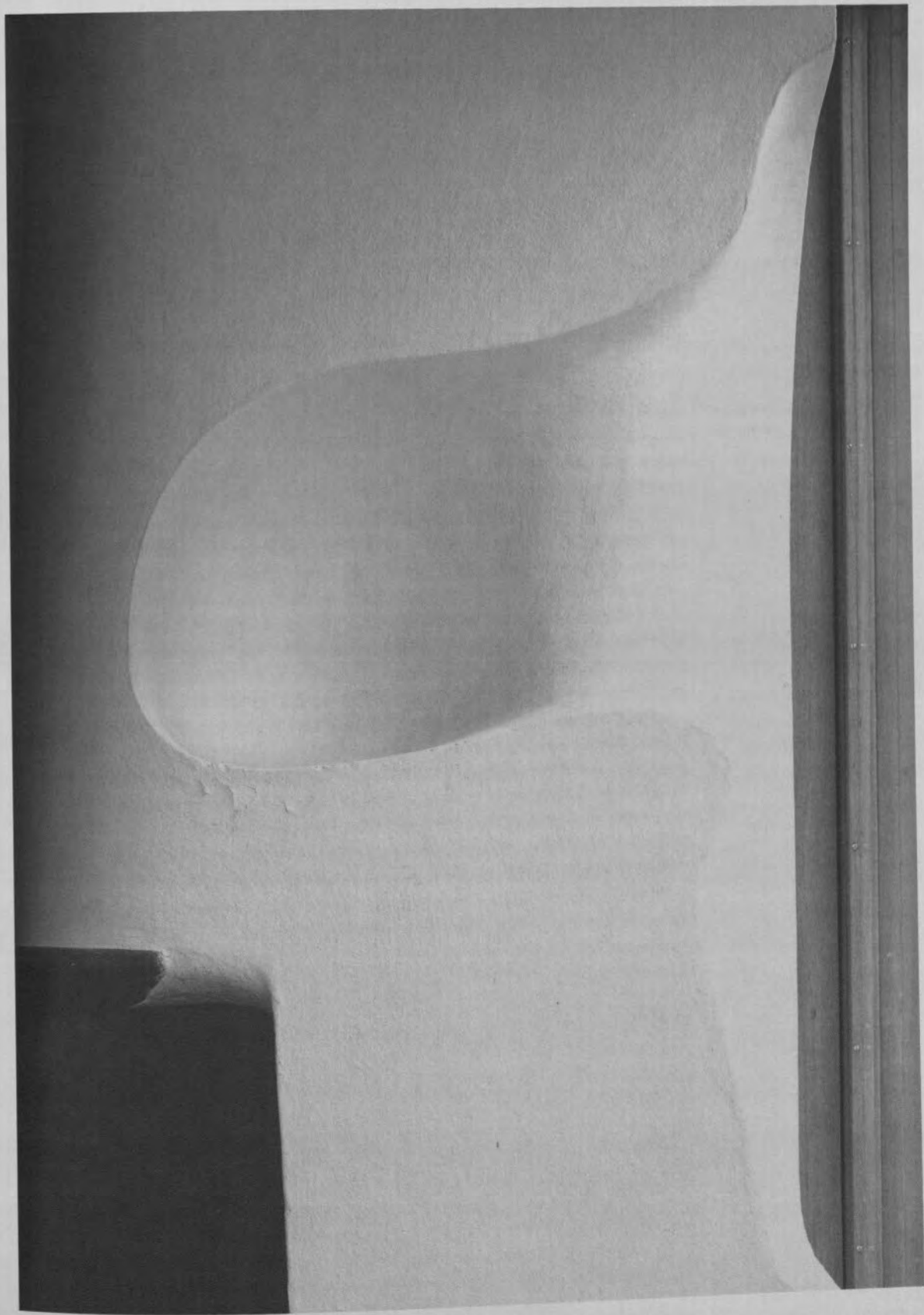
"Not subjective taste!" – we had better say, if we think there is a discipline of architecture, a profession of architecture; if we can honourably have schools of architecture or be professors or critics of architecture.

Abbé Laugier put his question with reference to "arts which are not purely mechanical," among which he counted architecture. The obverse of that characterisation is, then, that these arts are also 'mechanical.' Architecture does have to answer to many instrumental demands of function and making. It is not surprising then, nor wrong, that much thought in architecture is addressed to instrumentalities. Nor is it surprising that we have had programmes called "functionalism," claiming not only to address the necessary instrumentalities of architecture, but also to be theoretically adequate. In later discussions of the theory of architecture, functionalism is generally rejected; but functionalism remains a default position in much of architectural practice, and even in pedagogy.

Is there a specific, architectural way of thinking? I think there is a logically necessary condition if that question is to be answered.

If we are to think, to design, to build architecturally, then these activities cannot simply be reduced to information supplied by other disciplines, as functionalism at least appeared to do.

ALVAR AALTO worked at a time when there were architects of consequence who strongly advocated the theory and practice of Functionalism. Aalto did not buy into a narrow functionalism. Repeatedly he made the case for a deeper functionalism that would give adequate





▲ Claude-Nicolas Ledoux. City of
Chaux. First and final schemes

attention to the humanistic dimensions of architecture. But would that simply yield a functionalism that considers more variables, proposed by more disciplines? Psychology and sociology would join anthropometrics and Taylorism and materials science and structural and mechanical engineering? These additional variables might enhance the performance of functionalism, but architecture would remain a mechanical technique for the agglomeration of information from other disciplines.

