The Movement-Image

Film and calculus, both
pornographies of flight.

— Thomas Pynchon,
Gravity's Rainbow

The Carpenter Center for the Visual Arts (1960–63): a late realization of the modernist dream of movement in continuity, or a new kind of movement? Thirty years before, Le Corbusier had written: "A stair separates . . . a ramp connects."[1] At the Carpenter Center, the ramp traces the mobile section drawn by the observer in motion. Its path moves the spectator through the building, opens interior up to exterior, and connects the building to the life of the campus. The visitor is drawn into the structure on the oblique, lifted up assertively from the ground plane, and allowed a view of the campus before being drawn inside. "The line does not go from one point to another, but runs between points . . . the line has become the diagonal."[2] In this movement, two conventional expectations are contravened. The first is the building's frontality, the polite face expected (and maintained) in every other building on the Harvard campus. Instead of producing a facade that attempts to separate itself from its surroundings, Le Corbusier brings the negative space of the context into the spatial force field of his own building. The second is the possibility of entering the building at all. The ramp does not so much penetrate the building as slip in between, making visible the openness of the structure. The building is passed through rather than entered. It is possible to enter at the landing of the third floor, where the ramp touches, but even there entry is delayed. Inside the door one is immediately struck by a series of internal transparencies. You look from inside through outside to inside again. Big chunks of exterior space are incorporated into this view of the building, further postponing the sense of having entered. This is a sensation one experiences throughout the Carpenter Center. One of the building's most striking passages is the long, large interior window in the first floor lobby that looks down into the auditorium, connecting that usually dark space directly to the exterior. Indeed, transparency codes all the public spaces of the building. The Carpenter Center is lightly protected without but radically opened within; not penetrated at its periphery, but unfolded from inside.

The ramp, which at first appears to be a device limited to the entry sequence, in fact conditions the entire spatial organization. Robert Slutzky has suggested that typically in Le Corbusier's late work the ramp allows the observer to enter the building as the eye enters a painting, at the center of its spatial field, as opposed to the hierarchical stacking of a classical facade.[3] John Hejduk extends this, noting the importance of the diagonal in the Carpenter: "The ramp is in a three-dimensional torque . . . like a bicycle pedal, when pressure is brought down upon the terminal ends, the whole building starts to revolve and spin."[4] Yet this is not a simple dialectic of movement and stasis. What is astonishing about the Carpenter Center is the almost total absence of fixed points of reference. To say that an object is destabilized implies a preexistent, stable state; that condition is difficult to identify at the Carpenter Center. If the ramp, for example, is the most obvious measure of movement, it is equally important to note that the entire ground plane swells downward as the ramp moves up in space. As you move toward the center of the site, the ground drops away, front and back. Just as there is no facade to function as a stable vertical datum against which horizontal movement is registered, there is no fixed ground plane to function as horizontal datum. This is evident even in the detail of the ramp itself, which slopes asymmetrically in cross section to accommodate a drainage channel.

Hejduk's analysis delves deeply into the orders of the building, showing how even the column grid participates in the mobile dynamic. His exacting formal reading calls forth the presence of the ghosts of cubism and neo-plasticism: Juan Gris, Piet Mondrian, "all the known protagonists and ancestral impregnators." But Hejduk also begins, significantly, with a cinematic analogy: "The eye is like a camera; the moment the same image is clicked twice and interposed on the same frame an interesting effect can be obtained although in the process the initial form becomes blurred and might be irrevocably lost" (*Mask*, 71). There is an uncanny parallel here with filmmaker Sergei Eisenstein's definition of montage: "When the tension within a movie frame reaches a climax and cannot increase any further, then the frame explodes, fragmenting itself into two pieces of montage."[5] Montage, in other words, is not so much a synthetic mounting of one image on top of another, as it is an analytic that releases a multiplicity of dimensions and simultaneous meanings from a given figure. Hence, a fluidity of form: "At the basis of the composition of the architectural ensemble . . . lies that same unique 'dance' which is the basis of the creation of works of music, painting and film montage."[6]

Eisenstein has elsewhere developed an even more exact parallel between the sequential movement of the observer in architectural space and cinematic montage. When speaking about cinema, he says, "The word *path* is not used by chance."[7] The mobile camera and the virtual movements suggested by montage condense and extend the movements of the architectural observer. It is not surprising that Eisenstein's model — Auguste Choisy's analysis of the spatial sequences of the Acropolis in Athens — is a point of reference shared by Le Corbusier. Eisenstein writes: "Painting has remained incapable of fixing the total representation of a phenomenon in its full visual multi-dimensionality. Only the film camera has solved the problem of doing this on a flat surface, but its undoubted ancestor in this capability is — architecture."[8] Le Corbusier wrote in 1934: "Arab architecture has much to teach us. It is appreciated *while on the move*, with one's feet; it is while walking, moving from one place to another, that one sees how the arrangements of the architecture develop."[9] Choisy scripts the movement of the observer through the spaces of the Acropolis, charting the parallax effects of the spectator in motion and the unfolding of the space in time. The subject assembles a whole out of discontinuous fragments of

