



Figure 1: Ludwig Mies van der Rohe, Barcelona Pavilion, 1928. Photograph taken after 1986 reconstruction.
Photograph by the author.

Mies

The Window Framed

Gevork Hartoonian

Opening

Many years ago, on visiting a retrospective show of Ludwig Mies van der Rohe's drawings and full-size models in the Museum of Modern Art, this author was astonished at how formative was the tectonic of column/wall for the German architect's work. One consequence of this encounter was an essay where an attempt was made to associate Mies's experimentation with the tectonic of column and wall with Leon Battista Alberti's discourse on the same subject.¹ Though well received, the essay stopped short of making a speculative connection between Alberti's discussion on the column and wall with Greek architecture. Perhaps one reason Alberti considered the column as *ornament par excellence* had to do with the Renaissance reading of Vitruvius' theorisation of architecture. Obviously, the best Greek temples comprised an enclosed stonewall *cella* surrounded by columns on four sides. Besides an aesthetic reasoning, the spacing between columns was associated with the Vitruvian notion of *firmitas*, meaning that the edifice must *look* firm and strong. The intercolumniation permeating Greek architecture makes an opening reaching to another space, the agora, whilst the *enclosure* remains enclosed. Centred on the belief that "the open was all open and the closed all closed"², the Vitruvian notion of *techne*, the art of building, will be transformed after Marc-Antoine Laugier's reflections on the primitive hut as the origin of architecture, and this in accordance with the Enlightenment reasoning for a rationalistic approach to architecture. In the light of the above, one can provisionally suggest that in classical architecture the Orders designated a particular articulation between the column and its entablature, whilst in modern architecture the column was/is utilised as a load-bearing element in its own right.

Having established a brief historical background, this essay aims to demonstrate the singularity of Mies's work as far as it concerns a modernist return to the tectonic of the column and wall. To this end, an attempt will be made to centre Mies in the historical debate between Alois Riegl and Gottfried Semper. Outflanking the polar nature of the debate, the essay will establish Mies's architecture outside of the historicity of the architect's American and Berlin periods. Methodologically, only in this way can one avoid a linear and

positivistic apprehension of architectural historiography. Furthermore, and following Walter Benjamin's *œuvre*, only a disjunctive reading of history might touch, here and there, on the subject of illumination even at the cost of losing "historical fidelity".³

Now, the following question allows for the formulation of an argument, and for associating the notion of wall and opening (to frame window or otherwise) with the idea of frontality: what in the formal nature of Le Corbusier's early villas enticed Colin Rowe to see Renaissance architecture through the principles that had been developed by Rudolf Wittkower during the mid-1940s?⁴ Central to Wittkower's 1949 text is the nature of representation in Renaissance architecture. We are told that the main contribution of the architects of that period of Italian architecture (the most prominent being Alberti) was to find a solution to the architectonic problems caused by superimposing the façade of a triumphal arch over the remnant classical edifice. The solution, Wittkower wrote, had to address the relationship between the wall and the rounded column, and this in reference to the need to include the entablature within the picture. More recently, Anthony Vidler has associated what he calls Rowe's "double inheritance" with Wittkower's teachings and the line of art history discourse outlined by Heinrich Wölfflin. Without discussing the generic and formative issues that propel a different architectonic configuration, Rowe combined Wittkower's interest in precedent (Palladio's work in particular) with formal analogies inherited from Wölfflin.⁵ In another context, Vidler observes that the transmission of "the Renaissance would be simply of academic interest if it did not form the basis of Rowe's own historical view of architecture in general and of the modern movement in particular."⁶ Besides the historian's theorisation of architectural history, equally important is an architect's rapport with architecture's past. Both subjects can be interpreted in various ways. Daniel Sherer, for one, presents a reading of Le Corbusier's rapport with Palladio based on establishing constructive dialectics between norm and exception. The exception attributed to Le Corbusier's early residential design is taken by the author to demonstrate the French architect's connection to Renaissance architecture. Sherer's position, if one follows Reyner Banham, is in tandem with Rowe who believed that Le Corbusier's work presents an amalgamation of ancient and modern.⁷ More convincing is Kurt W. Forster for whom Le Corbusier "was not bound by typological schemes or infatuated with period trim like other architects interested in ancient buildings." Since Le Corbusier's 1911 visit to Italy, the architect "must have suspected a profound analogy between his own inclination and the tendencies manifest in Roman architecture." According to Forster, the origin of the Villa La Roche is half of the plan of the House of the Tragic Poet in Pompeii.⁸ Of interest to this author, however, is the transformational nature of disciplinary themes such as the tectonic of the

column and wall unfolding throughout contemporary architectural praxis. Speaking methodologically, the approach followed in this essay avoids establishing an oppositional position between the classical and the modern. Rather it attempts to historicise architecture in a vision of history that does not privilege technique over themes that are essential for a tectonic reading of architecture's disciplinary history.

In this line of considerations, it is not stretching it too far to suggest that Le Corbusier's contribution to modern architecture consists, among other things, of the Dom-ino frame – a construction system that allowed architects to reiterate certain aspects of the visual culture of humanism though moulded with the abstract aesthetic of modernism. Of interest is the dialogue Le Corbusier established between the logic of plan and the technique he used in paintings. Following the proposition that “the artist proceeds like an architect at the drawing boards”,⁹ in “Nature morte à la cruche blanche sur fond bleu” (1920), Eduard Jeanneret's depiction of an open book confirms a one-to-one correspondence between the horizontal view (plan?) of the book with the vertical. The association has its architectural correspondence. In both classical and Renaissance buildings, the masonry construction system necessitated a direct projection between the plan and the building's frontal façade. This is important because in Purism Le Corbusier depicts objects similar to industrial products. A tool, for instance, is assembled from various parts where more often than not there is no duality between the object's appearance and its form. Paradoxically, and after the invention of the Dom-ino system, Le Corbusier's architecture implemented an aesthetic approach where the surface appearance is conceived independent of the plastic nature of the form.