If Aalto's advocacy of a more informed functionalism does not answer to the problem of architectural thinking, are we merely left with the view that architectural design possesses a certain *je ne sais quoi*, as in this famous detail from the *Villa Mairea*, that leads us to set some architects or buildings apart from the norms of professional practice?

I don't want to settle for architecture – or for an interpretation of Aalto's work – as either merely a more sensitive functionalism or a programme for the sophisticated design of details of elusive significance. Further, despite the way it sounds, I don't want completely to reject either functionalism or the *je ne sais quoi*.¹ Nonetheless, these are not the routes by which to address the question of what it is to think architecturally.

In this article, I will review earlier attempts to discover an architectural way of thinking through the concept of architectural autonomy. Not satisfied with these proposals for autonomy, but still seeking to "think in architecture," I will give renewed attention to my notion of "quasi-autonomy."

Thinking architecturally: Autonomy with Emil Kaufmann's Ledoux What is it to think architecturally? The question is not new. We are led back to attempts to claim, and then discern, *the autonomy* of architecture. The concept of autonomy in architecture has been proposed from different positions that I will sample here. At the outset, we can take 'architectural autonomy' to be a proposition that in some way recognises 'a specific architectural way of thinking', and traces the constitution of that way of thinking within the discipline of architecture itself.

One of the most noted of such endeavours was by the historian EMIL KAUFMANN in the early 1930s, in the time of high modernism. Kaufmann was an advocate of LE CORBUSIER, but his theoretical position

relied on French architecture of the late 18th century. There he found the origins and nature of autonomy in architecture.²

The architect CLAUDE NICOLAS LEDOUX is Kaufmann's key figure. Ledoux embodied in his life and work a crucial change that Kaufmann sees as epochal for society and its cultural forms. Ledoux's key work is the royal saltworks at Chaux, conceived as an ideal city. Kaufmann interpreted Ledoux's first project for Chaux as a hierarchical, compact, and strictly organised design. These traits he perceived as counterparts to an earlier, then receding, authoritarian political and cultural organisation that Kaufmann subsumed under the term 'baroque'.

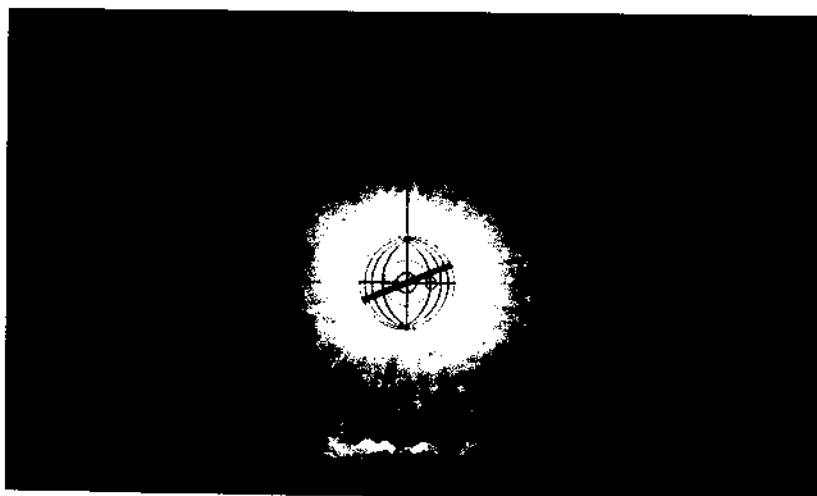
In contrast, the final, only partially realised, scheme for Chaux, although clearly ordered, exemplified an unprecedented openness with individual buildings conceived quite differently from one another depending on their intended use. This form of organisation Kaufmann termed the "pavilion system" and traced it in works of the late 18th century by Ledoux and other architects whom he collectively termed 'Revolutionary Architects'.

These architects worked almost wholly before the French revolution, so the 'revolution' of the 'Revolutionary Architects' was a revolution that had been underway for some time and reached beyond France – the revolution of the Enlightenment. Kaufmann cited especially JEAN-JACQUES ROUSSEAU's concerns for the rights of the individual, drawing a rather literal connection between an emphasis on individual rights and the conceptual opening and particularity of architecture ordered within the pavilion system.

Kaufmann conflates at least two concepts of autonomy. There is a 'conceptual autonomy' as just referenced: an intellectual and political shift from a traditional, hierarchical society to the origins of modern society with relative autonomy in thought and action. Formally, the authoritarian baroque society displayed itself in hierarchical spatial organisations, intended for perspectival viewing from an idealised position. With this concern for a hierarchical image, architectural form could be twisted and ornamented till both individuality and material logic were subverted to the holistic image. In contrast, Ledoux designed

▼ François Mansart: Château de Maisons, 1642–51.





▲ Etienne-Louis Boullée.
Cenotaph of Newton

his dispersed pavilions according to particular programmes and sensibilities.

As concerns materiality, Kaufmann argued that Ledoux's severe surfaces, in planes or geometrical forms, allowed the realisation of Ledoux's own claim that "stone could again be stone." There is an architectural autonomy that is to be found in the proper use of materials and constructional logic. In Kaufmann, there is also an autonomy, or an autonomy conflated with the material claims, based on function.

ETIENNE BOULLÉE is a notable figure among Kaufmann's 'Revolutionary Architects', and here we may sense that sheer scale, as much as simple forms, contributed to the claim for architectural autonomy in this body of work.