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experience. Eisenstein thus rereads Choisy's description of the Acropolis as a shot by shot montage sequence composed by the passage of the viewer through the monumental assemblage. Unlike Dziga Vertov's "creative geography," which consists in assembling new wholes out of disparate parts, the idea of montage developed by Eisenstein has to do with setting in motion a hidden complexity within a given architectural sequence. While Vertov emphasizes the mobile camera, Eisenstein constructs movement through montage. This is a capacity specific to cinema, but an effect available to architecture: "Cinematic montage is, too, a means to 'link' in one point — the screen — various elements (fragments) of a phenomenon filmed in diverse dimensions, from diverse points of view and sides."[10]

Le Corbusier returns to the idea of movement in his late work, but not as a simple repetition of known themes. In the later work movement goes beyond the parallax views of the *promenade architectural* or cubist simultaneity. Movement is at once more local, atomized, and larger, rolling off the curves and ruled surfaces. Instead of Juan Gris, a more significant point of reference is Étienne-Jules Marey, whose experiments with chronophotography anticipated cinematics. Marey worked with fixed and regular sections, not in an effort to freeze time but to make visible (and measurable) the invisible interval of motion, to recuperate movement through division and transduction. In *Cinema 1: The Movement-Image*, Gilles Deleuze has similarly described the functioning of the movement-image in the cinema.[11] Beginning with Henri Bergson's theses on duration, Deleuze notes that movement cannot be reconstituted by the simple addition of "immobile section" (cuts) according to an abstract idea of succession (of time as mechanical and homogeneous). To do so is to miss the movement in two ways. As he writes on the first page of *Cinema 1*: "On the one hand, you can bring two instants or two positions together to infinity; but movement will always occur in the interval between the two, in other words behind your back. On the other hand, however much you divide and subdivide time, movement will always occur in a concrete duration [*durée*]; thus each movement will have its own qualitative duration." Paradoxically, this is in fact the mechanism of film: still images projected at regular intervals. Deleuze adds that cinema always produces something other than what is given as structure: "Cinema proceeds with photogrammes — that is, with immobile sections — twenty-four images per second (or eighteen at the outset). But it has often been noted that what it gives us is not the photogramme . . . cinema does not give us an image to which movement is added, it immediately gives us a movement-image" (Deleuze, *Cinema 1*, 2). The movement is always in-between, not literally present, but visible and affective. The movement-image implies a mobile section, a cut not through time but along time, with measure and duration of its own. The language of Deleuze's analysis is also a language of architectural projection: the architect begins with immobile sections, but produces a movement-image as an intermediate given. The mobile section of the observer in motion brings time and duration into play in architecture as much as in cinema.

Is there a way to think of the Carpenter Center as a cinematic architecture, as movement-image itself and not an image to which movement has been added or appended? An invisible energy or movement originating inside the Carpenter Center becomes visible at the point at which the interior of the building comes into contact with the exterior curving envelope. It produces a movement-image, not concretely present (i.e., as literal movement) but evident as an effect, as the taut surface energy of a body in motion. This is not an interpretive fiction of movement, but an experiential reality. In the most precise terms, we could say that the movement-image is generated by the intersection of the fixed interval of the brise-soleil with the curving building envelope. The frames generate movement out of incremental difference one to the next, functioning not so much as regulating structure but like cinematic frames: the movement is literally in-between. Transitions are more like fades than cuts. The curved bodies of the building keep the eye continually in motion, even when the spectator is still. Time is spaced out by the curvatures of the movement-image.

Deleuze qualifies his analysis with a second concept, which concerns the nature of movement as it unfolds in time. The premodern world conceived movement as a regulated transition from one ideal form to another, an order of "privileged instants." With the modern scientific revolution — Descartes, Newton, and Leibniz — the "mechanical succession of instants" replaced the "dialectical order of poses." This mechanical succession of instants produces what Deleuze calls the "any-instant-whatever." As he writes in *Cinema 1*: "The any-instant-whatever is the instant which is equidistant from another. We can therefore define the cinema as the system which reproduces movement by relating it to the any-instant-whatever" (6). Here too an architectural reference is available. Movement, Deleuze notes, is still recomposed, but "*it was no longer recomposed from formal transcendental elements (poses), but from immanent material elements (sections)*" (*Cinema 1*, 4). The "any-instant-whatever" does not imply a flattening or homogenizing of experience but rather maintains the possibility of producing the extraordinary out of the ordinary. In architecture, as in cinema, "The any-instant-whatever can be regular *or* singular, ordinary *or* remarkable" (*Cinema 1*, 6). The indifference of the material is itself registered in the infinitesimal interval of differential calculus.

