

TRANSLATION

Proceedings of the
**Society of Architectural Historians,
Australia and New Zealand**
Vol. 31

edited by Christoph Schnoor
(Auckland, New Zealand SAHANZ and Unitec ePress;
and Gold Coast, Queensland: SAHANZ, 2014).

The bibliographic citation for this paper is:

Gevork Hartoonian, "Gottfried Semper: Tectonic Translations," in *Proceedings of the Society of Architectural Historians, Australia and New Zealand: 31, Translation*, edited by Christoph Schnoor (Auckland, New Zealand: SAHANZ and Unitec ePress; and Gold Coast, Queensland: SAHANZ, 2014), 449-457.

Published in

*Auckland, New Zealand: SAHANZ and Unitec ePress [ISBN - 978-1-927214-12-1];
and Gold Coast, Australia: SAHANZ [ISBN - 978-0-9876055-1-1]*

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Gottfried Semper: Tectonic Translations

Gottfried Semper's theory of architecture was deeply rooted in the discursive formation of the nineteenth century's engagement with the processes of mechanical reproduction of cultural artefacts. What makes his discourse relevant even today is the alignment he made between tectonics and the untested shores of modernity. In this paper I demonstrate the radical nature of the strategy of translation Semper used to distance himself from both Gothic and Classical revivalist tendencies. The paper will primarily focus on three deconstructivist alignments as the core of Semper's theoretical contribution. These strategic alignments connect architecture with *Kunstindustrie*; style with primitive motives; and ornament with surface. One theoretical consequence of this unfolding was to distance architecture from the traditions of art history. Another was to dismantle the humanist discourse on the origins of architecture. Discussing the concept of translation involved in the suggested three alignments, the paper highlights the ontological dimension of Semper's theory of tectonics. Particular attention is given to the aesthetics wherein motifs developed in various industries are translated into the thematic of architecture's disciplinarity; roofing and clothing being the two primary ones.

During the last two decades tectonics has been an overarching theme among various theorizations of architecture. What stands out in different interpretations of the subject is its relevance to contemporary architectural praxis.¹ It is an extreme simplification to say that architecture today is different from any past period: architecture still continues to maintain a complex rapport with technique, aesthetics, and whatever we mean by the word 'culture'. It should come as no surprise, therefore, that tectonics is today discussed with reference to techniques that are definitive of the age of digital reproduction.² It is not my task in this paper to map the pros and cons of the tectonic. What I wish to demonstrate is the criticality of the triad of technique, aesthetics, and the cultural for tectonic discourse. This approach is important because it aligns architecture with the broader context of the early processes of modernization, a subject brilliantly discussed by Alina Payne.³

The Concept of tectonics was primarily developed by the nineteenth century German architect Gottfried Semper. Prior to the contemporary surge of interest in this topic, it was usually discussed in reference to nineteenth century architectural historiography. A breakaway from this convention of historiography took place when a number of doctoral dissertations successfully shifted the focus of their investigation from history to Semper's architectural theory.⁴ These manuscripts highlighted a number of issues that are critical for an in-depth understanding of the historicity of Semper's discourse. They also foreshadow the contemporary turn to tectonics. I will pursue this unfolding and its historical significance through three deconstructivist alignments, which together frame the core of Semper's theoretical contribution. These strategic alignments connect architecture with *Kunstindustrie*; ornament with detail; and style with primitive motifs. One theoretical consequence of this proposition is to distance architecture from the traditions of art history. Another is to dismantle the Humanist discourse on the origin of architecture.

Semper's theory of architecture opened different vistas onto nineteenth century architectural discourse. I will argue that, unlike the Humanist and Romanticist aspiration for the revival of Greek or Gothic styles, or the Arts and Crafts's tendency to dream a labour organization similar to the Medieval Guild system, what has been mistakenly taken as the materialist Semper is rather a work in anticipation of "weak thought" strategy discussed by Gianni Vattimo.⁵ Contrary to the nineteenth century inclination for either rejecting or resisting Modernity, Semper's tectonics posits

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- 1 Gevork Hartoonian, *Ontology of Construction* (Cambridge: Cambridge University Press, 1994), and Kenneth Frampton, *Studies in Tectonic Culture* (Cambridge: MIT Press, 1995).
 - 2 Among others, consider Bernard Cache, "Digital Semper," in *Anymore*, ed. Cynthia Davidson (New York: Anymore Corporation, 2000); Neil Leach, D. Turnbull, & C. Williams, ed., *Digital Tectonics* (London: Wiley, 2004); Antoine Picon, *Digital Culture in Architecture* (Basel: Birkhäuser, 2010) especially the chapter titled "From Tectonic to Ornament," 115-170; Reiser + Umemoto, *Atlas of Novel Tectonics* (New York: Princeton Architectural Press, 2006). For a comprehensive anthology of digital architecture see Mario Carpo, ed., *The Digital Turn in Architecture 1992-2012* (London: Wiley, 2013).
 - 3 Alina Payne, *From Ornament to Object: Genealogies of Architectural Modernism* (New Haven: Yale University Press, 2012).
 - 4 See, for example, James Duncan, "The Legacy of Gottfried Semper: Studies in *Späthistorismus*" (PhD diss., Brown University, 1989), and Harry-Francis Mallgrave, "The Idea of Style: Gottfried Semper in London" (PhD diss., University of Pennsylvania, 1983).
 - 5 Gianni Vattimo, *The End of Modernity* (Baltimore: John Hopkins University Press, 1991).

a theoretical paradigm the central concern of which is to save the thematic of the architectural discipline. It does this by recoding the culture of building in the purview of the nihilism of technology, that is, “the already given and everyday, which is always historically qualified and culturally dense”.⁶ This is a historiographic project, one that insists on genealogies that align architecture with the production and consumption cycles of capitalism.