Kaufmann's long essay appeared in a volume of works by colleagues in the so-called 'new Viennese School of art history'. In a review of this Viennese work, the noted New York scholar MEYER SCHAPIRO criticised the group's reliance on the concept of autonomy in the arts – being so blunt as to say that one of the articles, as others in the collection, "suffers from the dogma of autonomous principles."³ Consequently, it comes as something of a surprise that Schapiro found Kaufmann's essay to be "excellent." Admittedly there could be an underlying sympathy between Schapiro's left politics and Kaufmann's claims for the individual vs authority. Yet it comes as a surprise that Schapiro seems readily to buy into Kaufmann's finding that "the essential contribution of Ledoux is his discovery of an autonomous principle of architecture." Kaufmann further characterises this autonomy as deriving "its aesthetic from the internal demands of construction and use, and is independent of any foreign, imposed artistic conception." Toward the end of his review article, Schapiro again becomes critical of claims for autonomy, relating it "to that idea of a 'pure art' which arises constantly among artists" to justify the "absolute independence of their activity as artists."

Schapiro concludes this thought with a remarkable passage that sounds as if he anticipated the early work of PETER EISENMAN. Here is Schapiro, in 1933, thirty years before Eisenman's House I:

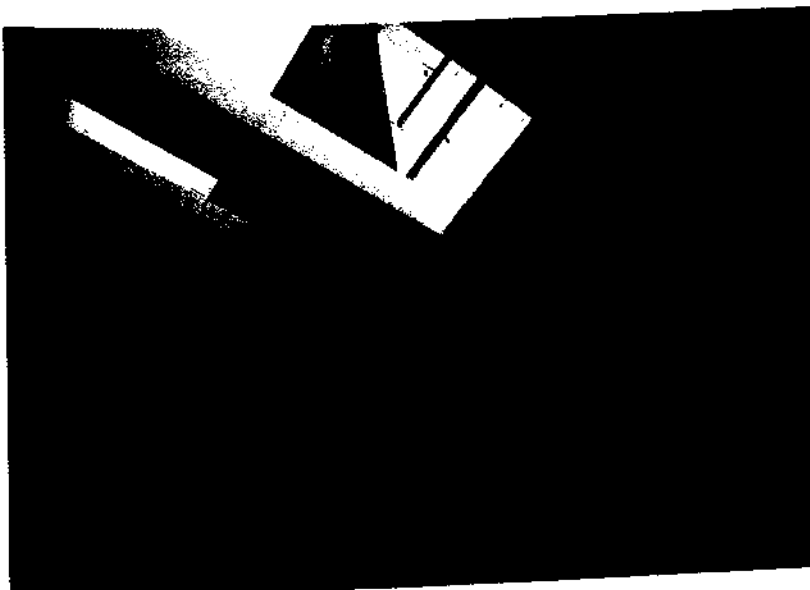
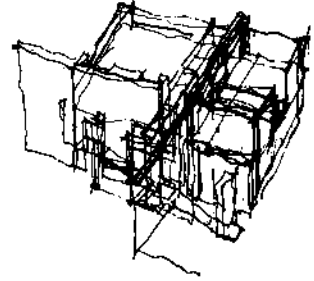
They [the self-justifying artists] know only the 'laws of art,' and submit to no others. In the name of a similar purity, an architectural aesthete might deduce an art which conceals or suppresses the tectonic, constructive elements as non-artistic, and which constructs independently of these factors its own effects of mass and space and light.⁴

Almost surely Eisenman has read Kaufmann and the review essay of Schapiro. In any case, Eisenman notably resumes the quest for autonomy in architecture.

Thinking architecturally: Autonomy with Peter Eisenman's Le Corbusier If Kaufmann relied on Rousseau and individual liberty, Eisenman relied on IMMANUEL KANT, as read (not uniquely) by the noted New York formalist art critic CLEMENT GREENBERG. Greenberg relied on his interpretation of metacriticism in Kant to formulate his own position that what sets modern art apart is its exploration of its own production. Claiming Kant as the first modernist, Greenberg made self-referentiality the central tenet of modernism, most clearly demonstrated in New York painting of the post-war years.⁵

Eisenman's early work, his 'Cardboard Architecture' houses, made commitments remarkably similar to what Schapiro had anticipated: "an art which conceals or suppresses the tectonic, constructive elements as non-artistic, and which constructs independently of these factors its own effects of mass and space and light."

Eisenman's cardboard architecture already involved the ambition to bring modernist self-referentiality to architecture, and thus claim for



- ▲ Peter Eisenman, Cardboard architecture House VI.
- ◀ Peter Eisenman, House IV, detail.

himself a significant position in the cultural world of New York and beyond.

In 1979, in his journal *Oppositions*, Eisenman sought an early precedent for 'self-referential' architecture in the modern movement – and thus to give his thesis of self-referentiality a firmer theoretical base.⁶

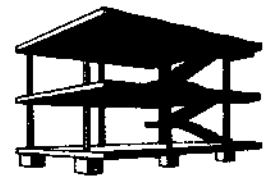
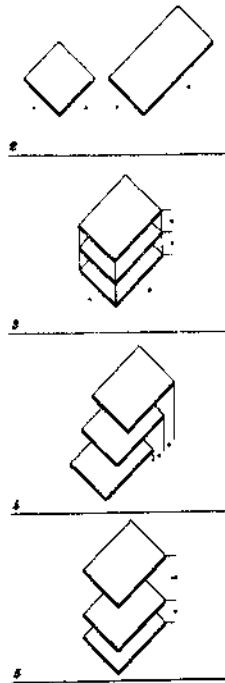
In his essay, titled *Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign*, Eisenman made a new claim for the significance of the *Maison Dom-ino*. He proposed a theoretical interpretation internal to the *Dom-ino* image itself. In so doing, he sets aside the reigning interpretation of that work, stemming largely from the writings of his mentor COLIN ROWE. Eisenman sees Rowe's claim for the innovative modernity of the *Maison Dom-ino*, revealed fully in Le Corbusier's great villas of the late 1920s, as marking no more than one more instance of historical change in an established mode of representation.