Of related interest is the architect's formulation of the “horizontal window”, the opening of which, if extended, will, paradoxically, undermine the very image of the wall inscribed in the idea of free-façade, itself a formative theme for Wittkower's analysis of Alberti's work. Interestingly enough, Le Corbusier speculated that the essentiality of platonic geometry for architectural form would be tangible if the language of Orders were scraped from the face of classical buildings. His was a strategy of reversal, providing an “effective normative context for the emergence of Le Corbusier's vision of a modern residential architecture.”¹⁰ The paradox involved in Le Corbusier's visitation of history is important because his “five points of architecture”, itself a derivative of the Dom-ino frame system, had to deny the wall, an essential element for the very haptic dimension of the pyramids, spheres, and cylinders that he inscribed into a rendering of the site of Roman ruins. From these initial considerations, one can argue that by the 1920s most architects came to the realisation of the tectonic implications of the frame-structure system. Le Corbusier's early residential work suggests that the exterior of walls should be

conceived as a screen wrapping the building's volume with minimal plasticity of the kind permeating the American grain silos.¹¹

The intention of this brief re-presentation of the near past history of architecture is to cast some light on the tectonics involved in architecture's transformation from the haptic to the optic realm – to recall Riegl's formulation of the formal development of art and architecture. Central to the optic dimension of architecture is what Riegl called the "subjective planarity" impression. He describes the phenomenon in the following words:

the freestanding supports, once pulled back and incorporated into the walls, make the overall form of the building more compact and imposing, whereas the pilasters, which present themselves as fully rounded piers that support the ceiling, even though they are really only reliefs, create a subjective planar impression.¹²

Thus, in order to depart from the language of Gothic cathedrals, Italian Renaissance architecture had to "simulate the movement of inorganic masses." In church architecture, Riegl observed, "instead of the whole building being set in motion, as would be natural for any unified body, this was attempted only on one part, the façade." He wrote:

Everything else remained hidden. While a great burst of movement sweeps across the façade, no movement is perceptible within the building. Thus there is almost no correspondence between the interior and the movement in the exterior – another factor that manifests this architecture's contrast with Gothic.¹³

The complexity involved in architecture's opening its interior to the exterior (the Metropolis) will be taken up later in this essay. What needs to be addressed here is that what remained hidden behind the notion of façade is the wall, the main constructive and form-giving element of Renaissance architecture.

Capitalising on the difference between Riegl and Semper, it is the intention of this essay to underline the role that frame-structure plays for a contemporary understanding of the tectonic of column and wall, and the subject's criticality for Mies's architecture produced during his residency in America. This is historiographically significant. Mies's later architecture was essential for dismantling the aura of the "architecture of humanism". According to K. Michael Hays, "a different epistemological shift separates" Mies van der Rohe from Ludwig Hilberseimer: the latter's approach "amounts to nothing less than the abolition of architecture as a communicative action or representational practice"; whereas Mies's glass skyscraper, he continues, "is a sign still committed to the real – projective, referential, intrusive, in a negative dialogue with the context of its production, sustained at formal and cognitive levels."¹⁴ The development he suggests is internal to Mies's response to what was a major theoretical concern for German historicism: that throughout previous centuries, architects had exhausted the tectonic potentialities of the wall construction

system; and that a different “style” was seen immanent in the emerging steel structural system. In addition, and related to the debate between Semper and Riegl, Mies’s work in America gave a new twist to the importance of *fabric* for architecture. Whilst textile played a significant role in Semper’s interest in formulating the cosmogonic dimension of architecture – i.e., wrapping the body with fabric as the beginning of the realisation of the need to wrap the interior space¹⁵ – the tectonic of steel and glass architecture played an integral role in Mies’s use of curtain as a space-defining element. It might be that Lily Reich was responsible for Mies’s interest in using fabric in architecture. One is reminded of their joint design of what is called the Velvet and Silk Café for the Women’s Fashion Exhibition (Berlin 1927) where the space of the café is clothed in high movable curtains. Also noteworthy is a charcoal drawing by Mies, depicting the elevation of his famous Glass Skyscraper project of 1922.¹⁶ Having in mind the import Semper’s theory of architecture gave to textile, Mies’s inclination to use fabric in architecture can be presented as a critical strategy for restoring architecture’s haptic dimension within the aesthetic culture of modernism.

Semper Contra Riegl

Riegl’s formalisation of art’s transformation from haptic to visual is important when read in conjunction with Semper’s discourse on the tectonic. The well-documented debate between Riegl and Semper centres on the question of technique and its implication for artistic creativity. The subject was a prominent one during the mid-nineteenth century when architects were preoccupied with two issues: on the one hand was the role that technique and material were expected to play in the development of a particular style; on the other were the limitations or potentialities that a particular technology could impose on the artist’s or architect’s creative capacity. Semper’s discourse on style was important for Riegl not only because of his own interest in the motifs permeating textile products, but also because of the importance Riegl attached to the notion of *Kunstwollen*.¹⁷

Call it artistic volition, if you wish; *Kunstwollen* was for Riegl a gestalt of continuous flow of thought making a reciprocal dialogue with socio-technological transformations. Margaret Iversen suggests that “for Riegl, different stylistic types, understood as expression of a varying *Kunstwollen*, are read as different ideals of perception or as different ways of regarding the mind’s relationship to its objects and of organizing the material of perception.”¹⁸ However, between 1893 and 1901 (the crucial eight years in which Riegl formalised some of his positions vis-à-vis Semper) Riegl’s understanding of *Kunstwollen* changed. Instead of contemplating it in terms of artistic-will, from now on *Kunstwollen* was used to address the processes of creating form beyond any constraints of the kind implied in Hegel’s notion of *Zeitgeist*. The

latter's spirit was sought as having the capacity to cast shadow on every artistic development taking place within an epoch.¹⁹ Important to Semper, instead, were the anthropological dimensions of artefacts and their transformability from one industry into another, and the dissemination of these motifs beyond national boundaries.

Also noteworthy is Riegl's and Semper's diachronic reading of Gothic and Renaissance architecture. Of interest is the specific nature of the tectonic dialogue between column and wall at work since Hellenic time. According to Riegl, in order to avoid the dissonance caused by the addition of rounded columns to a flat wall, mature Hellenistic architects employed pilasters to support the ceiling. This was a tectonic strategy to endorse the role the freestanding rounded columns play in a Greek temple.²⁰ Accordingly, in Hellenistic architecture the tectonic configuration between pilasters and the roof follows, to recall Riegl, the constructive logic implied in the primitive hut. Paradoxically, the pilasters were considered essential for initiating a "surface" perceived independent of the actual attached wall. Again, one is reminded of Le Corbusier's idea of free-façade, of the importance Semper gave to the element of wrapping the space, and of these in relation to the choice of structure supporting the enclosure and its tectonic articulation with the element of roof.

