

Appropriating the Ground Line

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47. Definition of the Nature of the Line

The line in itself has neither matter nor substance and may be called an imaginary idea rather than a real object; and this being its nature it occupies no space.

48. On Drawing Outline

The boundaries of bodies are the least of all things. The proposition is proved to be true, because the boundary of a thing is a surface, which is not part of the body contained within that surface; nor is it part of the air surrounding that body, but is the medium interposed between the air and the body, as is proved in its place. But the lateral boundaries of these bodies is the line forming the boundary of the surface, which line is of invisible thickness.

– Leonardo da Vinci, *Notebooks; Book on Painting'*

INTRODUCTION

Lines represent moments of transition.

While immaterial and immeasurable in thickness, lines help us define and conceptualize the very boundaries and edges of bodies. For Leonardo, the line represents "*the medium interposed between the air and the body,*" symbolizing the highly-charged place where bodies simultaneously begin and cease to exist.

Like words to a writer, architects conceptually operate within the realm of such lines: imagining and making edges, boundaries, establishing transition, *capturing* space out of thin air. The process of drawing essentially produces a *body of lines*, mapping, with varying clarity and insight, an almost infinite number of transitions between spaces, surfaces, and materials.

Associated with the process of drawing are a number of imminently spatial metaphors of transition: erasing, weighting, doubling, blurring, or in-between [lines]. With such metaphors as conceptual framework, this paper will explore the nature of one particular line, the *ground line*, as architec-

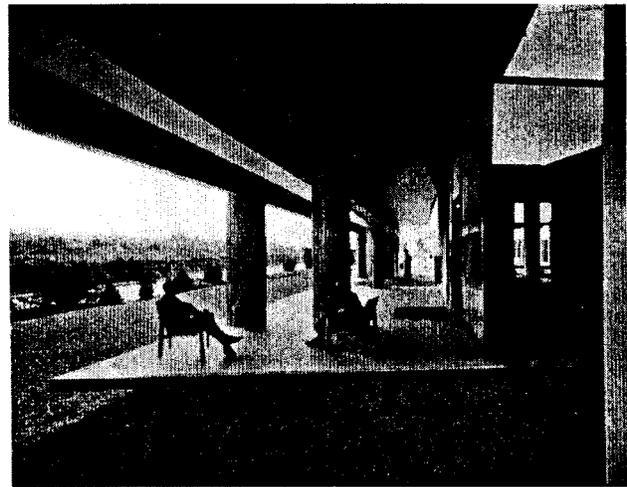


Fig.1 Le Corbusier & Pierre Jeanneret, Pavilion Suisse, Cité Universitaire, Paris. By staging a casual conversation between these 2 men, Le Corbusier may have intended to reassure the public of the secure nature of the pilotis.

tural *project*, focusing specifically on how this very line, mediating between earth and air, is appropriated spatially and poetically in works of architecture and conceptual art.

Of all lines that architect must deal with, surely the ground line is the most essential. The representation of the ground through a line is undoubtedly a sectional idea: like all inanimate objects and living beings, buildings are subjected to the laws of gravity, and the relationship between building and ground seems inevitable in this respect. Louis Kahn spoke about sketching buildings with regard to the way they are built, that is, from the ground up. Conceptually, this paper will focus on two contrasting strategies in the building-ground relationship: the double implication, following Leonardo's definition, of either formally clarifying the interface (emphasizing the line) marking the building-ground encounter by physically separating the building from the ground, or instead of making this transition ambiguous and discrete by blurring this very same line. Specifically, the first part of the paper will discuss, in Le Corbusier's use of the



Fig.4 Frank Lloyd Wright, Falling Water, Bear Run, Pennsylvania

wall of trees surrounding the building contribute to form the true solid edge of the house, one is, by virtue of the elevation of the house above ground, ironically *prisoner* of the glass box, physically unable to move beyond its very walls .

2. BLURRING THE LINE BETWEEN BUILDING AND GROUND

The second general strategy for appropriating the ground line creates, using Leonardo's definition of the line, conceptual ambiguity as to where building and landscape meet. The notion of a more subtle and intimate relationship between building and ground of is perhaps best exemplified in early works by Frank Lloyd Wright. The idea seems particularly clear in Wright perspective sketches, where there exists real ambiguity throughout the drawing as to finding the graphic *line*, and indeed conceiving of, the interface between building and landscape. Rich and extremely complex, sinuous, at times even completely erased, this simple line prefigures for the architect an entire architectural *project*: "a space-loving architecture... as nobly simple in outline as the region itself it sculpted."⁸ Prairie period Wright projects are heavy and low to the ground, featuring long horizontal overhangs which press the building even harder against the ground plane; the buildings are tightly woven into their environment, almost indistinguishable from them.

For Wright, richness of section is often created out of the ambiguity between natural and man-made. Stone building materials are frequently extracted near the construction site, featuring a strong continuity of color and texture with the ground. The faceting of earthly materials by hand directly on site often constitutes the only clue as to where the man-made intervention, or the making of architectural decisions, actually begins.

In this respect, the notion of ground/floor threshold, as defined earlier, constitutes in Wright projects a rich interface. In defining the major aspirations of his Prairie period projects, Wright talked about "[k]eeping the floors off the best part of



Fig.5 Maya Lin, Vietnam Veterans Memorial, Washington, DC

the site, thus leaving that better part for use in connection with the life of the house."⁹ In this statement, Wright seems to allocate as great a value to the landscape surrounding the buildings as he does to the building itself, in an attempt to establish landscape and house into a strong continuum.

The establishment of the main floor plane at Falling Water provides great insight into this idea. The dramatic and seamless progression of interior spaces from the firmly grounded space of the entry foyer to the strong cantilevered terrace overlooking the steps of the nearby stream, showcases the unstable nature of the siting of the building: the house stands, halfway planted, halfway in mid air, tall and defiant against the stream below. A building section strongly suggests an approach of a building partially carved into the surrounding hillside: the architectural lines mediating between the black areas forming the hillside and white areas denoting the spaces of the house appear to have been forged entirely from within the hillside itself.