Rather than establishing a historical continuity, as Eisenman found in Rowe, Eisenman recognises features of the *Maison Dom-ino* that he poses as a radical break with tradition. Relying solely on the famed perspective drawing of the *Maison Dom-ino*, Eisenman enters upon a close description entailing such observations as the different lengths, A and B, of the slabs, the alignment of the slabs and the equal spacing of their vertical stacking. The possibility of many variations of those factors is noted, and also that such variations entail little more than geometrical distinctions. However, in Le Corbusier's project drawing, Eisenman notes, these features are what they are; Eisenman's respect for Le Corbusier and the renown of the *Maison Dom-ino* diagram is such that he unquestioningly makes the assumption that there must be formal intentionality in the given configuration of the *Maison Dom-ino*.

What then is that intentionality? Eisenman finds it to be crucially revealed in the relation of the columns to the slabs. The columns are set back from the long side of the slabs, but are close to the edge of the narrow ends of the slabs. Here I quote Eisenman: [As the difference, A versus B, of] "the column locations acts to reinforce the original geometric A B relationship which in itself is so clear as not to need reinforcement [Eisenman's emphasis], one interprets this as an intention to underscore a condition of being, that is as a significant redundancy. ... The redundancy of the mark thereby signals that there is something present other than either the geometry or the function of the column and slab."⁷

Eisenman concludes: "Thus, the fact itself – the slab – plus the spatial marking – the location of the columns – suggest an idea about sides A and B which is an idea only about itself, a self-referential statement. This then may be a primitive though truly Modernist phenomenon, one that speaks about its mere existence and its own condition of being."⁸

Self-referentiality as a "truly Modernist phenomenon" was not, of course, a new idea. Aside from its appearance in innovative art, including cinematography, from the late nineteenth century onward, it had also been theorised. As noted, the major art theorist of mid-twentieth century New York, Clement Greenberg, built his theory, criticism, and indeed his history on the concept. Greenberg was directly influential



on the circles in which Eisenman moved, though that influence was then on the wane. Eisenman notes that architecture had been slow to adopt a modernist stance, though here he finds early intimations in the *Maison Dom-ino*. In his theoretical essay, as in his 'cardboard' houses, Eisenman seeks a self-referential autonomy that relies heavily on the atectonic emphasis on redundancy and the gratuitous introduction of only seemingly tectonic elements.

With Rowe, Eisenman, and others, I share in the conviction of the importance of the *Maison Dom-ino*. I see it as a major contribution to what I term the *quasi-autonomy* of architecture – a claim that will need development following some other remarks on autonomy.

We might say that Eisenman sought autonomy through negation of Building, negation of functional and material conditions. The distinctiveness of architecture, its autonomy, lay in self-referentiality embedded in abstract systems of markings and relationships. His rejection of the material conditions of architecture is explicit.

Emil Kaufmann had seen the autonomy of his Revolutionary architects as establishing a new tradition. Despite the interval of the nineteenth century, with its many competing architectural positions, Kaufmann, looking to his own time, was strongly attracted to the work of Le Corbusier as a brilliant manifestation of that tradition.

With Eisenman looking back to the early period of Le Corbusier as the root of his still more abstract position, we have a proposition of a tradition of architectural autonomy established in the late eighteenth

- ▶ Ledoux – Le Corbusier – Eisenman.
- ▲ (Drawings) *Maison Dom-ino*, Eisenman's analytic diagrams of Le Corbusier's *Maison Dom-ino*, relations of columns to sides of the slabs, 1979.

century, allegedly rarified and advanced in an early work of Le Corbusier, and finally set out, in theory and practice, by Eisenman.

I am not satisfied with that story and so will return to it. But first I want to touch on the other architect of recent times whose work is closely associated with the concept of autonomy: ALDO ROSSI.

Thinking architecturally: Aldo Rossi's autonomy through precedent

Contemporaneously with Eisenman, Aldo Rossi too sought autonomy by negation of functional and material conditions. There is, however, a gulf between Rossi and Eisenman. Eisenman rejected precedent. Rossi, conversely, sought the autonomy of architecture precisely in the history of the discipline, as manifested in the rigours of the architectural discipline and in the historical city.

Rossi and his circle speak of the craft of architecture – the architect's *métier*. With this, the Rossi group comes to their admiration for the work of HEINRICH Tessenow. We are being returned to a classical tradition, a stripped classicism that represents a strict discipline within architecture.⁹

Is the notion of autonomy a stalking horse for classicism? With the Rossi circle, one might think so. Kaufmann, looking back to eighteenth-century France, may seem to embrace classicism, but one must remember his favoured attention to Le Corbusier. Stripped classicism is the world of the Rossi group, and no doubt one possible, but not the necessary, end of the quest for autonomy in architecture.

Architectural autonomy must neglect "Building"? But the big question: Where is the B, where is Building, within thought about autonomy in architecture?