That Riegl's analysis invests in the formal property of architecture is obvious. What needs to be underlined is this: besides an interest in the tectonic of wall and the roof, Riegl's and Semper's analyses of Gothic versus Renaissance architecture navigate in opposite directions. As will be demonstrated shortly, Riegl was primarily concerned with the diminishment of the corporeal continuity between wall and the roof when the wall was pierced by window openings. What made Semper sceptical of the tectonic potentialities of Gothic cathedral, instead, was the limited improvement available in the dialogue between column and wall.²¹ Equally important is Riegl's criticism of Gothic architecture as far as it concerns the loss of haptic experience of architecture. In his words: "the relation of form and surface in the Gothic period was determined by the elimination of wall. In place of the once-continuous wall surface there now appeared single, discrete forms, the buttresses." His criticism was also centred on the appearance of small arches and windows placed above the row of tracery. These architectonic elements, according to Riegl, expedited the dissolution of the element of wall, even though, in the late Gothic, the upward movement of columns was curved to join them to the structural web of the ceiling.²²

Therefore, what might have concerned both Riegl and Semper was not the tectonic as such. In Gothic cathedrals, Hubert Damisch writes, "the visible framework, the tracery of ribbing, and salient features" are thrown over the masonry structure like a net.²³ The image of a perforated structural system filled with masonry elements suggests a constructive form in which the wall's

enclosing function is undermined (Riegl's concern); whilst its cohesiveness with the visible framework had put considerable limitations on the artistic embellishment of the art-form of the building (Semper's concern). Needless to say, in the Germany of the early decades of the nineteenth century the Gothic revival initiated an interest in the constructive nature of the pointed arch, and the ways in which this covering system differed from the Romanesque vault system. Also of interest is the lightness implied in Gothic structures due partly to the replacement of planar elements with linear. Also needless to say is the fact that Gothic revival enticed architects to make analogies between iron structure and the structure of Gothic buildings. These issues are discussed in William Whewell's "Architectural Notes on German Churches" (1830) and Eduard Metzger's "Contribution to the Contemporary Question: In What Style Should We Build?" (1845), respectively.²⁴

Riegl's criticism was obviously focused on the perceptual experience of form and surface, a subject that attained a rather complex dimension in the aftermath of the Renaissance. This much is clear from Alberti's discourse in *De re aedificatoria* where, discussing the column/wall relation, the architect characterised the column as *ornament par excellence*. The subject of ornament was clearly of great importance to Alberti. He devoted four of his ten books to a subject that would be at the mercy of a dualistic approach after John Ruskin's definition of ornament. According to Joseph Rykwert, for Alberti ornament was simply unnecessary; a building required no addition to its nakedness. It was "quite literally essential to the making or the experience of any building, since without the ornament he [Alberti] speaks of, no building may be used, inhabited or even seen."²⁵ What should be added here is that the column had first to be dissociated from the tectonic of the Greek system, and then adapted to "wall architecture".²⁶ Most recently, Peter Eisenman has noted that Alberti "articulated the wall both as a constructional system and as a conceptual entity."²⁷ Nevertheless, Wittkower was the one who recognised the doubling involved in Alberti's discourse on the column and wall, and the architect's overcoming of that problem in his design for S. Andrea, Mantua (1470).²⁸ Still, from the design of S. Francesco, Wittkower suggested that Alberti was aware of the architectonic problem when using a rounded column attached to the wall. The Italian architect had "to decide between the authority of classical architecture and the contemporary demands of a logical wall architecture." While the column remains the main ornamental element of Alberti's architecture, in his later work he had to modify the column into pilasters. In doing so, he achieved two things. Firstly, he completed the column with the entablature similar to that of classical temples. Secondly, by placing the rounded arch of the entrance above two shorter pilasters, he was able to produce a simulated image of the triumphal arch. Considering that masonry construction

system was fundamental to the realisation of both Gothic and Renaissance buildings, Alberti's complex image of architecture left him with no choice but to juxtapose the element of column with the Romanesque approach to wall architecture. It is this development since Alberti that has made Renaissance architecture of interest to modern architects and theoreticians, among whom Semper should be next discussed.

Any speculative answer to the nature of Semper's business with Renaissance architecture necessitates the reiteration of his theory of the tectonic. Central to the tectonic is not the work's truthfulness to construction or the surface expression visible in the final form of a building. Architecture is primarily a constructed space (Semper called it *cor-form*), the physics of which should be inspirational for an architect's imaginative articulation of the building's art-form.²⁹ This much is clear from Semper's disenchantment with Gothic architecture, and his dislike of John Paxton's literal translation of the latter's constructive principles into iron and glass construction, exemplified in the Crystal Palace. While it is true that the tectonic concerns artistic articulation of construction, the proposition, nevertheless, should be understood primarily in reference to Semper's theory of dressing and the essentiality of the element of wall. This can be seen also in Semper's *Der Stil*, and his emphasis on the centrality of the principle of dressing through which "tectonic structures achieve monumentality." This transformation, according to Semper, takes place "only through emancipation from structural-material realism, through a symbolic spiritualization of their functional expression"³⁰ – an historical verdict against Gothic architecture, if one subscribes to Semper's idea of monumentality. Semper's theory also discloses a point of view that is centred on the element of wall and the latter's dissolution in Gothic architecture.³¹ Noteworthy – and this is where Semper's theory moves beyond formalism – is the critical role the external factor(s) played in the architecture of Hellenism: as if the idea of "external" itself was, in part, a by-product of the historical transformation with which Semper was concerned. In other words, it seems that the structural-symbolism attributed to the Greek temple was not conceivable without the distance Greek culture was able to maintain from the barbarians – Persians in particular, who were the progenitors of weaving techniques. Dialectically, it was the very contribution of the so-called barbarians in the textile industry that lends the principle of dressing to Hellenic work.

For Semper, therefore, central to monumental effect is the perceptual depth implied in the masonry wall construction system. The latter does indeed offer a backdrop for formal embellishment through cladding of its constructed form. In retrospect, one can agree with Eisenman that, unlike columns, the wall "had no agreed-upon conventions, and geometry replaced classical ordination as a guiding principle in wall building."³² While the alleged "thickness" of

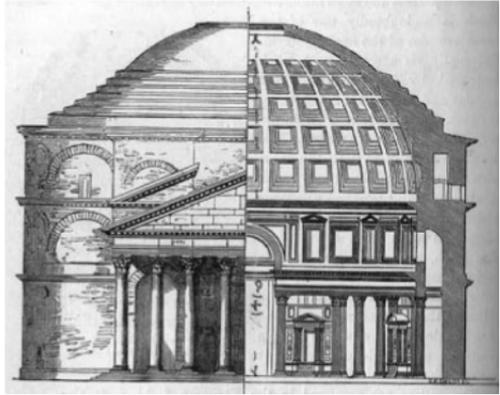


Figure 2: Pantheon, Rome, 118-128 AD.
 From James Fergusson, *History of Architecture*, 1893

the wall (Damisch calls it cyclopean masonry³³) was instrumental to Riegl's conceptualisation of what he called "subjective planarity", his criticism of Gothic should be differentiated from that of Semper. The difference reveals its historical complexity when Guarino Guarini's reflection on the Gothic is recalled. In contrast to the desire of Roman architects to show the strength and solidity of the wall, "Gothic builders wanted their churches to appear structurally weak so it should seem miraculous that they could stand up at all." In Guarini's words, the arches erected by Gothic builders "seem to hang in the air; completely perforated towers crowned by pointed pyramids; enormously high windows and vaults without support of walls."³⁴ Seemingly what both Semper and Riegl missed was the tectonic of the "wonderful".