Film is here linked unambiguously with mathematics: differential and integral calculus function with sections brought infinitely close together, Pynchon's pornographies of flight: "Δt approaching zero, eternally approaching, the slices of time growing thinner and thinner, a succession of rooms each with walls more silver, transparent, as the pure light of the zero comes nearer."[12] But in film there is no need to literally bring the sections together; the collapse to infinity is already implied in the process of division into selfsame parts. The subject

Le Corbusier, Carpenter Center for the Visual Arts, Harvard University, Cambridge, Massachusetts, 1960–63. Photo: © Steve Rosenthal.

constructs the bridge in perception. There is precedent for this higher mathematics in architecture as well. In *Principles of Architectural History*, Paul Frankl writes: "In the third phase [c. 1700–60] the whole space, or its subdivisions, or at least some of them, are *infinitesimal*. I mean by this that they are forms of higher geometry the calculation of which was possible only by infinitesimal calculus."[13] Significantly, for Frankl this is not simply an aspect of the viewer's experience but rather of the production of the image itself: "Even if such calculation is not the observer's task, we can define the essential feature of ecclesiastical architecture in this third phase by saying that it could have been achieved only with the help of higher mathematics" (*Principles*, 74–75). In the late works of Le Corbusier, the infinitesimal interval also makes its appearance. The calibration of the curves, laid out by necessity as a series of immobile sections, becomes in the realized building the movement-image, a series of mobile sections tied to the passage of the observer through space and governed by the fluid tectonics of flat slab construction or ruled surfaces.

It might be argued that these effects are evident but immaterial. In an essay that sets the tone for much of his late work, Le Corbusier speaks of these ineffable qualities: "*Action of the work (architecture, statue, or painting) on its surroundings*: vibrations, cries or shouts . . . arrows darting away like rays, as if springing from an explosion."[14] He refers to the magnification of space undertaken in the early part of the century, and a line of flight: "The fourth dimension is the moment of limitless escape evoked by an exceptionally just consonance of the plastic means employed . . . a boundless depth opens up, effaces the walls, drives away the contingent presences, *accomplishes the miracle of ineffable space*." These flights need to be taken seriously. Before even beginning to draw the image of the building in Cambridge, Le Corbusier had imagined a richly choreographed scenario of movement and sound:

OBJECT: Visual Arts Center
It will be necessary to prepare a route across the building for the students between times of courses.

A touristic route perhaps in a spiral if we make the building go up.

Electric ringing sounds will be composed and emitted once, twice, three times a day, at fixed times, emission of a formidable nature of softness and power.

These emissions will be according to a sonorous, stereophonic route — in a spiral, going up, coming down; in a vertical, going up, coming down — placing the sound in the ground and sky (Sekler and Curtis, *Le Corbusier*, 50).

In this description the Carpenter Center begins to sound like a version of the Philips Pavilion in Brussels. But even without the literal realization of the sound emissions, it is possible to see a continuity with the building as realized. Le Corbusier had referred to the chapel at Ronchamp as an architecture acoustique. The capacity of the built work to initiate a whole series of sensations — movement, sound, light, and boundless space — beyond what is given as structure should be seen as one of Le Corbusier's greatest accomplishments in these late works.

The Key to the Solution for Reinforced Concrete

Be light like a bird, and not like a feather. — Paul Valéry

Buckminster Fuller's well-known statement "if you want to determine the degree of development of a building, just weigh it" defines one trajectory for the development of a light(weight) architecture. This is valid if one concedes that a nomadic population needs a mobile architecture. But is this the only way to achieve lightness in architecture? Are the properties of materials always fixed, for example? Movement as mobile sections, according to Bergson and Deleuze, coincides with the qualitative change of matter. Lightness could be one effect produced when the inert matter undergoes a change of state. The lightness of Le Corbusier's late works is a lightness having to do with direction, mobility, and precision. It is a lightness that works not against the hardness of technical laws, nor gives in uncritically to the technological imperatives for lightweight construction, but instead works tactically to achieve effects of lightness by the close calibration of available technical means.