Wright explored in greater detail material connections with the site, instructing that the first floor stone covering be waxed in order to create the illusion of a thin film of water, evoking wet rocks such as those at the bottom of the nearby stream. This connection is further enhanced by an open stair directly connecting the living room to the stream below. The large rock surrounding the fireplace had been long before the house was built a favorite picnic spot of the Kauffmans, the project clients, who had wished to preserve the area.¹⁰ For Wright, the decision to integrate the existing rock surface as part of the main floor allows for the collapsing in time of 2 very distinct experiences of the site: for the Kauffmans a first, more natural, memory of an outdoor weekend picnic, with the built reality of the site."

Finding space in the ground plane

The notion of blurring the natural / man-made distinction, an idea strongly privileged by Wright in his own architecture, constitutes a major conceptual theme behind several land-

ground material transition at the implied perimeter of the building. The space also functions as part of the building because its residents need to use this space to gain access to the cores servicing the upper stories of the building. The space is also used for parking of cars and bicycles. Were we to imagine for a moment that the pilotis had disappeared, leaving the massive overhead building to be brought down to bear firmly on the ground, the new first floor would have little value in establishing contextual relationship with the ground plane: like all other floors above, it contains only typical apartments and no public space. Indeed, there seems to be little claim that the building is *raised* above ground. The open space at ground level clearly operates as the foyer for the entire building.

The Farnsworth residence

Unlike Le Corbusier's open spaces at ground level, there exists little ambiguity in Mies' formal distinction of building and landscape in the Farnsworth residence: at 3 or 4 feet in height, the space between building and ground is clearly uninhabitable. Mies justifies the subtle elevation of the house above ground based on the frequent flooding of nearby Fox river.³ While the tactic of raising building above the ground to avoid flooding is not uncommon in coastal areas like Florida, where the space at ground level is (not unlike Le Corbusier's program for the pilotis) used for parking and storage, there are clearly no such space-making opportunities here. The space seems to suggest an almost conceptual desire to isolate architecture and landscape.⁴ The idea seems in direct contradiction with the inherent potential the glass box has of establishing strong visual and spatial connections between the interior spaces of the dwelling and the surrounding landscape. On the other hand, the abstract and almost immaterial nature of the volume of the house may have required for Mies some degree of formal separation from the rich surrounding landscape. Philip Johnson's attempt to ground his glass house at New Canaan, yielded completely different results: rather than let the ground slip beneath the building, Johnson provokes the meeting of the glass volume with the ground, using a thick carpet of brick, itself folding up vertically into the circular shaft of the chimney and bathroom enclosure, as a massive and dominant formal element to be protected by the glass cage.⁵

The spaces of the Farnsworth residence are, in typical Miesian fashion, entrapped between strong horizontal planes.⁶ The glass walls of the house, defining the enclosed precinct of the house, only contribute in their immateriality to reinforce the strong nature of the horizontal planes, as well as an already strong ratio of 3/5 exterior spaces and 2/5 indoor spaces. Interior dividing walls are detached from the ceiling, accentuating their non-bearing role and providing greater continuity between floor and roof slabs. Access to the house is defined in a progression of platforms, each hovering lightly above the ground: a series of floating stairs, followed by a first uncovered terrace, elevated a few feet above the ground, leads up to a second, covered outdoor terrace, which forms the

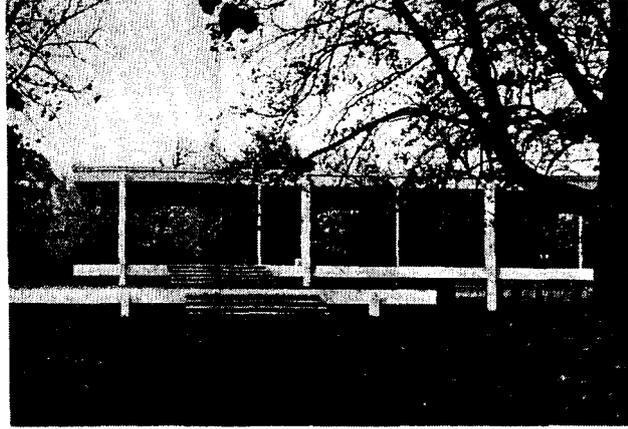


Fig.3 Mies Van der Rohe, Farnsworth residence, Plano, Illinois.

entry to the glassed-in spaces of the house. The house features a clear-span structure, with columns literally growing out of the grass at the perimeter of the building. The absence of columns at the corners of the platforms create a strong cantilever which visually enhances the sense of separation from the ground. Ground plane and floor platforms are thus allowed to operate independently of one another, in strong tension. Ironically, the house cannot completely separate itself from the ground: in addition to the structural columns, a singular exposed shaft of infrastructure (plumbing pipes, wiring), comfortably in the shadow of the house above, symbolically *connects* the dwelling to the ground below.

There exists an almost conceptually *pure* horizontality in the planes of the building, which heightens the tension with the natural ground plane below. The building is tightly aligned with the datum of the horizon in the distance, embracing the very line which distinguishes between earth and sky.' The house is conceived of as a series of tight, superimposed, layers parallel to the ground. A stark, gridded marble floor runs continuously through the interior and exterior spaces of the house, in strong contrast with the rich grassy texture of the ground plane. It is interesting to notice that no horizontal (architectural) surfaces come in contact with the ground: the first step leading to the open terrace is only inches above the grass. This idea of separation is accentuated by the fact that there are no man-made or landscaped paths to the house. The house literally seems unaffected by, and reticent to affect, its very surroundings. The open gaps between ground and floor plane, and floor plane and roof plane, make the building quite permeable visually, playing up the contrasting horizontal lines of the house with the natural tree line in the distance. To avoid any variation in the horizontality of the floor plane, the outdoor terraces feature open joints between pavers, which allows drainage from underneath to avoid any visible slope in the marble paving.

The sense of elevation from the ground does seem to recede inside the house, where the outer edges of the floor platform appear firmly grounded. One is reminded of the elevation of the house only at the very perimeter, as the columns seem to visually slip *below* the platform. While the

body." "Cartesianism tends to entrap the human in the image of *Korper*, treating it as one instance of the general class of physical things. Yet the body understood as *Leib* (or "lived body," as it is commonly translated into English) reveals the deeper signifi-

cance of corporeality as generative principle." See Drew Leder, *The Absent Body* (Chicago: The University of Chicago Press, 1990, p. 5.

do their drawings tell us about their attitude toward the body — they also indicate their understanding of the relationship between the event of drawing and the event of architecture. Through their drawings, Scarpa and Pastor visualize the potential union of these two bodies, held in abeyance until the construction of the building, demonstrating that the project of a body-based theory of architecture is not limited to historiographical research.