It was present in Kaufmann. He spoke of autonomy as deriving "its aesthetic from the internal demands of construction and use, and is independent of any foreign, imposed artistic conception." Just as he spoke of the formal and representational autonomy of the pavilion system.

Schapiro wrote with a slightly diffident acceptance of these two aspects of Kaufmann's autonomy: disciplined affirmation of material constraints on the one hand (a position that both Rossi and Eisenman find anathema to any claim for autonomy); and an abstract, moral and philosophical, idealism on the other. However, I find, neither in Kaufmann's writings, nor in Schapiro's commentary, any attempt to do more than juxtapose these two grounds of autonomy.

Once more, Is there a specific architectural way of thinking? In exploring the attempts to answer this question through the concept of autonomy, I come to a sense of aridity. With Eisenman a slighting of precedent. With the Rossi group, a return to a reduced classicism. And in both cases, not just a neglect, but a refusal to deal with tectonics, with Building. The material conditions of building are seen as inherently negating architectural thinking.

Thinking architecturally: Quasi-autonomy with Anderson's Le Corbusier

So, where is Building in the search for "a specific architectural way of

thinking"? Le Corbusier's *Maison Dom-ino* is recurrently a test case in architecture, as it was for Eisenman. Let us give it another look.

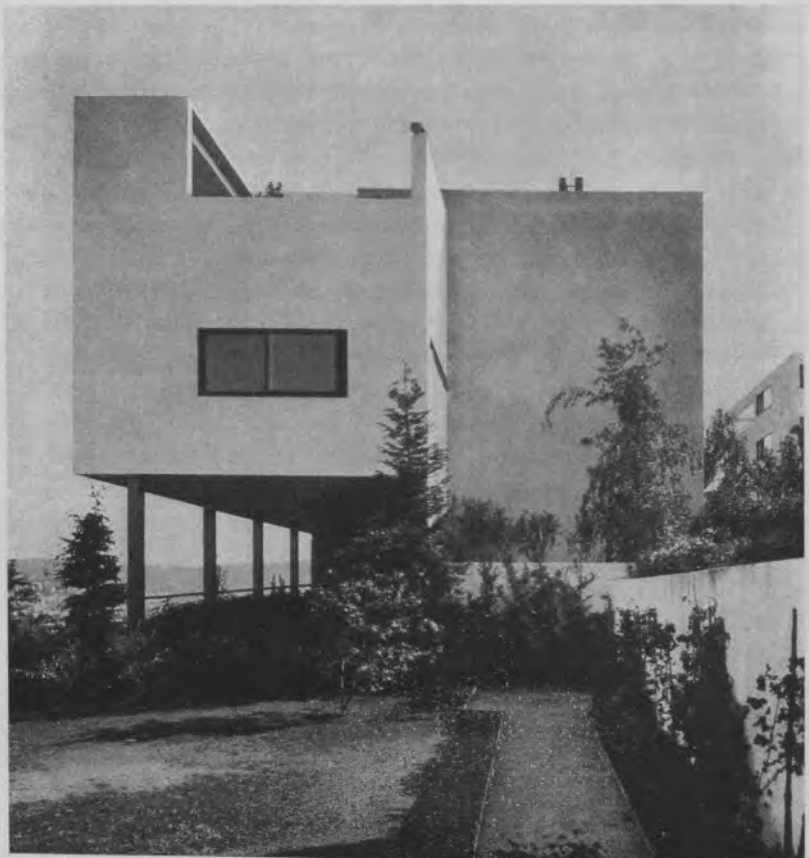
Unlike Eisenman, I am unwilling to assume that the *Maison Dom-ino* diagram of 1914 revealed a sophisticated proposition such as self-referentiality. My doubt is borne out through a broader examination of the *Maison Dom-ino* project and its afterlife in Le Corbusier's career.

The *Maison Dom-ino* project was distinctly pragmatic in its origins; its premises are more fully revealed by attention to other *Dom-ino* project drawings: plans, detail drawings, and perspectives of possible houses/housing based on the project. The project grew out of Le Corbusier's interest to develop a system using the relatively new technology of the reinforced concrete frame, calculated to meet the severe housing needs in Flanders, devastated by the locally sustained battles of World War I. Le Corbusier sought to form an industrialised company for production of the rationalised frame system that could be deployed and then in-filled locally. Under the exigencies of the time that infill might include rubble from destroyed buildings, though Le Corbusier also envisioned industrialised in-fill systems. Attention to structure is integral to the project, but we will see that Le Corbusier's structural concern is far from a structural determinism.

The reflected ceiling plan of the *Maison Dom-ino* shows that it did not involve 'slabs' in the usual sense of that word as monolithic concrete floors. Rather it is a framework of girders and beams formed by small repetitive cement or tile units, destined to have a plaster ceiling. Infill walls would then have preferred locations on the structural lines. In Le Corbusier's *Maison Dom-ino* plans, we find no innovative exploitation of structure or space. Whenever possible, columns are buried in walls. Where an interior wall is of lesser dimension than a column, the exposed part of the column is boxed-in or projected into the less significant space. Neither is structure emphasised nor is planning free from the structure. The cantilevered space beyond the columns on the long sides of the building merely sets the dimensions of insignificant spaces. Where a principal room is projected through that space, there is no recognition of space within or beyond the column line. In brief, examination of the *Maison Dom-ino* project as a whole reveals nothing of Le Corbusier's famous propositions often associated with the *Maison Dom-ino*, the Five Points, the free plan. Eisenman's self-referentiality also appears foreign to the issues at hand.