Kenneth Frampton has observed that in Le Corbusier's early work an unresolved contradiction exists between the machinelike precision of the forms and finishes and a crude and approximate means of realization (at Garches, for example, a concrete frame and block infill rendered in stucco to appear seamless). This contradiction is apparently resolved in the postwar work where *béton brut* is employed. A weighty, plastic material is rendered as weighty and plastic. But in some of his last works something distinct and more complex happens: there is a return to the light planarity of the early purist work, rendered this time, however, in cast concrete. The heavy is made light. Concrete construction is made to behave with the taut precision of aircraft engineering. As with works by Pier Luigi Nervi or Eduardo Torroja, an astonishing effect of levitation is achieved with a material not intrinsically lightweight. At the same time, and parallel to this, movement is integrated into structure itself. This is achieved in large part through the use of figures formed by ruled surfaces (the roof of Ronchamp, for example, or the assembly hall in the Palace of Assembly in Chandigarh). Movement not as a metaphor, but as concrete instance of incorporated movement. A ruled surface is a moving line, line becoming volume. In the case of the Palace of the Assembly, for example, a diagonal line rotated through space creates a hyperbolic paraboloid. The pragmatics of construction here coincide with formal expression (ruled surfaces may be formed with straight members) but the experiential effect is one of lightness and movement.

There is some evidence that Le Corbusier himself was not completely satisfied with the crude (and slightly tautological) definition of *béton brut*. In a letter written to

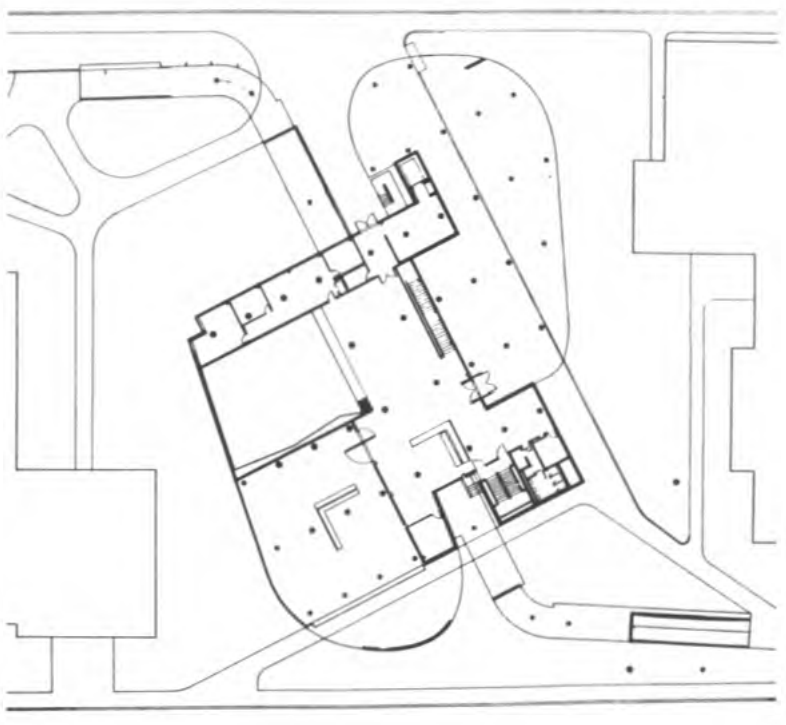
Josep Lluis Sert during the course of the construction of the Carpenter Center, Le Corbusier writes: "*Béton brut* was born at the Unité d'Habitation at Marseilles where there were 80 contractors and such a massacre of concrete that one simply could not dream of making useful transitions by means of grouting. I decided: let us leave all that brute. I called it *béton brut*. The English immediately jumped on the piece and treated me (Ronchamp, the monastery of La Tourette) as 'Brutal' — *béton brut*al — all things considered, the brute is Corbu. They called that 'the new brutality.' My friends and admirers take me for the brute of the brutal concrete" (*Le Corbusier*, 166). At the Carpenter Center on the other hand, the concrete was specified as *lisse* — "*béton brut* but smooth," in a "spirit of perfection" (*Le Corbusier*, 165). By this Le Corbusier intended the use of steel formwork to attain a precision finish, and curved forms to be made of plywood or wooden strips of small dimensions, as had been employed by Nervi at Unesco: "Those forms for the concrete are extremely elegant and very clean" (*Le Corbusier*, 166). Concrete is a fluid material. Le Corbusier understood that it could function in a primitive state, as a sculptural and tactile material, as at Marseilles. In this case its realism is primary; it functions as a crude and immediate index of the process of construction. But concrete can also perform as a mobile, plastic material, capable of abstract transformation and formal exactitude. At the Carpenter Center Le Corbusier proposes a "new stereotomy for reinforced concrete," signaling the fundamentally abstract idea of the material as it is used here. He is simply not interested in a realistic idea of the nature of the material. "*Beton brut*," he says, is not "béton d'un brut" but simply "the concrete coming directly from the formwork" (*Le Corbusier*, 167).