In his dialogue, "Dance and the Soul," Paul Valéry observes through the character of Socrates, that like literature and poetry, dance is no less a language wherein meaning is expressed by hands that speak and by feet that "seem to write." In the drawings of Valeriano Pastor and Carlo Scarpa, however, the meaning of the architectural events they project are not comprehended through the "reading" of the building-as-text, but are apprehended through mute images of the body. The locus of this corporeal intersection is the site of an architectural event produced through the active engagement of body and building — not the body of the anatomist's dissecting table, but rather the vibrant bodies variously found in Barrault's "art of the mime," in Pastor's drawings for the District School Building on the bank of the Brenta and in Scarpa's drawings for the Brion Tomb.

NOTES

- ¹ "Imaginal" and "mundis imaginalis" are terms coined by Henry Corbin. See Henry Corbin, *Mundis Imaginalis of the Imaginary and the Imaginal* (Ipswich: Golgonooza Press, 1976).
- ² This paper is an outgrowth of a number of previous and ongoing works by the authors. See Marco Frascari, "The Body and Architecture in the Drawings of Carlo Scarpa," *RES* 14 (Autumn, 1987), pp. 123-142. Also see George Dodds, *Landscape and Garden in the Work of Carlo Scarpa* (Dissertation Manuscript).
- ³ See Marco Frascari, *Monsters of Architecture: Anthropomorphism in Architectural Theory* (Savage: Rowman & Littlefield, 1991): passim.
- ⁴ This reading of mime is based largely on a Jean Louis Barrault's theory. See Jean Louis Barrault, *Reflections on the Theatre*, Barbara Wall, trans. (London: Rockliff, 1951), p. 156. [Translation of *Réflexions sur le théâtre* (Paris: Jacques Vautrain, 1949)].
- ⁵ *Mundus imaginalis* is an intermundus (a world in between) wherein imagination creates reality.
- ⁶ Valeriano Pastor, "Comporre-distinguendo: Dialogo tra Valeriano Pastor e Massimo Cacciari" *Anfione Zeto*, No. 1 (1989), p. 199.
- ⁷ Valeriano Pastor, "Alcuni motivi del progetto," *Ibid.*, pp. 42-43 and 46-47.
- ⁸ Pastor comments, "Il progetto — realizzato solo per metà, incompiuto in tale metà, e che non sarà (mai più) compiuto..." Pastor, *Ibid.*, p. 39.
- ⁹ Pastor, *Ibid.*, pp. 46-47.
- ¹⁰ See Joseph Rykwert, *The Dancing Column: On Order in Architecture* (Cambridge: MIT Press, 1996), pp. 123-126.
- ¹¹ Barrault, *Reflections on the Theatre*, pp. 27-28.
- ¹² *Ibid.*, p. 28.
- ¹³ George Dodds, "Interview with Guido Pietropoli" (Rovigo, May, 1997).
- ¹⁴ *Ibid.*
- ¹⁵ Scarpa owned at least 12 volumes of Valéry's works, recorded in the catalogue of his holdings kept on file at the Fondazione Benetton in Treviso by the foundation's director, Domenico Luciani. See George Dodds, *Landscape and Garden*, *Ibid.*
- ¹⁶ "Voglio vedere le cose, non mi fido che di questo. Le metto qui davanti a me sulla carta, per poterle vedere. Voglio vedere, e per questo disegno. Posso vedere una immagine solo se la disegno." Carlo Scarpa, transcribed from a lecture given at the IUAV, no date. Cited in Sergio Los, *Carlo Scarpa: architetto poeta* (Venezia: Edizioni Cluva, 1967), p. 17. The influence of Ruskin and Valéry on the intellectual and visual development of Scarpa are explored more thoroughly in Dodds, *Ibid.*
- ¹⁷ Paul Valéry, *Degas, Manet, Morisot*, David Paul, trans. (Princeton: Princeton University Press, 1960), p. 56.
- ¹⁸ In his exposition on Leonardo da Vinci, Valéry chooses to discuss not his finished paintings which were readily available to him on his trips to Italy, England and at the Louvre, but Leonardo's drawings from his sketchbooks. See Paul Valéry, *Introduction on the Method of Leonardo Da Vinci*, Thomas McGreevy, trans. (London: John Rodker, 1929).
- ¹⁹ Francesco Dal Co comments, "An academic taste for figure drawing remained with him throughout his career, prompting the unexpected anatomical details that emerge amid the fields of architectural elements, or full-bodied female figures that suddenly thrust themselves in among the lines of his pastel drawings." Francesco Dal Co, "The Architecture of Carlo Scarpa," *Carlo Scarpa: The Complete Works* (Rizzoli: New York, 1985), p. 28. Yet, Dal Co fails to recognize that Scarpa's manner of depicting the body changes significantly throughout his architectural career, not at all limited by the academic constraints under which he was first introduced to it as an artistic problem.
- ²⁰ Dal Co refers to Brion as a "compositional sequence" which concludes at the private baldachino in the reflecting pool. *Ibid.*, p. 68. Indeed, the emphasis on characterizing Scarpa's work as a privately coded language of typically fragmented forms can be traced largely to Dal Co's and Manfredo Tafuri's interpretations which heavily emphasize the discontinuous formal nature of Scarpa's work and prompting Dal Co to refer to the filmic technique of montage no fewer than 7 times in his article in the Complete Works. *Ibid.*, pp. 24-71. Also see Manfredo Tafuri, "Les 'Muses Inquietantes' ou le Destin d'une Generation de 'Maitres'," *L'Architecture d'Aujourd'hui* (1975), pp. 14-33, and, "Carlo Scarpa and Italian Architecture," *Carlo Scarpa: The Complete Works*, *Ibid.*, pp. 72-95.
- ²¹ Franco Mancuso, Edoardo Gellner: Il mestiere di architetto (Electa: Milano, 1996), pp. 40-41 and pp. 201-206.
- ²² In the plan study for the Ongania antique shop in Venice, also from 1950, bodies are depicted in plan, moving through the proposed volume, demonstrating Scarpa's attempt to reconcile the abstraction of architectural plans with the visceral dimension of bodies moving through space.
- ²³ In another study for the installation we see supplementary aspect of the role of the body in the design of the exhibition. In the drawing, Scarpa can be seen carefully noting not only the dimensions of the frames of the works and their heights relative to the floor, but also the bodies depicted in each of the paintings.
- ²⁴ The campanile and the Asolo Rocca are significant parts of Scarpa's iconographic program for the cemetery. The Rocca in particular is a pervasive theme in Scarpa's larger idea of landscape. This is explored elsewhere. See George Dodds, *Landscape and Garden*, *Ibid.*
- ²⁵ See Guido Pietropoli, "L'invitation au voyage," *Spazio e Società* 50 (Aprile-Giugno, 1990), pp. 90-97.
- ²⁶ Scarpa actually uses the term "hortus conclusus" to describe (on a plan drawing) the final garden room of not the Brion Tomb, but rather the addition to the Villa Matteazzi-Chiesa in Vicenza. See Dodds, *Ibid.*
- ²⁷ Drawing on Merleau Ponty, Drew Lerdner makes the distinction between the Körper or "physical body" and the Leib or "living