Le Corbusier first published the *Maison Dom-ino* project in the early 1920s in the journal *L'Esprit nouveau*, and again in his most important book, *Vers une Architecture*.²⁰ In both these publications, Le Corbusier uses large illustrations of interior and exterior perspectives of individual and collective "*maisons 'Domino'*." The now famous perspectival diagram appears only as a thumbnail reproduction near each of the large exterior perspective drawings. It is mentioned as a concrete framework, but the discussion turns on the process of fitting out the house and laying out an agreeable site.

Nonetheless, my purpose is not to be dismissive of the *Maison Dom-ino*. In the past, I have referred to it as a 'non-conservative model' – that is, it



▲ Le Corbusier: Stuttgart, Double house at the Deutscher Werkbund's Weissenhof housing exhibition, 1927.

is not a rigid model with a defined, singular purpose. It is a model that can be revisited, and has been, with great profit. When Le Corbusier, more than a decade later, in 1926, was designing the *Villa Stein* and his two houses for the Weissenhof exhibition in Stuttgart, he introduced his renowned "Five Points": pilotis, free plan, roof garden, free façade, and strip window.¹¹ New ground was broken both in building and polemics. *Pilotis* and the Five Points had not been foreseen in the *Maison Dom-ino* nor even in the extensive housing design documented in his 1923 publications. A potential of the *Maison Dom-ino* could only be realised after concerted (and 'patient') effort, as manifested at Stuttgart, at Garches, and in the other brilliant villas of the late 1920s. The 'non-conservative' *Maison Dom-ino* diagram had been revisited till it became a provocation for the inventive Five Points and the villas.

In 1937, Le Corbusier published his early architectural work, including the great villas, in the first volume of his *Oeuvre complète*.¹² For the first time his presentation of the *Maison Dom-ino* project emphasised not the housing, villa, or urban designs, but the perspective diagram.

The Five Points were not possible without the innovation of modern frame construction, but such technological capacity awaited the architectural innovation of Le Corbusier. The Five Points are an *architectural* innovation. We no longer assign to them the imperative

sense of Le Corbusier circa 1930, but they are a fundamental part of architectural knowledge. In design, it is a conscious, and almost inescapable, act to employ them – or not. Facilitated by, but not part of, structural technology, the Five Points are an important modern contribution to the discipline of architecture, to the quasi-autonomy of architecture. Or, to return to the question raised in the beginning: “How one should think in architecture.”

I want to return to the matter of the ‘non-conservative model.’ To the extent Eisenman’s essay purports (or seems to purport) to be a historical inquiry, I argue that he is quite wrong. But if the *Maison Dom-ino* is a ‘non-conservative model,’ then it is open to new readings, just as Le Corbusier did through his villas of the 1920s. I believe the master did so again with the Carpenter Center at Harvard in 1960. Le Corbusier conducted a long-extended research programme, a programme that adopted and adjusted increasingly rewarding auxiliary hypotheses, but that traced back to a common core, the *Maison Dom-ino* diagram (fig. 1) whose capacity was only revealed with concerted effort over time.³³

So it is completely appropriate that another architect, still later, should propose yet another way to learn from this model. Conceivably, what Eisenman proposed is an extension of Le Corbusier’s research. Alternatively, his new auxiliary hypotheses may be so radical as to reposition the old core and generate a new research programme.

Eisenman’s essay can be understood then not as a history, but as a ‘rational reconstruction’ of what may have been latent in the diagrammatic *Maison Dom-ino* perspective.³⁴ Whether the *Maison Dom-ino* provoked Eisenman’s self-referentiality, or his self-referentiality led him to ‘mis-read’ the *Maison Dom-ino*, there is a new impetus for the discipline of architecture. To seek such reconstructions is a challenging and potentially fruitful exercise. A rational reconstruction can elude conventional historical criticism, but it must achieve a logical construction and hopefully one that is both empirically sound and fruitful. I find some of the details of Eisenman’s argument for a self-referential *Maison Dom-ino* to be in question. Nonetheless, I applaud Eisenman’s effort and where it finally took him (or where I presume to say it took him) in the closing lines of the last quotation: to “another primitive condition for an architecture.”

Quasi-autonomy: Aalto, form, and accommodation of circumstance In this setting, I do not want to conclude without recognising the architect whose achievement brings us together. Aalto emphasises other lessons for “thinking in architecture.”

If one attends carefully to an Aalto building and its details, it is difficult not to embrace a thought that I once borrowed from Aalto: “the methodical accommodation of circumstance.”³⁵ With Aalto, ‘accommodation’ rarely means the submission of one circumstance to another, but rather the informing presence of contrasting formal moves each making its own accommodation to varying circumstances. There are formal propositions, but accommodation is not forced under some unifying system, whether structural or decorative. The results of such

a method appear throughout Aalto's work, as I sought to demonstrate in my paper for the centennial publication by the Museum of Finnish Architecture.

Conviction in Aalto's attention to human need, even to its finer effects in particular circumstances, is only reinforced by differences among his buildings. *Baker House* at MIT won international critical acclaim and positive reception by its residents from the outset (and so it continues). Yet Aalto did not again create a building with serpentine curves or a dramatic hanging stairway. Forms were invented for a purpose, not as something to be visited upon other circumstances.