To further clarify this point, attention should be given to Riegl's remarks on the Pantheon (Fig 2). In his view, from the time of Egyptian art the wall was conceived as a flat surface but in tectonic rapport with the ceiling. In the Pantheon, the wall "appears as a compact form bounded by curves both in height and in depth." In addition, he observed that the Pantheon differs from other round theatres (i.e. Greek theatres) at two points. Firstly, the wall of the Pantheon supports the ceiling. Secondly, the wall creates "a lateral closure for the interior space that is unfenestrated." To cement his observation, Riegl compared the Pantheon with the Colosseum (Fig 3), concluding that in the latter case "the cylindrical wall punctured by numerous openings" was decorated by attached columns mainly because the wall does not have to support any ceiling.³⁵ Riegl went further, suggesting that "monumental buildings of classical antiquity, however, did not include windows because these would have compromised the closed unity and clarity of the overall form."³⁶ Riegl's focus on the formal



Figure 3 (left): Colosseum, Rome, 75-80 AD.
Photograph by Peter Kohane



Figure 4 (right): Leon Battista Alberti, Palazzo Rucellai, 1446-51.
Photograph by Peter Kohane

potentialities of “form and surface” – to recall the chapter where he is at his best – overshadows the tectonic. He was correct in pointing out that in the Colosseum the rounded arches are not window openings but structural devices supporting the floor above. Paradoxically, any opening in the wall decreases its dead load to the point that the extrusion might reduce the double function of the wall (that is to enclose and support) to simply a structural function.³⁷ Furthermore, Riegl wrote that since the arches are not directly resting on the top of the support, such a configuration in the period that he coined “nature improving art”, entails “the aesthetic rehabilitation of the wall surface.”³⁸

Reading Riegl through the eyes of an era informed by Wittkower’s approach to Renaissance, and Alberti’s suggested distinction between the different ways in which the column and the pier work, prompts two observations. Firstly, in the Colosseum, but also in the Palazzo Rucellai (Fig 4), the wall is already overshadowed by a skeletal grid, which is implied in the verticality of attached columns and the horizontality of its entablature. Thus, if conceived and placed as part of the skeleton of the wall, an opening might neither necessarily undermine the stability nor the haptic dimension of the wall. Still, we owe to Wittkower knowledge that in Francesco Borromini’s Collegio di Propaganda Fide (1662), one is faced with “what might be termed a skeletal structure in a true sense; for piers and ribs, one imagines, could form a coherent, stable skeleton even if the small pieces of wall between them were removed.” He continues, “this is indeed a Gothic structural system” where there was neither a place for a traditional type of dome, nor the wall.³⁹ Secondly, unlike formalist approaches to architecture, Semper’s theory of the tectonic was not concerned with the rhetorical dimension of openings, and the placement of windows. What most concerned him was the

essentiality of the element of enclosure and its tectonic articulation. Semper was neither interested in any preconceived *abstract* theoretical agenda nor in mapping the scope of formal developments taking place in the history of art and architecture. It is this dimension of his thought, discussed here in the next section, that spells out the singularity of Mies's rapprochement to the column as the principal element of architecture, exemplified in his work carried out in America, most of which is charged with monumentality.⁴⁰

There is yet another side to Semper's notion of enclosure, the discussion of which will help to explain the relevance to what has been discussed so far of Mies's work. As noted previously, for Semper the enclosure was the cosmogonic dimension of architecture. It not only housed the hearth, the fireplace, but also provided a sense of closure that will be central for understanding the negativity implied in Georg Wilhelm Friedrich Hegel's reflections on architecture when the latter was faced with "modernity-as-history-of-Spirit".⁴¹ Hegel's argument was based on a history, the dialectics of which had no room for materiality and making, tropes essential for Semper's theory of the tectonic. Contrary to the German philosopher, Semper was also less interested in the metaphysical implications when the interior space of architecture had to open itself to the outside world. Mark Jarzombek reminds us that "moving from the Symbolic Age to the Classical and then, finally, to the Romantic Age", whose high days Hegel attributed to medieval cathedrals, architecture lost the enclosure once experienced in the cave as the progenitor of closure. Even though the cathedral's soaring walls provided the space for a "conceptual alignment with the building's interior", the need to relate the latter to the exterior (the *res publica*) initiated a downward move, during the process of which architecture had to give up that which became, when it was not yet completely separated from sculpture, a symbolic work for Hegel. After the Greeks – Jarzombek reminds his readers – and "starting with the Roman basilica, the root relationship between enclosure, interiority, and purification defines the principal narrative of architecture's development until it ends, finally, in the complex forms of the medieval cathedrals."⁴² These remarks are important because they underline the nihilism of modernity, though expressed from Hegel's viewpoint. They are also important because they challenge any easy, smooth discussion of the autonomy of architecture understood in terms of true "free-standing existence".⁴³ By opening its interiority to modern conditions, architecture escapes the philosophically mandated notion of enclosure, and moves to a state of crisis that relates architecture to the project of modernity. In other words, beyond pragmatic considerations the idea of opening allows architecture to enter into the ongoing processes of modernity's will to devalue all values including those produced to overcome its own internal contradictions.



Figure 5: Ludwig Mies van der Rohe, Chemistry Building, IIT Campus, Chicago, 1942.
Photograph by the author.

For Semper the beginning of architecture had little to do with the cave or the wooden hut. In Semper's theory, architecture is discussed in its simultaneous rapport with the development and transformation of motifs produced in four industries, textile, ceramic, carpentry and masonry. Equally important is the fact that, in the theory of the tectonic, architecture is squarely positioned with its disciplinary history and the latter's reformulation according to the developments taking place in the realm of technique. Without further elaborating on these issues, attention should be given to the notion of enclosure and to the need for the emergence of the element of opening as architecture's interior makes an effort to reach the exterior, the urban, and this in relation to the notion of window opening, and the idea of façade implemented in Le Corbusier's five points.

To understand the relevance of these remarks to Mies, the discussion should once more turn to the Pantheon. As noted earlier in this essay, that building's enclosure was exemplary of the kind of haptic experience that concerned Riegl. In the absence of any window opening inside the building – except for that of the oculus – the spectator can only look *at* the walls without being able to look *through* them and thus make a connection between interior and exterior spaces. And yet, otherwise a perfect enclosure, the Pantheon's cylindrical volume opens itself to the exterior through a classical temple façade attached to its mass. Regardless of its representational connotation, the attached and privileged entry façade will be problematised by Le Corbusier's idea of free-façade. It will then be radically transformed in Mies's steel and glass architecture to the point that in his American period the work does not allow any rapport, symbolic or social, to take place between tropes such as the façade, the window opening, and the inside/outside dialogue (Fig 5).