iconographic and analytical program, in the drawings for the Brion Cemetery the iconography of body and building is grounded in the physical play of the body directly engaging the fabric of the cemetery. Perhaps the best example of his can be found in one of Scarpa's many studies for the wood-clad baldachino on the private island of contemplation. Supported by attenuated paired columns made of cor-ten steel, the wooden hood covering the concrete island is bifurcated with a slot cut into its face opposite the reflecting pool. At the base of the slot are the top portion of two interlocking bronze rings. Acting as viewing devices, the binocular circles and the slotted opening (in conjunction with the low hanging hood of the baldachino) create the opportunity to view the garden and its surrounding landscape in a highly selective way. The editing effects of the cemetery's canted perimeter wall helps to intensify what is already a strong sense of deletion — of things missing from one's view at this place. Similar to Le Corbusier's perimeter wall in his rooftop garden for the Beistegui apartment in Paris, it is possible to use the canopy of the baldachino to align one's view so as to edit-out much of the surrounding vista, isolating such meaningful objects of contemplation as the campanile of the town church and the "Rocca" of Asolo, still visible in the distance.²⁴

What is significant about this drawing of the baldachino, however, is not its carefully delineated wood revetment which dominates the image, but rather the nude female body faintly sketched into the axially situated viewing slot. There are, in fact two female bodies superimposed into this location with two sets of eyes, shoulders, etc.. Unlike the figures in Scarpa's drawings for Valdobbiadene, Telve or the *Accademia*, these figures are moving, anticipating the movement of the body made necessary by the architectural setting. For in order to use the binocular viewing device — to isolate the various elements of this strange garden landscape — the height of the device requires most viewers to stoop, contorting their body to a shape required by the architecture. This movement of the body is, in fact, a repetition of the same stooping or crouching position one is required to assume at the thresholds of all of Scarpa's garden pavilions at San Vito d'Altivole. At the chapel one must lower one's head, looking down in order to step over the metal threshold of the sacralized door; one walks with head bowed across the concrete footbridge connecting the chapel to the cypress grove; one bows to enter the pavilion of the Brion family members; one instinctively lowers one's head upon entering beneath the bridge of the Brion sarcophagi and one is literally required to curve the weight of one's body over the top of the glass and bronze door that isolates the sanctuary island from the public entrance. Unlike these other liminal conditions, at the threshold of the baldachino covered island one remains upright, entering through an opening which, in mimicking the shape of the body, permits the upright passage of the head and shoulders through the wall of the canopy.²⁵ It is beneath the baldachino, however, at the end of this voyage through a strange landscape, facing the viewing device and the prospect of the garden, that one must re-form one's body for a final time, into the shape elicited by the architecture.

What is distinct about the movement of the body as it engages the baldachino's viewing device is that it is the only one of these liminal gestures that is clearly documented in the approximately one thousand drawings Scarpa and his associates produced for Brion, signifying not only the importance of this mimetic act, but also the significance of this particular location. Acting as a *hortus conclusus*, the water garden at Brion terminates far more than a "compositional sequence" of overarticulated details.²⁶ The reflecting pool and pavilion are not so much the completion of a larger formal game, but rather the culmination of a complexly orchestrated series of interactions between body and building, of which form-making is but a part. Through consistently eliciting a particularized movement of the body at the various thresholds throughout the garden, Scarpa elevates the merely habitual movements of the body with a reinvigorated sense of ritual. Whether this repositioning of the body into a crouching or bowed position is intended to be read as a sign of supplication, a reminder of ritualized movements in the Catholic Mass of the Dead or as an imitation of the disposition of the fetal body, what remains important is that this landscape of death has the capacity to illicit these associations in those who participate in, what Pastor would call, the "architectural event" of this place. More than simply representing the image of vision at work, this drawing of the baldachino is itself a kind of viewing device, through which we can see the architect at work, refining the carefully crafted interplay of body, building and story honed through a lifetime of work. In this, the last project that Scarpa was able to see to completion before his death, we find less a contemplation on death than a complexly layered study of the interaction of the living body with the lively art of building, where bodies move like mimes, carefully finishing the space.²⁷ The bodies in Scarpa's drawings of the Brion cemetery are not mythologized figures in an idealized landscape — rather they are drawings of everyone who has ever visited this garden enclave — they are the afterimage of the architect's intention and the foreshadowing of our place in this story.

IV. CONCLUSION

The phenomenological and imaginal bodies drawn by Pastor and Scarpa help demonstrate the need to reassess the traditional idea of architectural space. The unity of the spatial experience of architecture can no longer be presumed to be a distinct realm that lies "out there" or "in here," but rather it originates in a dynamic relationship between the human body and the constructed world in which, using Barrault's terminology, both the "objective" and the "subjective" come into being. Scarpa's and Pastor's drawings of architectural events are pre-Objective representations conceived of through the play of a body within a body, assisting in the construction of a world that addresses the pre-reflective self of inhabitation; they are loci of experience that mime a manner of building in a ceaseless dialectic between use and perception wherein invisible meanings dwell in the visibly constructed. Not only

inappropriately, Scarpa's long-standing attitude towards everything, including the body. Yet, when the Brion drawings are seen for what they are — as the culmination of Scarpa's research rather than representative of that inquiry — a more efficacious and fuller understanding of the architect's work is opened-up for investigation.