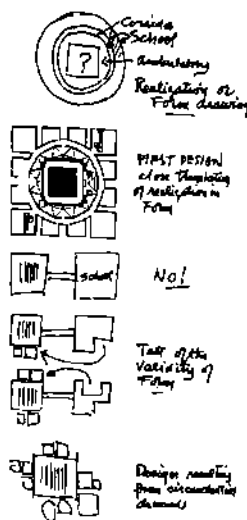
Methodical accommodation of circumstance is fundamental to other architects for whom form, building, and use are intrinsic to architecture. If we were to attend to Louis Kahn when he says, "It is the role of design to adjust to the circumstantial," we must remember that Kahn used the word "design" to name the process of fulfilling the "form" that was envisioned. With Kahn too, accommodation demands reciprocity.²⁶ Aalto would not have spoken in the manner of Kahn, but with Aalto, no more than with Kahn, should we think that concern for the circumstantial was a matter of minor problem-solving.

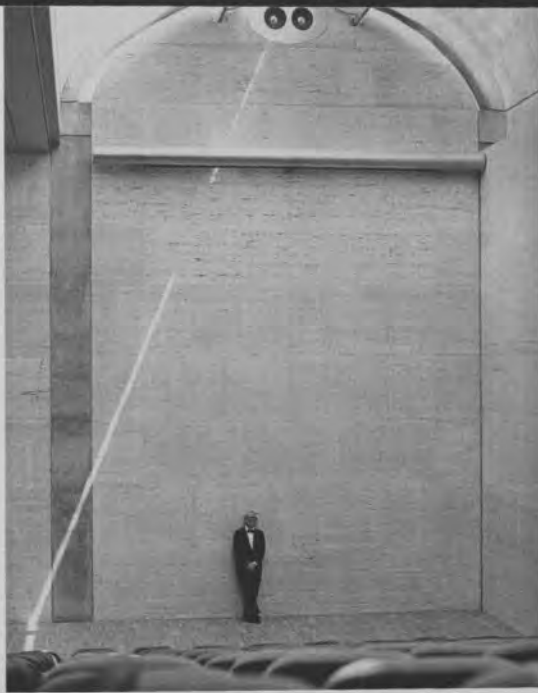
For the *Finland Pavilion* at the 1939 New York World's Fair, Aalto was given an anonymous box within which to create a representation of Finland. There were no disparate elements to unite. Formally, in the apparent absence of circumstance, or to probe the depths of his attitude, it was necessary to invent the circumstances to be reconciled – necessary to invent a form that sets both opportunities and constraints. With his minimal, wavy sketch, Aalto constructed the dichotomy and then worked to harmonise it. Aalto wrote: "architecture is thus a kind of super-technical creation, and the harmonisation of many disparate forms of activity is central to it."²⁷

We may also invoke Le Corbusier. In his famous analytic drawing of *The four compositions*, he assesses his *Villa Savoye* favourably for its satisfaction of functional needs (largely invented) in a work formed by architectural will.²⁸

Formal invention reconciled with circumstances is partially a matter of practical considerations, a resolution that satisfies by its accommodation without suppression of competing factors. I have argued for its deeper significance in architectural design. There is, however, a still deeper significance: an ethical and philosophical commitment and satisfaction in this responsibility to the complexities of thought and action. SANDY WILSON probed these concerns and movingly observed that as an architect, bound by the abstractness of the discipline, "the sole metaphor you had for dealing with every emotion, frustration or fantasy, fear or joy [and which] owes its emotional charge to its reconciliation of contradictory material. It is one of the most marked characteristics of Aalto's work that it so dangerously engages with contradictory elements which it yet manages to control."²⁹

'Methodical accommodation' is not to indicate humble and random solving of small problems. There is a large framework; in every design effort there is not only potential, but also conflict among the





form commitments and the multitude of conditions that apply. Some architects ruthlessly suppress the difficult but compelling condition. Some allow one to intrude on another. Aalto was exceptional in bringing circumstances into positive association with one another.

- ▲ Louis Kahn: Kimbell Museum and Salk Institute.
- ◀ Louis Kahn: Rochester, NY, Unitarian Church.

Conclusion By way of summary, I would like to repeat and emphasise my three examples of ‘thinking in architecture’: inherently architectural thought beyond technological potentials, ‘rational reconstruction,’ and methodical engagement of form and accommodation.

I am asserting that the Five Points are “a specific architectural way of thinking.” They are a distinctive contribution to the discipline of architecture. They could not have been conceived without the potential that lay in modern frame construction, but it took an architectural invention, ‘an architectural way of thinking,’ to change that material potential into a new architecture. That surplus in the potential is exemplary of the autonomy of architecture. Yet, materiality is part of this phenomenon and therefore I prefer to speak of ‘quasi-autonomy.’

‘Rational reconstruction’ is a means of re-visiting and re-inventing potentials that may lie dormant within the discipline of architecture. I offer as an example what Eisenman did theoretically with the *Maison Dom-ino*, and he would claim to have made effective in his work.

‘Methodical accommodation of circumstance,’ if in somewhat different words, has been both pronounced and practiced by such exceptional architects as Le Corbusier, Aalto and KAHN. This practice requires formal invention, knowledge of and sensitivity to material conditions, and methodical resolution of their potentials and conflicts. Here too there is profound probing of both abstraction and materiality – thus, for me, another example of the quasi-autonomy of thinking in architecture.