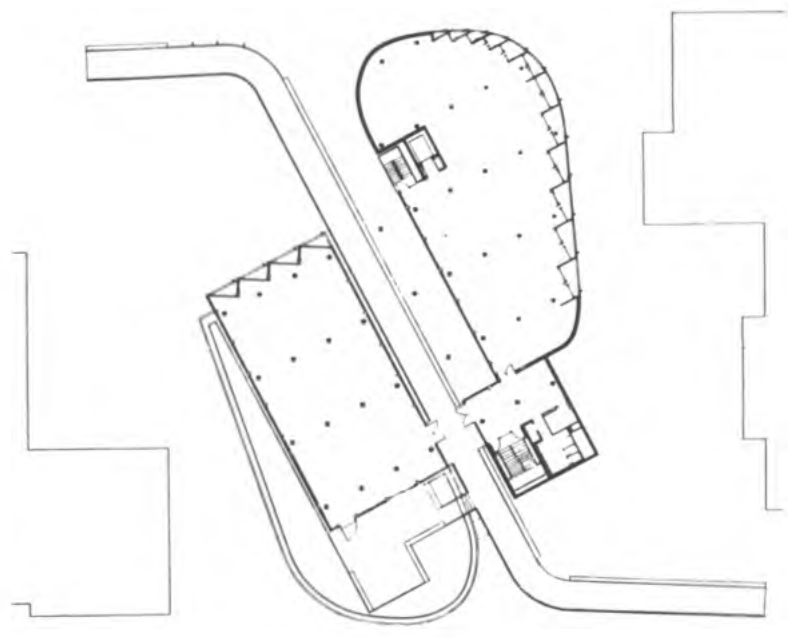
Le Corbusier paid close attention to the pragmatics of concrete construction, sending Sert detailed sketches of different kinds of joints and specifying the finishes on the plywood forms to achieve the smoothest finish. He objected to the use of cardboard sonotubes because of the roughness of the finish and the spiral joint left on the surface. Le Corbusier instead speaks of the softness of the columns desired, and encloses a confession regarding the seductiveness of the smooth finish obtained from steel forms: "Columns of reinforced concrete called 'women's thighs' poured in half forms of *metal* (with crossed joints), the concrete is so smooth, so seductive 'that one puts one's hand there.' " The above designation, he adds, is "not official" (*Le Corbusier*, 194).

Now all this may seem counterintuitive, inasmuch as Le Corbusier's late work is often characterized as heavy and sculptural — a kind of late modern primitivism. But the primitivism attributed to some of Le Corbusier's late works is a partial effect of the predominance of a single material. The buildings for Chandigarh or Ahmedabad, for example, appear to be nearly monolithic constructions of reinforced concrete. This is largely the outcome of simplified construction and minimal enclosure consistent with the climatic reality and available construction technology. But Le Corbusier exaggerates this. Glass and steel, the details of window mullions or mechanical equipment (more than the rough concrete frame) are an index of technological modernity. Therefore he strategically recesses all of the visible evidence of such technical accommodation. In this way a timeless effect is achieved, almost like an inhabited ruin, where only the most durable materials are left standing. If the buildings of the early period are by preference photographed with contemporary automobiles, those of the late period are photographed with local inhabitants in rustic dress.

In the case of the Carpenter Center, this aesthetic preference came into conflict with the demands of the clients. Buildings in America are, as they were in 1961, complex assemblages of different machinic systems. Hermetically sealed by an envelope of thermal glass, insulation and rubber gaskets, the interior air is filtered, cooled or heated, regulated by sensors, and circulated through a complex network of ducts and registers. Elevators and alarm security systems exhibit a similar technical complexity. Additional constructions — raised floors, dropped ceilings, mechanical chases — are in turn required to conceal and accommodate these invisible systems. However ironic it may seem for the author of the idea of the house as a machine for living, Le Corbusier in his late work is quite antipathetic to this assemblage of machines. At the Carpenter Center there was no possibility to duplicate the primitivism of the work in India. It was mandatory to offer more extensive protection, and the compromises made to accommodate this are revealing. Le Corbusier only reluctantly accepted the provision of air-conditioning (which he blamed for the prevalence of sinus trouble in America). He insisted instead on installing his own invention: a passive system of vertical apertures running from floor to ceiling and fitted with pivoting doors and mosquito netting. These *aérateurs* are set into the facades at irregular intervals. The mechanism is direct and apparent: "The *aérateurs* are there to supply fresh air by physical means of exchange through gravity and orientation" (*Le Corbusier*, 168). He demands that the construction be simple and durable; upon receiving the first detail drawings from Sert's office showing an aluminum pivot door with rubber gasket, Le Corbusier replies: "The building is not to be like an automobile. All these rubber luxuries will be eaten away by dust, fly shit, etc." (*Le Corbusier*, 196). Le Corbusier wanted to accommodate the need for ventilation by making the building itself devicelike, but without submitting to the demand that the building become a collection of machines. He wanted to maintain its dominant character as construction, rather than as assemblage.