Scarpa's manner of drawing the body, particularly in relation to the buildings he designed, evolved throughout a varied architectural career spanning five decades. The Mallet-Stevens-like interior perspectives Scarpa drew during the 1930's and early 1940's are, for example, typically devoid of bodies, while a playful use of body references can be found in a number of his earliest architectural drawings including those from his student days in the *Accademia* and the drawings of his Master Plan for the Lido (1947) which he designed with Edoardo Gellner — a student of Scarpa's at the IUAV and with whom Scarpa later collaborated for the design of the church at Borca di Cadore (1956-61).²¹ The character of the body-images that populate these early drawings range widely, including the prosaically shrouded flower bearer in his elevation study of the Capovilla tomb (1943-44), the highly stylized nude mime in the foreground of the colorful perspective of the Cinema Astra (1949) and the Le Corbusier-inspired bodies inscribed into his composite drawing for the Fusina Camping Grounds (1957-59).

This diverse and contingent nature of Scarpa's manner of representing the human body is, in part, a result of its locus of origin — beginning with his study of painting and drawing, and only later being infused into his architectural practice. A drawing from one of Scarpa's earliest commercial commissions, the cinema/cafe for Valdobbiadene (1946), illustrates this point. In the perspective, two female figures similar to those in the Venini vases (also from this period) provide scale to the foreground of the view. The figures in the Valdobbiadene drawing differ significantly, however, from those one encounters, for example, in the drawings of the Brion tomb. The twin Leger-like figures in the earlier drawing appear highly stylized and even prosaic while the bodies in the Brion studies seem a part of the narrative of the drawing. Where the Valdobbiadene figures peer directly perpendicular to the quasi-Purist picture plane, the bodies that populate the Brion drawings are often viewed at odd angles or in profile as they move in and through the site. Fully-dressed and rigidly upright, the Valdobbiadene bodies seem attached to each other yet are self-consciously detached from the space that contains them while the often nude Brion figures, unaware that they are being watched, seem to comment on the intended narrative of their surroundings.

In Scarpa's drawings for the *Posto telefonico Telve* in Venice (1950) the Valdobbiadene figures undergo a critical transformation.²² In a sectional study of the booths Scarpa situates a female figure framed in the narrow vertical volume. While the head of the figure in the Telve drawing still resembles that of the fully clothed foreground figures in the Valdobbiadene perspective, the body is now nude. Moreover, the torso of the Telve nude is positioned in profile,

suggesting at the least a metaphorical relationship between the profile of the section and the profile of the nude. Still visible in the drawing are the diagonal regulating lines Scarpa used to proportionally establish the interior volume of the booth. Mimicking the diagonals of the nude figure, the construction lines of this drawing suggest that the volume of the booth has been derived from the living body that it frames. Yet, the hair, breasts, legs, even the angle of the neck participate in what is still, in this early project, a somewhat ambiguous relationship between body and building where the body seems to both regulate the process of design and is regulated by that process.

While in the Telve drawing Scarpa seems primarily interested in exploring the proportional relationship of body and building, in his drawings for the arrangement of what is now Room 5 of the *Accademia* in Venice, we see another aspect of his developing attitude toward the body — one which is only hinted at in the Telve drawing. In the drawings of this room, which houses the paintings of, among others, Giorgione and Bellini and on which Pastor collaborated, we see the emergence of Scarpa's interest in two different aspects of the architectural body, both of which can be found in Pastor's drawing for Dolo — the sight-lines of vision and the gestures of dance.²³ In one of the pencil and crayon elevation drawings, Scarpa flanks his design for a free standing exhibition wall with two strikingly distinct figures. Employing a technique that Pastor later refines in his own practice, Scarpa seems to code these two bodies for different uses — one abstract, the other more physical. To the left of the exhibition panel displaying Giovanni Bellini's, *Madonna and Child between SS. Catherine and Mary Magdalene*, an abstracted head with a single eye is supported on a vertical rod. To the right, a female figure ambiguously clad (part mime and part ballerina) stands in aprone position, inclined toward the panel on which Bellini's portrait, *Hans Memling* is mounted. In another drawing from this series for Room 5, a female figure, this time clearly dressed in the costume of ballet, flanks a series of panels for the installation of paintings by Piero della Francesca and Mantegna.

The abstracted head mounted in profile on a staff would seem to signify Scarpa's study of viewing heights of the paintings in that the eye in the abstract head aligns with the datum line of the top band of the recesses into which the paintings are mounted — extending to the flattened head of the mime/dancer flanking the architectural scene to the right. The figure of the dancer in this drawing, however, suggests a less obvious but more visceral dimension of the program of this room, revealed in both the plan and the elevation of the panels. The panels in Room 5 are supported by a series of metal armatures connecting the new panels to the existing walls of the museum, connoting a sense of arrested movement, subtly reinforced by the outstretched leg of the mime/dancer.

While in Scarpa's early drawings, there seems to be a relatively clear trajectory away from the merely pictorial representations of form and the human body towards a more

object...suitably conveyed by the body" Barrault continues, "Since the objects are imaginary the study of counterpoise will put the mimer into a position of disequilibrium: hence the inexpressive parts of the mimer's body must make the necessary modifications for concealing this apparent disequilibrium."¹² Consequently, in order for the image of the body constructed by the Mime in Pastor's drawing to disclose what is hidden, like Barrault's "counterpoids," he must also conceal the inherently destabilizing effects of this process. By balancing on a single leg, Pastor's Mime evokes, through the tension of its muscles, the tension imposed by a nearby door which is purposefully out-of-plumb. The other leg and the torso of the Mime has the same inclination of the door frame, underscoring Pastor's geometric intention in this graphic *mimesis* and embodying both the potential narrative of the constructed building and the disposition of the project.

The imaginal power of this analogy is clearly seen in another section drawing where the dynamic repetitive movement of the legs of a running female figure corresponds to the repetitive dynamism of the primary beams. In a lateral view, a dancing female figure is graphically captured cheerfully rising with her "counterpoids" dynamically balanced on one foot suggesting the intangibility of the dynamic symmetry of the building that Pastor has conceived for the front elevation.