Mies Contra Semper

It is obvious that Mies's early experimental work and its culmination in the Barcelona Pavilion (1929) were centred on the tectonic of the column and wall and their relation to the roof. What has not been adequately addressed in the available literature on his work is the criticality of Semper's idea of dressing and its essentiality for the tectonic of steel and glass architecture. Of interest here is Mies's different approach to the relationship between plan and elevation. Consider the Brick Country House (1923) where a unique interplay between the roof and the placement of both window and door openings seemingly freeze the spatial horizon of the design's open-plan configuration. His is different not only from Le Corbusier's idea of *plan libre*, but also from Frank Lloyd Wright's interest in creating dynamic interior spaces of the kind one can experience in the Robie House (1909). The internal space of the Brick Country House is seemingly saturated, the force of which saturation can be seen in the extension of its walls beyond any functional and structural constraints. Mies's design also suspended a one-to-one correspondence between the plan and elevation. Furthermore, the building's window openings literally disrupt the continuity of the enclosure. Writing on the Barcelona Pavilion, Robin Evans said: "the drawn elevations give no idea of what it [the Pavilion] is like."⁴⁴ The caesura also at work in the Brick Country House does indeed over-determine the planimetric organisation of the design. Using supporting walls, according to Wolf Tegethoff, Mies achieved "a greater openness even than Le Corbusier with his ferroconcrete skeleton constructions."⁴⁵

Accordingly one might propose that even in his early work Mies's architecture is imbued with a sense of monumentality if seen in the purview of the tectonic implications of Semper's discourse on dressing and its analogy to fabric. Semper saw monumental architecture extending beyond mere ornamentation of a building, or a language rooted in iconographic representation. He wrote that:

We should not forget the metal ornaments, gilding, tapestry-like draperies, baldachins, curtains, and movable implements. From the beginning the monuments were designed with all these things in mind, even for the surroundings – the crowds of people, priests, and the processions. The monuments were the scaffolding intended to bring together these elements on a common stage. The brilliance that fills the imagination when trying to visualize those times makes the imitations that people have since fancied and imposed on us seem pale and stiff.⁴⁶

In classical architecture, monumental effect was achieved in part by the translation of motifs from transitory scaffoldings, and structures used in public ceremonies into a masonry stone construction system.

Obviously the Brick Country House was not conceived strictly in the Semperian terms suggested in the quotation above. Mies's use of the brick wall, however, makes the project of particular interest. Its configuration is theatrical,

the excess of which can be associated with Semper's notion of monumentality. Using the wall as such allowed Mies to experiment with the idea of room beyond the functional and linguistic conventions permeating the domestic space, and the masonry construction system respectively. It is indeed the design's negation of its assigned function that is interesting here, the house as such, and the tectonic of theatricality evident in the free-extension of walls and their virtual infusion with the landscape. Mies's tectonic configuration promulgates the idea of "weak" monument as architecture confronts the project of modernity. Following Gianni Vattimo, I have written elsewhere that if submitted to the process of secularisation the symbolic attribute of monumentality would be emptied, thus negating the possibility of turning a *monument* into an ornament.⁴⁷ In this light, one might speculate on a reversal in the excess at work in the walls of Brick Country House to Alberti's consideration of the column as ornament.

What makes Mies different from his contemporaries, though, is his capacity to "translate" the nihilism of modernity into an architectonic language. One is reminded of Auguste Perret and Le Corbusier's debate on the nature of the vertical and horizontal window. Each side of the debate sought to address the ways in which the body is positioned against the opening, and the particularity of one's perception of the landscape beyond.⁴⁸ Of interest here is the paradox the window introduced into modern architecture. At once open and accessible from outside, the window nevertheless acts as a barrier. However, in the light of earlier discussion concerning Le Corbusier's shift from a matter-of-fact to a painterly approach, it is possible to see the debate between Le Corbusier and Perret differently.

Instead of solidifying the horizontal window in terms of a modern solution, Stanislaus von Moos's examination of the subject seems more convincing. In his opinion, the panoramic view permeating Le Corbusier's unpublished sketchbook (1916-22) was later transformed into a technique of display. As noted above, Le Corbusier famously claimed that "the architect is always also a view painter and the city planner is always a set designer."⁴⁹ If so, the urban work Mies produced in collaboration with Ludwig Hilberseimer, but also his design for the campus of the Illinois Institute of Technology, suggests that the main design motivation was always tested in the bedrock of a radical interpretation of the nihilism of modernity. The same is true for his domestic architecture. Instead of maintaining a painterly or phenomenological position, Mies's approach to such tropes as the window opening aimed rather to radicalise the tectonic potentialities offered by modern techniques. This much is clear from his domestic glass architecture where an awareness of the fact that any opening pierced into the wall necessarily demands protection against the otherness of the outdoor. In the Farnsworth House (1950), the interior curtain is suggestive of a *domestic* surrogate for the vanished wall.



Figure 6: Ludwig Mies van der Rohe, Neue Nationalgalerie, Berlin, 1962-68.
Photograph by the author

The ontologically derived fabric enclosure and the historically informed discourse of column and wall also predominate in the design of the Barcelona Pavilion. To paraphrase this author's observation made elsewhere,⁵⁰ the exhaustion of the interplay between column and wall eventually led Mies to think of a kind of architecture, exemplified by the Neue Nationalgalerie in Berlin (Fig 6), where the total dissolution of the element of wall is crystallised in a spatial void. Wrapped in various layers of sheer glass and curtain, the body rambling in the Neue Nationalgalerie experiences the silence whispering the absence of any representational intention endemic to modernity.

The above detour is intended to clarify the significance of the Pavilion for the theoretical objectives of this paper. Of particular interest is the placement of *opening*, and the role that *curtain* plays in charging the space with a sense of interiority whose haptic dimension, ironically, is undermined by the very absence of door and window openings in the first place. In a closer inspection of the Pavilion's plan, one might speculate that the arrangement of a series of curtain-like partitions informs the spatial organisation of the design. Of these organisational elements the south wall (which supports its own weight alone), the framed-glass (to be later termed 'curtain wall' by the American building industry), and the stone partitions are most important. To these elements,

another should be added. When extended, the above-mentioned curtain-fabric covers the glass partition on the west side. The fact that the curtain can be extended only to the tip of the adjacent stone partition is central to the phenomenal sense of an interior space otherwise wide open in all directions. Visiting the Pavilion for the first time, “naïve” visitors had this to say of their experience: that “a person standing in front of one of these glass walls sees himself reflected as if in a mirror, but if he moves behind them, he then sees the exterior perfectly.”⁵¹ As we will see shortly, the same visual interplay between inside/outside can be attributed to the Neue Nationalgalerie in Berlin.