In other aspects, Le Corbusier and his collaborators exhibited an ingenuity and flexibility that managed to accommodate the realities of modern mechanical systems with the directness of constructional expression desired. Typical of these is the airfloor, a layer of lightweight concrete poured over the structural slab into which channels were cast to accommodate the air circulation and floor grilles. Not only did this allow the spaces to be free of the mechanical clutter of





Left: Le Corbusier, Carpenter Center for the Visual Arts, Harvard University, Cambridge, Massachusetts, 1960–63. Photo: © Steve Rosenthal. Above: Le Corbusier, Carpenter Center, ground-level and third-level plans.

ducts, more importantly it allowed the structural engineer to invert the required shear caps at the column heads, thus maintaining the smoothness of the slabs both above and below. Elsewhere, in the workshop or sculpture studios, ductwork is exposed, consistent with the warehouse aesthetic of the building as a whole. In places where interior finishes are applied — the plywood panels in the stairs or the curved walls of the studio — the delicacy is all the more apparent for functioning in contrast to the overall texture. The same is true of the other details, such as stairs, scuppers, built-in benches, and even the curtains. In each case industrial materials are used in a direct manner, usually attached directly to the concrete without an elaborately designed intermediary. Overall, transitions are smoothly modulated; locally, transitions are direct and unmediated.

This is especially evident in the treatment of the glazing. Large glass panes are let directly into the cast concrete so that the eye moves without transition from the slow, textured density of the concrete to the quick reflectivities of the glass. Intermediate mullions are rarely employed. Knowing that in the climate of New England the glass skin could not be made to disappear, Le Corbusier actively incorporates it into the formal definition of the building mass. He accommodates the necessity for protection from the climate without reinforcing a metaphysics of shelter. At strategic moments, for example, the glass is brought directly out to the building's edge. Here the glass becomes the space defining material, constructing the spatial envelope as a delicate, volumetric membrane. Where glass is coplanar with concrete, the weighty, sculptural quality of the concrete is momentarily denied. It may be reasserted immediately above or below, but this only serves to reinforce the tension created by this material slippage. The skin is defined in some places by concrete and in others by glass; sometimes glass seems to support, and at other times concrete is used to enclose and protect, as if these materials had exchanged properties.