Buildings conceived through the analogy of the body seem to have the capacity to combat a present atavistic terror of time and space, signaling the fortunate union of the human body with the constructed bodies of buildings. Demonstrating that the matrix of the body is the same as that of the building, the drawings of Pastor reveal the bitter-sweet sense of the work of the architect as Geometer where the infinite possibilities of representing the human body are employed in order to determine the pattern of time and space through construction. The concern shown in these drawings is none other than a re-awakening of the primordial experience of space, typically obscured by normative experience. Through his body-images of Mimes and Ballerinas, Pastor contemplates the ruptures in this quotidian world as he unravels the fabric of the commonplace in order to construct an "architectural event."

III. PASTOR, SCARPA AND VALÉRY

Pastor's predilection for populating his architectural drawings with specifically coded bodies can be traced back to his early collaboration with Carlo Scarpa, whose ability to tell stories through drawings was due largely to a highly cultivated mimetic ability. Scarpa used this ability to make remarkably precise observations of the world he encountered. Although Scarpa was a relatively retiring figure in public, when he drew with his associates and students he often discussed with them his intentions for the drawing. During these informal drawing discourses Scarpa frequently used the *act* of mimicry through physical gesture or voice in order to convey his meaning." In this way the *mimetic* activity of drawing for Scarpa was always closely associated with visual measurement and the *mimesis* of construction.

Drawing, for Scarpa, was a way of life. Incessantly observing the details that he daily discovered, he was able to quickly capture their essence in rapid-fire analytical sketches. Scarpa's seemingly endless production of these sketches was often accompanied by a kind of story telling through words and gestures. Similar to his process of design, he often narrated his observations of the world around him, quoting from both visual and textual sources. Among the writers Scarpa cited were, most notably, John Ruskin and Paul Valéry.¹⁴ At the time of his death, Scarpa owned many works by both Ruskin and Valéry in French and Italian translation. Indeed, the parallels between the intellectual habit of Valéry and Scarpa, substantially overlooked in the Scarpa literature, is echoed in Scarpa's famous aphorism about drawing. In a lecture to students at the IUAV, he explained, "I want to see things; I do not trust but this. I put it here in front of me on the paper, in order to see it. I want to see and for this reason I draw. I am able to see an image only if I draw it."¹⁶

In his essay on Degas, Valéry similarly explains,

There is a tremendous difference between seeing a thing without a pencil in your hand and seeing it while drawing it. ... Even the most familiar object changes altogether if you set about drawing it. ... [T]he act of drawing a given object endows the eye with a power of command which must be sustained by the will. In this case the *will* is necessary to *seeing*; and both the end and the means of this willed seeing is the drawing itself."

The sketch or drawing was, for Valéry, the highest form of artistic production not only because it bears the clear marks of its making, but because of its incomplete status, inviting the viewer to complete it through their own engagement with the imperfect work.¹⁸

Scarpa's artistic interest in drawing the human body can be traced back to his earliest drawings and paintings, made long before he was to focus on things architectural. Adolescent pencil sketches of solitary nudes alternately set in landscapes and interiors (c. 1922-23), an ebullient assembly of Cézanne-like bathers (c. 1930) and his early designs for Venini glass works (1933-47) manufactured in the hearth fires of Murano, all testify to Scarpa's interest in the human figure — particularly the female nude. A review of Scarpa's architectural *oeuvre*, however, indicates an ambiguous and varied understanding of the human body relative to architectural production, one that has yet to be adequately addressed in the literature.¹⁹ This ambiguity is compounded by the fact that Scarpa's work is typically caricatured as a "compositional sequence" of relatively autonomous, privately coded and overwrought details, almost always highly ornamented and explicitly Wrightian.²⁰ The paradigms of this monolithic view, ironically, tend to be two of Scarpa's most anomalous works — the Brion tomb and the Banca Popolare. In that the drawings for the Brion tomb are the most published and most elaborate series of drawings made by Scarpa, and since the architect had expressed his desire to publish the drawings in their entirety, they are often used to illustrate, somewhat

Mira in Dolo, on the bank of the Brenta Canal. A careful review of selected drawings from this project is intended to elucidate the current discourse on the limits of visualizing architecture vis-à-vis the body.

The design of the Dolo District School Center enabled Pastor to fully explore a central thesis of his work, what Pastor calls, "composition through differentiation." Pastor explains, "The idea of 'composition through differentiation' comes from reading Scarpa's works, and from work experience I had with him, seeing him design, when he was developing forms identifying autonomy for each element of composition."⁶ This process of differentiation occurs at all levels of a project for Pastor, from the social and political forces that help shape the building program to the disposition of the building site which included, in addition to the historic structures of the Brenta canal and the neo-Palladian Villa Pisani in Stra, a large factory complex at Mira. Intended to accommodate up to 2000 students, the original program included 60 classrooms, 21 laboratories, 2 museological laboratories, 2 large multi-purpose rooms, an auditorium, library, administrative offices and a cultural center.

Pastor positioned the classrooms on the upper level of the district building, imitating the model of a private zone of "houses," while on the ground floor, he located,

laboratories, equipped for special activities ... together with ... The canteen and offices; the 'basilica' [and] a place for collective district activities (museums and auditorium). The 'houses', classrooms, laboratories, canteen and offices are laid out perimetrically to the 'basilica' and connected horizontally, vertically and obliquely, forming a 'spatial' system of parts.'

In Pastor's drawings for this never-to-be-completed building, one finds indications of both a particular attitude toward the body as well as a general sense of anticipation of how the body of the projected building will interact with those who attempt to negotiate its competing parts.⁸ Similar to the body-image of the mime, the image of Pastor's building at Dolo, although physically static, assumes a posture which seems to anticipate the movement of human bodies in an architectural volume designed to engage with that movement. The drawings of Pastor help to establish this correspondence of body and building as they technographically reveal the story of the building's unfolding design.

The types and characteristics of the bodies that Pastor inserts into his architectural drawings are precisely coded technological images based in a collective memory. Pastor uses these body types to both anticipate the future condition of the physical building as well as to comment on the intention of a particular architectural setting. The types of human figures Pastor uses to help envision the figure of the building are, 1) people clad in everyday clothes, 2) the Ballerina, and 3) the nude or Mime.