Central to the characteristics of the suggested interiority is the building’s monumental effect sustained by the polished marble screens, the chrome clad columns, and the curtain itself. The latter evokes the essentiality of textile for the origin of architecture, discussed by Semper. In Mies’s hand, however, the curtain does more. Juxtaposing fabric with the culture of stone and polychromy, Mies achieved what Semper meant by monumental effect. The latter does not connote grandiose volumes, nor an aesthetic sensibility directly linked to the masonry construction system. The reason Semper did not see iron as a suitable material for monumental effect resulted from the belief that in the past “technology played its formative role at a more advanced stage of artistic development.”⁵² Considering the gap separating the work of engineering and that of the architects of the late-nineteenth century, Semper’s remarks on technology and architecture are ingenious. Among other things, they say something about modernism’s obsession with technology. Whilst the appropriation of technology by the advocates of the International Style architecture of the 1930s was motivated by the aesthetics of the machine, the significance of Mies’s later work has to do with the fact that it was sought in tandem with his early experimentation with new materials and techniques. While Semper did not deny that one day the frame-construction system might achieve monumental effects of its own materiality, during the years in which he wrote *Der Stil* the German architect had no choice but to rely on the traditional techniques of material embellishment with their specific aesthetic connotation. The main goal of monumental effect was to “animate” the dead material – a tradition well-established from the Renaissance onwards, but also at work in Mies’s demands to paint and repaint the exposed columns of the Neue Nationalgalerie to achieve a sense of monumentality suitable to the materiality of the building’s composed steel columns.

Coda

In the light of what has been said so far, two points can be highlighted. Firstly, Semper's fascination with Renaissance architecture was not centred exclusively on the element of wall. He was rather interested in the extraction of artistic form out of masonry construction, an aspect of the Renaissance architect's achievement that can be associated with what Riegl called "subjective planarity", as noted at the beginning of this essay. Secondly, the monumental effect permeating Mies's later work should not be appropriated in terms of what Semper said in the mid-nineteenth century. Rather it should be formulated in the purview of a series of aesthetic theories without which the very notion of modern architecture would not be critically comprehensible. One is reminded of the architectonic implications of the notion of space, and the newly founded perceptual and psychological aesthetics advanced by many artists and thinkers. Though their discourses remained partially indebted to Semper – at least in the context of Germanic theories⁵³ – they were, nevertheless, brewed in a situation that was less affected by the archaeological and mechanistic interpretation of the phenomenal world that would become available during the early decades of modernism.

These aesthetic theories had further connotations for architecture. For example, they suggested shifting the idea of "style" away from the surface appearance of a building. Against the historicist obsession with surface, the focus turned to the spatial experience of the building, though wrapped by abstract surfaces. Secondly, the same discursive formations necessitated a degree of spatial and formal articulation that was sought in reference to the available industrial techniques and materials. While the International Style architecture shown in 1932 aimed to present a universal response to the call for the formation of the modern language of architecture, it is plausible to suggest that Mies's work in America answered Heinrich Hubsch's 1828 inquiry, "In What Style Should We Build?"⁵⁴ The two moments in the style-history of contemporary architecture suggested here are significant because they mark, among other things, two different methods for the appropriation of the steel-frame construction system, each with different techno-aesthetic resolutions.

Much has been said about the Dom-ino and its difference from the Chicago frame system.⁵⁵ Without further discussion of this subject here, it is useful to notice that the tectonic invested in the American period of Mies's architecture was sought in a situation where mechanistic and functionalist theories did not exert a strong enough hold. Recent theorisation of post-war American architecture suggests that by the late 1950s, cybernetic theories developed in America had already suspended hierarchical relations in favour of an open system – even though it was programmed for particular and expected end games.⁵⁶ There is another dimension to Mies's tectonic of steel frame



Figure 7: Office for Metropolitan Architecture, Seattle Public Library, 2004. Photograph by the author

construction. Fundamental to Mies's perception of the open-plan is the architect's "insistence on positioning the furniture, and thus fixing bodies in conversation or contemplation with each other." Barry Bergdoll writes: "fabric, nature, and reflections also provide changing boundaries in a space that is alive to the rhythms of the body and of nature."⁵⁷ Furthermore, one can argue that Mies's idea of "almost nothing" aimed to recode the notion of "skeleton", central to Alberti's idea of phenomenon-building, thus perpetuating the end of rhetoric in modern architecture noted by Joseph Rykwert.⁵⁸ To underline the merit of this claim, the discussion should turn to the Neue Nationalgalerie in Berlin.

What makes this building unique is Mies's radical re-interpretation of those ideas central to Riegl and Semper discussed in the first part of this paper. Of interest is the placement of the skin enclosure and the column, a configuration that recalls both Adolf Loos's and Semper's conviction that the placement of support element(s) is but the architect's second task. The first task of the architect, Semper said, is to design a proper enclosure for the hearth, the artistically imagined space of inhabitation. Accordingly, one might suggest that, in the Neue Nationalgalerie, the tectonic of frame and membrane aims to achieve two things. Firstly, it recoded the idea of the wall, the column, and the entablature – constructive elements that Riegl considered central to the realisation of the Greek temple. And yet, projecting the roof as the fundamental element of the tectonic of monumentality, Mies choose to remove the column from the corner, and this in analogy to the position of corner column of a Greek temple to its *cella*. To stress the corner fully, Mies had to take the next step and separate enclosure from columnation.⁵⁹ The tectonic articulation (the frame-work) of the Nationalgalerie and its relation to the administration

area for the most part placed below the main exhibition area (the earth-work) recodes the nineteenth-century discourse on ornament. It is not so much the ornament's relation to the structure, added or evolved during the processes of construction, but rather the way that matters of a programmatic nature attain tectonic language. Secondly, thickened by the fabric of curtain hung from the inside, the windowless curtain-wall of the Neue Nationalgalerie attains a unique sense of a haptic dimension. Related to this experience is the exposed egg-crate structure of the ceiling (roof?) that is divided into sixteen square modules in both directions. "With this interpretation of the Suprematist space field as a space frame structure carried on cruciform supports," Kenneth Frampton observes, Mies not only "returns to neoclassical resonance,"⁶⁰ but also the image of a woven structure permeating the interior spaces of both Gothic and baroque architecture.

The aforementioned curtain-wall also assists one's rapport with the work on display without unifying the medium of the art with that of architecture. Admitting the difficulties some curators had in displaying art work in the Neue Nationalgalerie of Berlin, Detlef Mertins has observed that "the palpable discomfort of many of the installations in the NNG suggests that its architecture is not, after all, the same as Price's more accommodating Erector Set or, for that matter, the neutral white box that has become paradigmatic of galleries for contemporary art." He continues: while "open to change and new ways of doing things, it is not neutral after all."⁶¹ In Mies's building the phenomenal experience of art is inflated by images of Berlin's urban landscape reflected on the gallery's glass membrane. This involves the use of *technique*, establishing a spatial ambience where "man asserts himself in objective nature and relates it to himself."⁶² Here the word nature should be contextualised in opposition to both the work of art and the second nature, the metropolis of Berlin. It follows that, in modernity, the appropriation of the work of art necessitates an ambience, similar to the *cimaba* of the Greek temple, which is simultaneously enclosed and yet conceived as part of the larger experience of the phenomenal world, the *agora*. This much is clear from the Neue Nationalgalerie where the building's double enclosure, glass from outside and curtain from inside, undermines the traditional boundary separating the inside from outside spaces. It also suggests rethinking "opening" in the reflective quality of glass by which architecture is armed with the potentiality to offer "a continual oscillation between walls dissolved and walls enriched by framed views of nature and landscape," to again recall Begdoll.⁶³