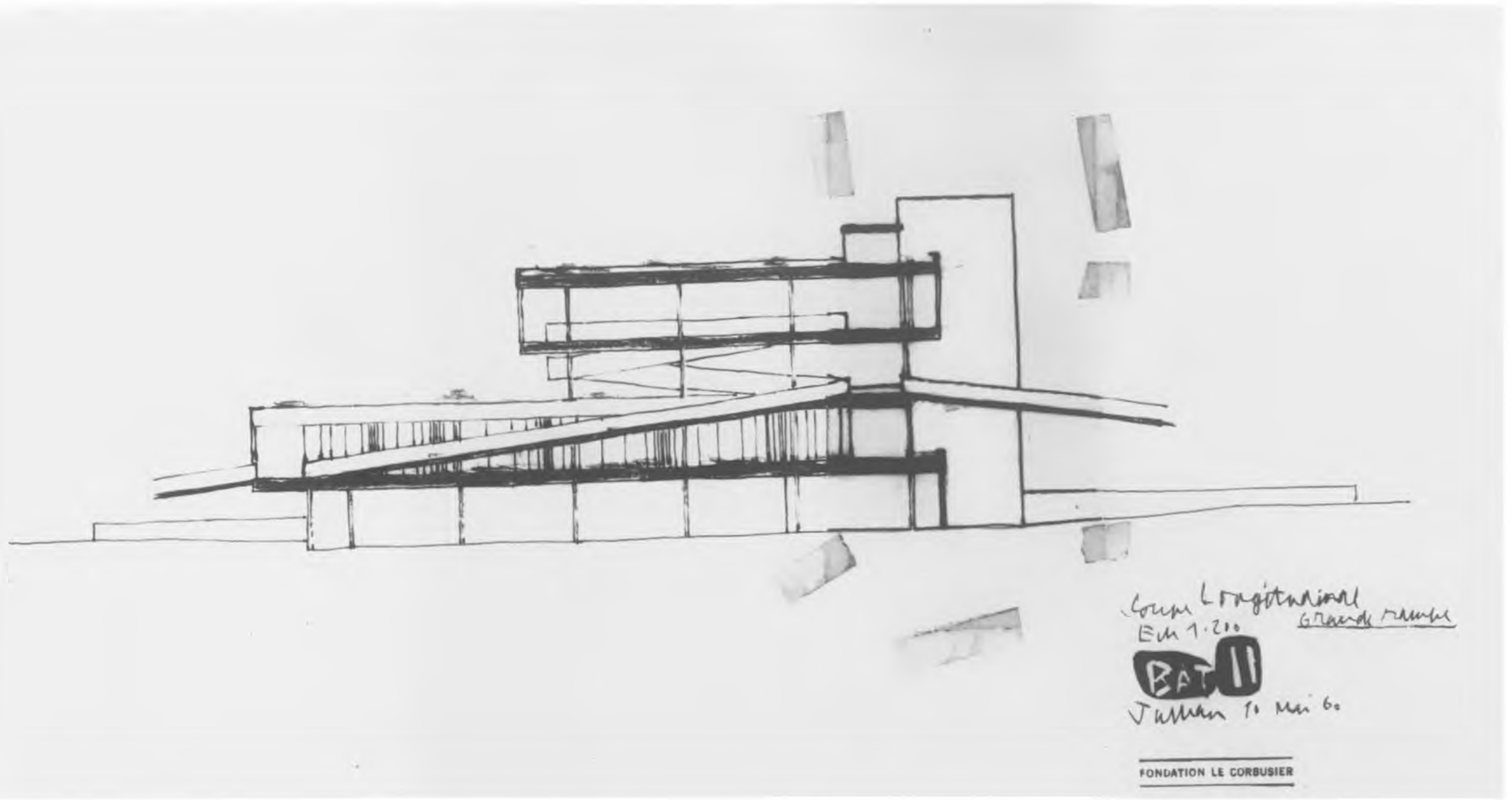
More than a defined response to an immediate problem, Le Corbusier understood the propositions of the Carpenter Center to be definitive: "It is the key to the solution of reinforced concrete . . . the building is made of slabs, their ceilings smooth, without capitals and without beams" (*Le Corbusier*, 165). Why should this particular detail be the "key"? It is not the first example in Le Corbusier's work of a flat slab without beams or capitals. The 1914 Dom-ino frame — another highly specific invention with generalizable implications — shares with the Carpenter Center the absence of beams and capitals. In both cases the monolithic character is the result of complex artifice. In the case of Dom-ino, concrete is poured over hollow tiles supported on temporary steel beams. The reinforcing follows the rectilinear geometry of the tiles, allowing cantilever in only one direction. At the Carpenter Center, a similar result is accomplished by the use of the airfloor, multidirectional steel reinforcing, and the inverted shear caps. Both solutions exploit the plastic capacities of concrete more fully than the treatment of concrete as an assembly of beams and columns. In flat slab construction there is no visible trace of the movement and transfer of tectonic forces; the logic of support and transition is more complex — and largely unseen. And it is in this sense that the Carpenter Center moves radically beyond Dom-ino. The round columns signal a more fluid tectonic at work. Space flows around the columns, much as load flows through the slabs to the columns. This contrasts to Dom-ino where the square columns and directional bays recall the post and lintel tectonics of wood or steel construction. After the columns were placed, the slabs were poured all at once, giving them a plastic and monolithic character. The curved slab recalls the once liquid state of the concrete, woven together internally by the reinforcing and monadically continuous movement in its grain.

Le Corbusier takes full advantage of the flexibility of flat slab construction, which allows multidimensional cantilevers and does not require the columns to be placed in a regular grid. He modulates the internal spacing of the columns according to an elastic interval, stretching the grid precisely in the center where the ramp falls, resulting in a complex interplay of enclosure and punctuation. The distinction between movement and stasis is blurred at the Carpenter Center; the grid of columns is not a stable counterpoint to movement, but itself participates in the movement dynamic.