In the drawings of Pastor, the Ballerina is a dynamic and metaphoric figure describing a series of spaces and the tension of the structure that this dancing figure encircles as it

fills-out the form of the invaded space with lines of intersecting paths reflected in the representation of the building. The Mime, on the other hand, is a metonymic figure. These two types of figures reveal the invisible side of architecture; they are transfigurations that introduce time into the a-temporality of the *mundus imaginalis* of architecture. The figurative movement of the Ballerina amplifies the time of perception of a future space while the concentrated movement of the Mime condenses the space in time evoking the form that is not yet built. In the drawings and designs of Pastor the human figure becomes metonymic, translating the figure of the built world through similarity and contrast.

For Pastor, these three body types negotiate three critical "domains" of the imaginal that the architect must mediate in the process of design. Pastor explains,

the architectural event can be seen as the result, or rather the process, of interaction between three 'domains' — the program, construction and use. Each has specific operative modalities, but none can be constituted independently without impairing the others. On the contrary, while it is always the active desire on the part of each capability to violate the others, a systematic method of design can never be imposed on this conflicting dialogue....⁹

While the Mime is capable of assimilating through copying, it is never at home in any setting. Pastor uses the alterity of the Mime as a way of communicating among the three domains of "program, construction and use" in his drawings while maintaining their differences. If we understand by *mimesis* the imitation of human action as outlined by Aristotle, then in Pastor's drawings the role of the Mime seems to be the essential expression of the *mimesis* of architecture, creating in a three-dimensional space the illusion of objects which, through their difference, combine to narrate a tale.¹⁰

A sectional drawing of a construction detail for the Dolo School Center illustrates how, in the work of Pastor, the human body can generate the spatial geometry of the structure and construction. In the section, a group of figures are juxtaposed to the profile of an inclined door frame. While the body language of the group tends to suggest an everyday event, one of the figures is a nude man seen from the back, fashioned in the manner of a particular type of mime first theorized by Jean Louis Barrault."

Mime, for Barrault, largely consists of two basic types: objective and subjective. Whereas both kinds of mime are produced by gesture, the subjective mime produces an independent expression of meaning through a non-referential poetic gesture. The gesture of the objective mime, on the other hand, is principally an imitative expression dependent on a prose narrative. In order to produce an objective mimetic expression the mime employs a body-technique Barrault calls "counterpoise." A central concept of Barrault's theory of mime, counterpoise is a technique used to assist the mime in creating the illusion of "the imagined existence of an object ... [through] the muscular disturbance imposed by this

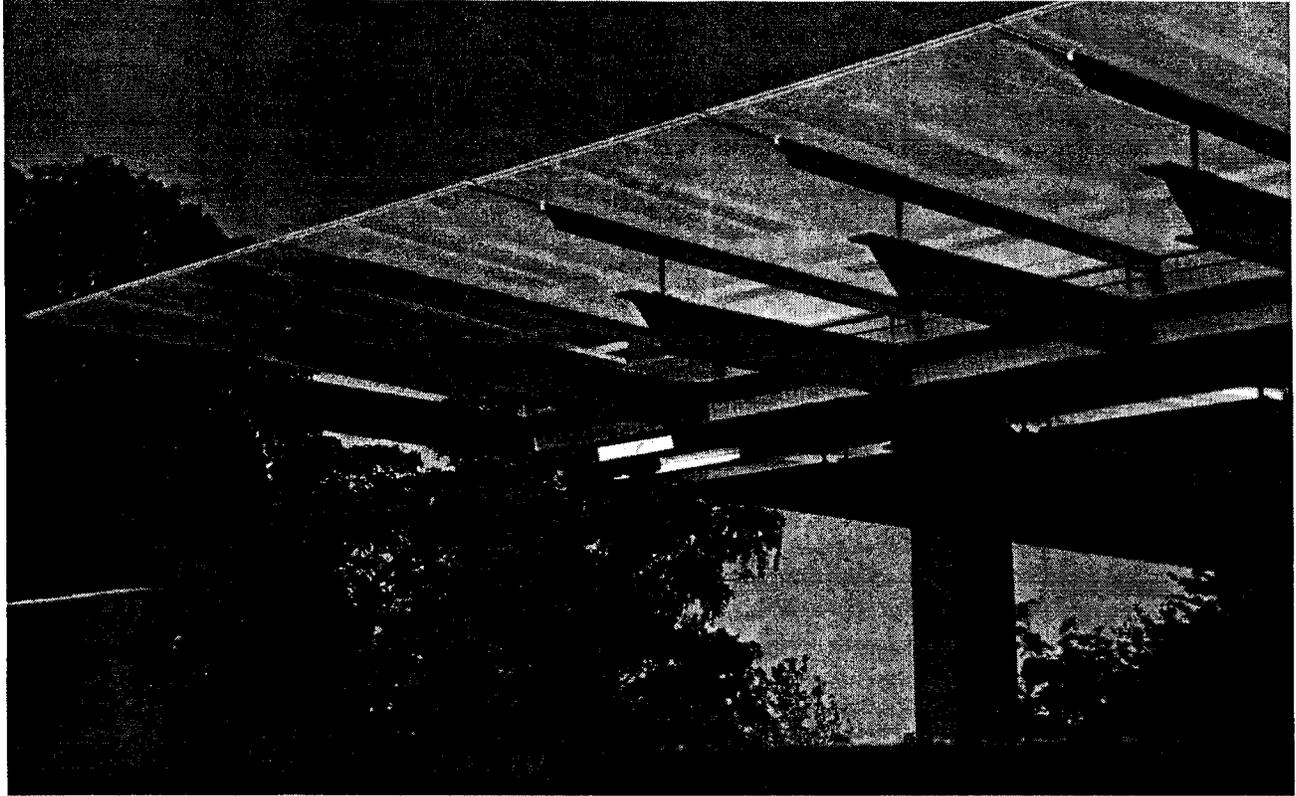


Figure 4. Roof detail from the Beyeler Museum.

Each exterior cladding element was different. In this way, the architect was put into position to control or at least "suggest" means and methods of construction.