Now what should one make of the importance of Semper for Mies? In the first place, the 1980s reductive discharge of "less is more" and some critics' interpretation of Mies's later work as a symptom of a return to classicism or minimalism did indeed miss Mies's fundamental contribution to contemporary

architecture. In his collected essays *The Mathematics of the Ideal Villa and Other Essays*, Rowe discussed Mies's latest work in terms of "neo-classicism". As mentioned above, Vidler has aptly demonstrated the implications for Wittkower's discourse on Rowe's mature writings. On the other hand, a straightjacketed phenomenological approach to architecture does not go far enough. It stops short of associating the body and architecture beyond absolute terms, dismissing the need to assess the phenomenon in the multiplicity of horizons induced by the very advent of the nihilism of modernity. Secondly, if the concept of construction should be considered integral to the fabric of the conditions of life, the nihilism implied in Mies's work aims to open the tectonic frame into the landscape of modernity. What inflates such a radical concept of construction is Mies's inclination for a corporeal architecture where the building's shell is not informed by conventional distinction between the elements of wall and window opening. To achieve monumental effect, Mies had to abandon, in the first place, the metaphysics implied in the duality between window opening and the wall. In his work the window is the wall itself, and the filling does not reinforce the frame.⁶⁴ The latter, as Semper suggested, seems to be completely rigid in itself, whereas the filling is recessed both actually and apparently.⁶⁵ Mies's tectonics initiated an idea of dressing that weakens the essentiality of the concept of frontality, the seat of the metaphysics of the masonry wall construction system. His work has opened up a fresh prospect for contemporary architects to consider the element of enclosure in a tectonic rapport with the roof, evidenced in the work of architects as diverse as Rem Koolhaas (Fig 7), Kazuyo Sejima and Renzo Piano.⁶⁶ Yet the work of these architects differs from that of Mies in large measure. Framing architecture's opening, Mies's inclination for "almost nothing" lends the space for event. The work of most contemporary radical architects, instead, is eventful for its internalisation of the spectacle that permeates event. After Mies, the opening should be re-opened and framed again.⁶⁷

NOTES

A short version of this paper was presented to "The Decorum of Doors & Windows Symposium: in honour of Prof. Joseph Rykwert," Sydney, June 11, 2005.

1. See Gevork Hartoonian, "Mies van der Rohe: The Genealogy of Column and Wall," *Journal of Architectural Education* 42, no. 2 (Winter 1989): 43-50. For an expanded version of the essay see my *Ontology of Construction: On Nihilism of Technology in Theories of Modern Architecture* (Cambridge: Cambridge University Press, 1994).
2. This is Mark Jarzombek reflecting on Hegel's notion of enclosure as manifested in the architecture of medieval cathedrals: Jarzombek, "The Cunning of Architecture's Reason," *Footprint* (Autumn 2007): 31-46, esp. 33.
3. The polemical nature of this paragraph is in response to two compelling reviews this author received along with a letter from the editors of *Fabrications* dated April 2, 2008.
4. For Colin Rowe, see *The Mathematics of the Ideal Villa and Other Essays* (Cambridge: MIT Press, 1976). His essay was originally published in *Architectural Review* in 1947. See also Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, Studies of the Warburg Institute 19 (London: Warburg Institute, 1949).
5. Anthony Vidler, *Histories of the Immediate Present* (Cambridge & London: MIT Press, 2008), 66-67.
6. Anthony Vidler, "Colin Rowe," in *Eisenman/Krier: Two Ideologies*, ed. Cynthia Davidson (New York: Monacelli Press, 2004), 53-64.
7. Vidler, *Histories of the Immediate Present*, 71.
8. Kurt W. Forster, "Antiquity and Modernity in the La Roche-Jeanneret Houses of 1923," *Oppositions* 15-16 (1979), 132. Also Daniel Sherer, "Le Corbusier's Discovery of Palladio in 1922 and the Modernist Tradition of the Classical Code," *Perspecta* 35 (2004): 20-39. For a detailed account of Le Corbusier's trip to Venice, see Stanislaus von Moos, *Album La Roche* (New York: Monacelli Press, 1997).
9. Von Moos, *Album La Roche*, 55.
10. Daniel Sherer, "Le Corbusier's Discovery of Palladio in 1922 and the Modernist Tradition of the Classical Code," 32.
11. For Kurt W. Forster, the curvilinear surfaces and plastic volumes of the La Roche house demonstrate a dialectical relationship between volume and space. Forster, "Antiquity and Modernity in the La Roche-Jeanneret Houses of 1923," 139.
12. Alois Riegl, *Historical Grammar of the Visual Arts*, trans. Jacqueline E. Jung (New York: Zone Books, 2004), 232.
13. Riegl, *Historical Grammar of the Visual Arts*, 170.
14. K. Michael Hays, *Modernism and the Posthumanist Subject: The Architecture of Hannes Meyer and Ludwig Hilberseimer* (Cambridge & London: MIT Press, 1992), 194.
15. On this subject see Gevork Hartoonian, "The Fabric of Fabrication," *Textile: Journal of Cloth & Culture* 4, no. 3 (Fall 2006): 270-91.
16. Most recently George Dodds has made a controversial observations concerning the authenticity of the "red curtain" of the Barcelona Pavilion, reconstructed in 1986. See Dodds, *Building Desire* (London: Routledge, 2005), 110-125. For a review of his book see Gevork Hartoonian in *Architectural Theory Review* 10, no. 2 (2005): 109-11.
17. On Gottfried Semper's contribution to the nineteenth-century debate on style, see Gevork Hartoonian, "In What Style Could They Have Built?" *Fabrications* 17, no. 2 (December 2007): 72-91.
18. Margaret Iversen, *Alois Riegl: Art History and Theory* (Cambridge & London: The MIT Press, 1993), 8.
19. Harry Francis Mallgrave, "Epilogue," in *Gottfried Semper: Architect of the Nineteenth Century* (New Haven & London: Yale University Press, 1996), 380.
20. Riegl, *Historical Grammar of the Visual Arts*, 232.
21. For Gottfried Semper's remarks on Gothic, see Wolfgang Hermann, *Gottfried Semper in Search of Architecture* (Cambridge & London: MIT Press, 1989), 124-38.
22. Riegl, *Historical Grammar of the Visual Arts*, 275.
23. Hubert Damisch, "The Space Between: A Structuralist Approach to the Dictionary," *Architectural Design Profile* 3-4 (1980): 84-90.