One final episode might sum up the theme of smooth construction. As was the usual practice in Le Corbusier's late work, the curves of the studio and gallery blocks were not generated according to mathematical formulae, that is, by calculable radii or other means, but instead laid out in scale according to coordinates. (It is perhaps important to note that the building throughout is anything but systematic.) This presented great difficulties in the realization at full scale. In *Le Corbusier at Work* the construction of the curves is described as follows: "A grid was laid out on the floor of a large warehouse at full scale, and the curve was then 'plotted.' At full scale it was found to have some kinks and waves, so Tucker [the concrete contractor] laid out a long length of rubber hose between the points, which he and Kruegar then adjusted an inch or two to give an even though irregular curve. Next templates were cut to fit the curves. Formwork was then made by Nova Scotia shipbuilders specially taken on for the job" (208). The ingenuity of the solution lies in bridging the necessary segmentation (i.e., the coordinate system, which is the residue of the graphic apparatus of the architect's studio) with a material supple enough to make a smooth passage from one point to the next (one "any-instant-whatever" to the next).

The Late Corbu

Then we have computer science. It is true that software cannot exercise its powers of lightness except through the weight of hardware. . . . The second industrial revolution, unlike the first, does not present us with such crushing images as rolling mills and molten steel, but with "bit" in a flow of information travelling along circuits in the form of electronic impulses. The iron



machines still exist, but they obey the orders of weightless bits.

— Italo Calvino, *Six Memos for the Next Millennium*

There is often a moment late in the career of an artist when the youthful pressure of constant innovation wanes, and those who have not digressed into facile parody often return to consolidate and complete the unfinished projects of an earlier career. The lateness of the late Le Corbusier can therefore be variously interpreted. Fred Koetter, for example, calls the Carpenter Center a "contextual grotesque" and smugly suggests that it is nothing more than a museum piece, the "last of a magnificent and dying breed." For Koetter, its lateness corresponds to a project that has outlived its usefulness.[15] John Hejduk, on the other hand, sees in this return a belated rediscovery of the primary motivations of the early work and a refiguring of the teleologies of history and interpretation: " [Le Corbusier] returns to some of his earliest triumphs with a more poignant commitment to expanding space. If the Harvard Visual Arts Center had arrived prior to Villa Garches, all the armchair historians could rest unmoved, for 'was this not the natural order of events?' The fact that it postdates Garches by some 30 years can only prove the quirks of time. Whereas Garches heralded the promise of things to come, the Center postpones them" (*Mask*, 75).

Hejduk, perfectly mapping his own dilemma, explicates the double bind of the late modernist. The better world promised by Garches in fact failed to materialize. That project can be abandoned, but to do so is to refuse one's own modernity. Instead of retreating into the crude historicism of Koetter, Hejduk, like the late Le Corbusier, seeks to delay or postpone the closure of the modernist project. It is a more difficult, but more hopeful project. And it does not seem accidental that much of the most interesting and important work of the intervening 30 years — including Hejduk's own — has in some ways continued to work out of the paradox of belatedness defined by the late Le Corbusier. Le Corbusier too rejected his early machine age enthusiasms, but without losing the light, optimistic spirit of the modern. In the late work he recuperates and extends the formal sophistication of the early works without the polemics of a machine style. But perhaps there is an additional significance to the 30 year lag. In a postindustrial culture, when architects are again looking for alternatives to an exhausted oppositional culture of negation, themes of continuity, smoothness, and lightness find an increased resonance. The political necessity of engaging (and cultivating) new programmatic complexities has also provoked a rethinking of this work. Projects by Rem Koolhaas and younger architects return to themes of the late Le Corbusier not previously explored. With the Carpenter Center in Cambridge, the complex of buildings in Ahmedabad and in Chandigarh, and in unbuilt projects such as the Congress Hall in Strasbourg and the Rho-Milan project for Olivetti, Le Corbusier loops back on himself, refiguring form, structure, and program into ever more complex paradoxes. These late works present a kind of clarity that is the result not of reduction but of a kind of condensation. Contradiction is internalized, reworked, and dissolved into unexpected and powerful syntheses. These buildings function not so much to achieve closure as to keep open fundamental questions. Rather than looking backward, making incremental adjustments to known solutions, these buildings look forward — they propose new projects and offer the possibility of as yet unrealized solutions.

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Notes

1. Eduard S. Sekler and William Curtis, *Le Corbusier at Work* (Cambridge, Mass.: Harvard University Press, 1978), 242.

2. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1988), 298.

3. Robert Slutzky, "Aqueous Humor," *Oppositions* 19/20 (1980): 39.

4. John Hejduk, *Mask of Medusa: Works, 1947–1983* (New York: Rizzoli, 1985): 72.

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Le Corbusier, Carpenter Center, longitudinal section. Courtesy Fondation Le Corbusier.