The shifting arch geometry generates a sculptural form but also creates a series of difficult roof conditions that had to be resolved one by one. This seems to be a throwback to the spectacular but labor-intensive Fujisawa Gym roof by Maki (1984), ignoring the efficiency of Piano's undulating Kansai Airport roof (1995) achieved by identical cladding units.

Strategy 4: Evolution

Renzo Piano Building Workshop has demonstrated an interest in developing a progressive series of refinements in a consistently used construction system. For instance, terracotta brick panels were used in the IRCAM extension, reappeared in the Rue de Meaux housing, again in the multiuse building in France and are seen in the recently opened new Metropolis science museum in Amsterdam. Seen in this light, the hovering glass roof over Piano's latest museum is not a unique sculptural element but is one of several experiments in alayered glass construction. The configuration is the result of a development of a over several projects including the Cy Twombly pavilion, the Brancusi Studio and finally again here in the Beyeler Museum (fig 4).

The layered roof is part of a sophisticated HVAC system. Air is supplied through the floor, layered ceiling allows for natural and artificial light control in addition to air tempering(see fig 5),and the walls are used as return air

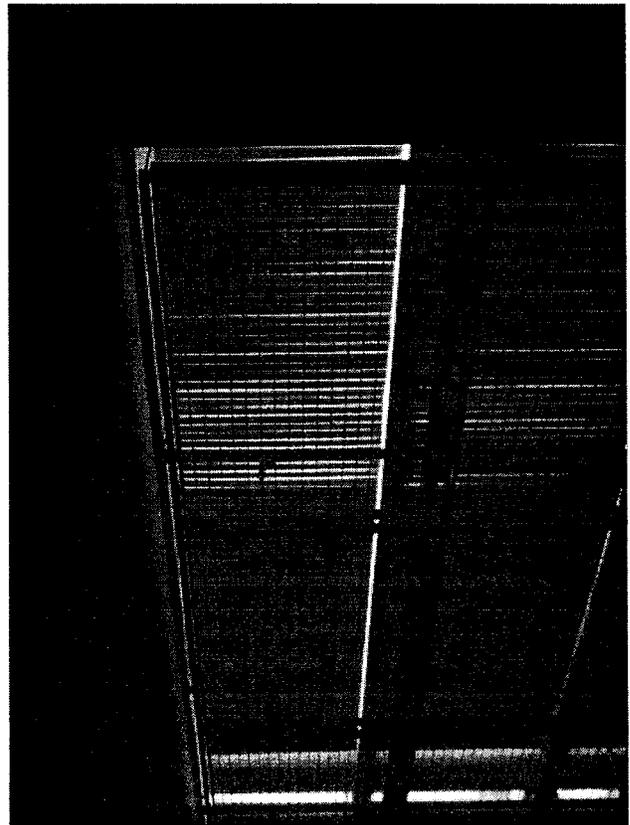


Fig. 5. Interior view of the layered gallery ceiling.

plenums.¹⁶ This system allows the galleries to be pure space, free from any pipes or ducts. Elimination of visible ductwork coupled with meticulous detailing gives the gallery rooms a spatial purity. Detailing throughout makes all systems (fire suppression exit signage etc.) practically invisible, erased from the experience of the space.

CONCLUSION

If architects continue to distance themselves from construction, the profession will be relegated to providing the service of design consultancy. With a "hands-off" attitude, construction of the design is left to others and the "intimacy between architecture and construction," as Moneo calls it, is indeed broken. An alternative route might be to bridge the gap between design and construction. One method for doing this is to place the architect in the central role, requiring thorough knowledge of all aspects of design and construction. In small scale projects, this knowledge can be directly acquired by an individual or small group by a "hands-on" approach. A critical question for the profession is: how can the knowledge of all aspects of design be attained when that knowledge is so vast and scattered that no one person can be in possession of it?

Instead of attempting to acquire all knowledge, having a strategy for scaling up the instruments of construction is the key. In the four examples cited, we have focused on what instruments were developed and how they were implemented. There are an infinite number of strategies and an ever growing choice of instruments. More than ever, architects must work from an understanding of how these instruments and strategies can be orchestrated "by sure and wonderful art and method" to achieve an architecture informed by construction.

NOTES

All photographs are courtesy of Eric Olson.

- ¹ Louis Sullivan, "What is Architecture? A Study in the American People of Today."
- ² url for the Dream House is http://www.pathfinder.com/@@40jexwQApwUR1*u@/Life/dreamhouse/
- ³ Wilfred Wang, interview in *GSD News*, (Summer 1995), p.30.
- ⁴ Rafael Moneo, *On the Solitude of Building*.
- ⁵ For a listing of programs and brief descriptions, see William Carpenter, *Learning by Building*. (Van Nostrand Reinhold, 1996).
- ⁶ Malcolm McCullough, *Abstracting Craft: The Practiced Digital Hand* 1996. p. 2.
- ⁷ Walter Gropius, *The New Architecture and the Bauhaus*. p.66
- ⁸ Bertrand Russell, *The Problems of Philosophy*. (The Home University Library. London: Oxford University Press; New York: Henry Holt & Co., Inc., 1912).
- ⁹ For a description of work by design/build firms, see Michael Crosbie's article "Putting the Design Back in Design/Build," *Progressive Architecture*, (Dec 95).
- ¹⁰ For a complete discussion of this well-published building, see Bramante, Gabriele, *Willis Faber Dumas Building, Architecture in Detail*.
- ¹¹ Norman Foster, as quoted in Bramante, Gabriele *Willis Faber Dumas Building, Architecture in Detail*. p. 11
- ¹² Annette LeCuyer describes Gehry's use of CATIA in the design and construction of the Guggenheim Museum in Bilbao in an excellent article in *Architectural Review*, (Jan. 98).
- ¹³ From author's interview with Mr. Vladimir Miluni'c, project architect who worked in collaboration with Gehry.
- ¹⁴ Glymph, James, symposium lecture in, *The Future: Design Computing in the 90's and Beyond*, (University of Michigan, 1994).
- ¹⁵ From author's interview with Mr. Carsten Kromschroder, project architect for Grimshaw and Partners.
- ¹⁶ From author's interview with Mr. Jürg Burkhardt of Burkhardt + Partners, project architects for Renzo Piano Building Workshop.