STANFORD ANDERSON

- 1 Stanford Anderson, "Fiction of Function," *Assemblage 2* (February 1987), pp. 18–31.
- 2 Emil Kaufmann, "Die Stadt des Architekten Ledoux: Zur Erkenntnis der autonomen Architektur," *Kunstwissenschaftliche Forschungen*, II (1931), 131–160; *Von Ledoux bis Le Corbusier. Ursprung und Entwicklung der autonomen Architektur* (Vienna and Leipzig: Rolf Passer, 1933; reprint, Stuttgart: Hatje, 1985); *Three Revolutionary Architects: Boullée, Ledoux, and Lequeu* (Philadelphia, PA: American Philosophical Society, 1952); *Architecture in the Age of Reason. Baroque and Post-Baroque in England, Italy, France [1955]* (New York: Dover, 1968).
- 3 Meyer Schapiro, "The New Viennese School," *Art Bulletin*, XVIII (1936), pp. 258–266.
- 4 Schapiro, p. 266.
- 5 Clement Greenberg, *Art and Culture: Critical Essays* (Boston: Beacon Press, 1961); a study of Greenberg and his thought: Caroline Jones, *Eyesight Alone: Clement Greenberg's Modernism and the Bureaucratization of the Senses* (Chicago: University of Chicago Press, 2005).
- 6 Peter Eisenman, "Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign," *Oppositions* 15/16 (Winter/Spring 1979), 118–128; reprinted pp. 188–198 in K. Michael Hays, ed., *Oppositions Reader* (New York: Princeton Architectural Press, 1998).
- 7 *idem.*, p. 194.
- 8 *ibid.*
- 9 Giorgio Grassi, *La costruzione logica della architettura* (Padua: Marsilio, 1967); *L'architettura come mestiere e altri scritti* (Milan: Franco Angeli, 1980).
- 10 Le Corbusier-Saugnier, "Maisons en série," *L'Esprit nouveau*, 13 [undated, ca. 1922–23], [1525]–1542; *Le Corbusier, Vers une architecture* (Paris: Vincent, Frel, 1923), pp. 189–224.
- 11 [Le Corbusier], "Calendrier d'architecture" in his *Almanach d'architecture moderne* (Paris: G. Crès, 1926). Here, Le Corbusier makes an extended presentation within which, with hindsight, one can discern the Five Points. The Five Points are, however, stated succinctly, as points, in two publications associated with the Weissenhof exhibition: Le Corbusier and Pierre Jeanneret, "Fünf Punkte zu einer neuen Architektur," in *Deutscher Werkbund, Bau und Wohnung: Die Bauten der Weissenhofsiedlung* (Stuttgart: F. Wedekind, 1927), pp. 27–28; and in Alfred Roth, *Zwei Wohnhäuser von Le Corbusier und Pierre Jeanneret* (Stuttgart: F. Wedekind, 1927). In "Où en est l'architecture?," *l'Architecture vivante* (Autumn/Winter 1927), pp. 7–29, Le Corbusier lists six points, adding one on the "suppression of the cornice." His discussion is heavily weighted to issues of snow on flat roofs and to his sixth point – not to what one would deem the more important architectural issues. Since this is a publication of late 1927, the concern to defend flat roofs in northern winter conditions is probably emphasised because of the heavy criticism of the flat roofs of the Weissenhof exhibition.
- 12 Le Corbusier and Pierre Jeanneret, *Oeuvre complète 1910–1929* (Zurich: Edition Girsberger, 1937), pp. 23–25.
- 13 It is time to acknowledge that my theoretical apparatus of research projects, cores, and auxiliary hypotheses are owing to my long-held interest in the epistemological studies of Imre Lakatos. See especially Lakatos, *The Methodology of Scientific Research Programmes* (Cambridge: Cambridge University Press, 1978). My adaptation of Lakatos' thought to architecture appears in Anderson, "Architectural Design as a System of Research Programmes," *Design Studies* (London), V (July 1984), 146–150, and "Architectural Research Programmes in the Work of Le Corbusier," *Design Studies* (London), V (July 1984), pp. 151–158.
- 14 "Rational reconstruction" relies on a historiographic/theoretical extension of Lakatos' theory. See "History of Science and its Rational Reconstruction," pp. 102–138 in the book cited in the last footnote.
- 15 Stanford Anderson, "Aalto and 'Methodical Accommodation to Circumstance,'" and "Aalto und 'die methodische Anpassung an Gegebenheiten,'" in Timo Tuomi et al., eds., *Alvar Aalto in Seven Buildings/Alvar Aalto in sieben Bauwerken* (Helsinki: Museum of Finnish Architecture, 1998), pp. 142–149, 192. Also in editions with Finnish, Swedish and Portuguese translations.
- 16 Kahn's words are from Robert Venturi, *Complexity and Contradiction* (New York: Museum of Modern Art, 1966), p. 54.
- 17 Aalto, "The Reconstruction of Europe is the Key Problem for the Architecture of our Times" (1941), reprinted in Asko Salokorpi, ed., *Abacus*, 3 (Helsinki: Finnish Museum of Architecture, 1983), 121–142. Sarah Menin introduces the "wavy line" diagram in her excellent paper for a book still in process: Stanford Anderson, Gail Fenske, and David Fixler, eds., *Aalto and America*.
- 18 W. Boesiger and O. Stonorow, *Le Corbusier: The Complete Architectural Works* (London Thames and Hudson, 1964), I: p. 189.
- 19 Colin St. John Wilson, "State of Modernism," in his *Architectural Reflections* (Manchester: Manchester University Press, 2000), p. 90.