24. Excerpts of both texts are available in Harry Francis Mallgrave, ed., *Architectural Theory*, vol. 1, "An Anthology from Vitruvius To 1870" (Oxford & Malden MA: Blackwell Publishing), 378-80, 419-21.
25. Joseph Rykwert, "Inheritance or Tradition," in "Leon Battista Alberti," ed. Joseph Rykwert, special issue, *Architectural Design* 49, nos. 5-6 (1979), 4.
26. Hubert Damisch, "The Column and the Wall," in "Leon Battista Alberti," ed. Rykwert 18.
27. Peter Eisenman, "Digital Scrambler, From Index to Codex," *Perspecta* 35 (2004), 43.
28. Wittkower, *Architectural Principles in the Age of Humanism*, 41.
29. For this author's interpretation of the tectonic see Hartoonian, *Ontology of Construction*.
30. Gottfried Semper, *Style in the Technical and Tectonic Arts; or, Practical Aesthetics*, trans. Harry F. Mallgrave & Michael Robinson (Santa Monica: Getty Publications, 2005), 760.
31. Semper, *Style in the Technical and Tectonic Arts*, 151.
32. Eisenman, "Digital Scrambler," 43.
33. According to Hubert Damisch, the wall in Alberti's architecture was designated by/as many "layers": the vertical three-part composition, the base (podium), the middle zone (procinctus), and the copin (corona). In addition to the surface appearance, the wall included a masonry body that would support the load of the roof. See Damisch, "The Column and the Wall," in "Leon Battista Alberti," ed. Rykwert, 21.
34. Rudolf Wittkower, *Gothic versus Classic: Architectural Projects in Seventeenth-Century Italy* (New York: George Braziller, 1974), 93.
35. Riegl, *Historical Grammar of the Visual Arts*, 233-34.
36. Riegl, *Historical Grammar of the Visual Arts*, 236.
37. Related but also more interesting are the structural experimentations conducted by Robert Le Ricolas at the University of Pennsylvania. In most cases, the steel structures were strengthened by extrusion of material out of the structure. Both having taught at the University of Pennsylvania, Le Ricolas and Louis I. Kahn were familiar with each other's works, and it might be the case that both shared and entertained the structural/spatial implication of what Kahn called "hollow columns".
38. Riegl, *Historical Grammar of the Visual Arts*, 237.
39. Wittkower, *Gothic versus Classic*, 91.
40. On this subject, see Gevork Hartoonian, "Louis I. Kahn @ 40s, Architecture in the 1950s," *Architectural Theory Review* 13, no. 1 (2008): 3-28.
41. Here I am benefiting from Jarzombek, "The Cunning of Architecture's Reason," 36.
42. Jarzombek, "The Cunning of Architecture's Reason," 33.
43. Quoted in Jarzombek, "The Cunning of Architecture's Reason," 33.
44. Robin Evans, "Mies van der Rohe's Paradoxical Symmetries," *AA Files* 19 (Spring 1990), 62.
45. Wolf Tegethoff, *Mies van der Rohe: The Villas and Country Houses* (Cambridge & London: MIT Press, 1985), 16.
46. Gottfried Semper, quoted in Mallgrave, *Gottfried Semper*, 59.
47. On this subject see Hartoonian, *Ontology of Construction*, 88.
48. For Auguste Perret, the vertical window provides a frame through which the eye secures a privileged position as it is assumed in perspective projection. The horizontal window, instead, undermines the perspectival depth in favour of a middle-ground plane placed in distance. See Bruno Riechlin, "The Pros and Cons of the Horizontal Window: The Perret-Le Corbusier Controversy," *Daidalos* 13 (1984): 65-78.
49. Von Moos, *Album La Roche*, 76.
50. See the chapter on Mies van der Rohe in Hartoonian, *Ontology of Construction*, 68-80.
51. From the review of an unnamed local journalist from Barcelona. For the original source of the quotation see Beatriz Colomina, "Media as Modern Architecture," in *Architecture Between Spectacle and Use*, ed. Anthony Vidler (New Haven & London: Yale University Press, 2008), 63.
52. Mallgrave, "Epilogue," 377. Here Mallgrave is paraphrasing Alois Riegl's observation in *History of Textile Art*, written in 1888.

53. I am benefiting from Mallgrave's assessment of the state of architectural theory in mid-nineteenth century Europe. See Mallgrave, *Modern Architectural Theory: A Historical Survey, 1673-1968* (Cambridge: Cambridge University Press, 2005), especially the chapter entitled "The Rise of German Theory".
54. See Hartoonian, "In What Style Could They Have Built?" and Heinrich Hübsch, Rudolf Wiegmann, Carl Albert Rosenthal, et al., *In What Style Should We Build? The German Debate on Architectural Style*, trans. Wolfgang Hermann (Santa Monica: The Getty Centre for the History of Art and Humanities, 1992).
55. See Colin Rowe, "Chicago Frame," in *The Mathematics of the Ideal Villa and Other Essays*, 89-118. Also important is Peter Eisenman's observation in "Aspects of Modernism: Maison Domino and the Self-Referential Sign," *Oppositions* 15-16 (Winter-Spring 1979), 119-29. Also see Hartoonian, "Architecture and the Question of Technology: Two Positions and the Other," in *Ontology of Construction*, 29-42.
56. For a fresh reading of the American architecture of the late 1960s see Felicity D. Scott, *Architecture or Techno-utopia* (Cambridge & London: MIT Press, 2007), reviewed in this issue of *Fabrications*. For the implications of the suggested transformation at an international level, see Stanley Matheus, *From Agit-Prop to Free Space: the architecture of Cedric Price* (London: Black Dog Publishing, 2007).
57. Barry Bergdoll, "The Nature of Mies's Space," in *Mies in Berlin*, ed. Terence Riley & Barry Bergdoll (New York: Museum of Modern Art, 2001), 96.
58. In Rykwert, "Inheritance and Tradition."
59. Livio Vacchini interviewed in *Casabella* 724 (2004): 103-5.
60. Kenneth Frampton, *Studies in Tectonic Culture* (Cambridge & London: MIT Press, 1995), 197.
61. Detlef Mertins, "Mies's Event Space," *Grey Room*, 20 (Summer 2005), 72.
62. Mies van der Rohe, "The Precondition of Architectural Work" (1928), in *Artless Word*, by Fritz Neumeyer (Cambridge & London: MIT Press, 1991), 298-303.
63. Barry Bergdoll, "The Nature of Mies's Space," 96.
64. Arthur Korn cited in Werner Oechslin, "'Not from an aestheticizing but from a general cultural point of view'. Mies's Steady Resistance to Formalism and Determinism: A Plea for Value-Criteria in Architecture," in *Mies in America*, ed. Phyllis Lambert (New York: Museum of Modern Art, 2001), 31.
65. I am paraphrasing Semper from *Style in the Technical and Tectonic Arts*, 628.
66. On this subject see the last chapter of Gevork Hartoonian, *Crisis of the Object: The Architecture of Theatricality* (London: Routledge, 2006); and "Koolhaas' CCTV Tower: Can the tall building be artistically considered?" *Content*, forthcoming 2008.
67. These lines were inspired by Mark Wigley's essay "Toward a History of Quantity," in *Architecture Between Spectacle and Use*, ed. Vidler, 155-63.