Translation I

Self-exiled in England, Semper was in a position to benefit from the positive fruits of the British Arts and Crafts Movement. Central to this observation is the historical turn at that time for a design philosophy - the reformist movement - that broke with the classical norms of symmetry and representation, two canons institutionalized through the historicist association of architecture with the body. Equally important for a critical understanding of Semper is his notion of labour and materiality, the architectonic implications of which are not reducible to the moralistic and metaphysical interpretations dear to Pugin and Ruskin. Obviously, labour, material, and technique are the primary ingredients of construction. However, unique to the nineteenth century is the proliferation of a consciousness of labour and technique that was not available before the advent of industrialization. To simplify a subject that demands extensive historical investigation, what needs to be recognized here is the historical opening instigated by modernization. In addition to other unfolding, modernization allowed a number of German architects and thinkers, including Semper, to think about the origin of architecture differently. This difference, I would posit, is centred on the *translation* of architectonic implications of *craft* into *industry*. What does this claim amount to?

The major event taking place during Semper’s residency in London was the opening of the Great Exhibition housed in John Paxton’s Crystal Palace, 1851. The fact that this building was erected in less than eleven months, and that it used iron and glass through a rudimentary prefabricated and mechanized construction system, further stirred the style debate that was already branching in different directions. From Pugin’s esteem for Gothic as the emblem of convenience, construction, and propriety, to Fergusson’s advocacy for the Italian style as “common sense”, and whatever else filled the gap between these two positions, Harry-Francis Mallgrave observes that “their ideological or stylistic preferences were often superficial to the main lines of their arguments.”⁷ What influenced Semper was Henry Cole’s theoretical line disseminated through the *Journal of Design and Manufactures* (1849). Central to Cole’s vision was the need for establishing a tight collaboration between the guild system and the needs of manufacturing firms. His aim was to tighten the gap between “appearance” and fabrication that had been created by the mechanization of labour.⁸ This idea was indeed in line with the London School of Design endorsed by Parliament in 1837. One

6 Gianni Vattimo, “Dialectics, Difference, and Weak Thought,” *Graduate Faculty Philosophy Journal* 10, no. 10 (1984): 160.

7 Mallgrave, “The Idea of Style: Gottfried Semper in London,” 200.

8 Adrian Forty, *Object of Desire: Design and Society Since 1750* (London: Thames & Hudson, 1986), 43.

consequence of this development was to shift the style debate away from the borrowed historical idioms. What were instead emphasized were design strategies with the aim of accomplishing two things. Firstly, it was considered important to use ornament in a way that would counteract the degraded effects of machine manufacturing. This, according to Richard Redgrave, was only possible when “handicraft is entirely or partially the means of producing the ornament.”⁹ Secondly, and this is the inner contradiction of the reformist agenda,¹⁰ to create a balance between artisanship and machinery to the point that the final product would represent the country as a first class competitor with other industrialized nations, economically and artistically. For Cole, “the problem of art and design was subject to an essentially industrial solution: the methods successfully used to manufacture cotton would be used to manufacture art.”¹¹ If architecture was previously taught and practiced in reference to its own history (itself an autonomous entity) through the curriculum developed by Cole and Redgrave, the emerging concept of design inevitably aligned the artwork with industry. This, I would suggest, was in anticipation of the German Werkbund and the Bauhaus schools, two institutions subservient to the interests of the emerging industrial production system.

Semper arrived in London in October 1850 when the construction of the Crystal Palace was not yet fully completed. Aside from his daily visits to the site of the new spectacle, and reading the pros and cons of the newly finished building, what stimulated Semper’s *Der Stil*, I argue, was an analogical understanding of two unrelated structures: the Caribbean Hut displayed in the Great Exhibition and the Crystal Palace building itself. Following Aldo Rossi’s discourse, I would argue that what is involved in *analogy* is the notion of *translation* rather than the theory of *mimesis*.¹² I will go further and suggest that the subtitle of Semper’s manuscript does indeed draw analogical parallels between the technical arts and the tectonic arts. On the one hand, we are reminded of the four elements evidenced in the Caribbean hut. These are, the element of roof (covering), the wall (the enclosure), the hearth (gathering), and the base (podium). On the other hand, we have Semper’s discussion of these elements in reference to four industries. These are, in the order of the four mentioned elements, carpentry, weaving, ceramics, and masonry. What relates the Caribbean hut to the Crystal Palace are motifs (surface articulations, as we will see below) that draw from the ur-forms developed through the four industries. The origins of architecture thus ceased to be associated with the body, or the translation of the wooden hut into stone architecture, an idea propagated by Karl Bötticher.¹³

9 Richard Redgrave quoted in Adrian Forty, *Object of Desire*, 49.

10 As Adrian Forty reminds us, Karl Marx was the first to note this contradiction, and to map in *Capital* the three stages of the development of capitalist manufacturing. See Forty, *Object of Desire*, 43.

11 Igor Webb, “The Bradford Wool Exchange: Industrial Capitalism and the Popularity of Gothic,” *Victorian Studies* (Autumn 1976): 49.

12 Aldo Rossi, “Architecture and Urbanism,” in *An Anthology of Architectural Theory 1965-1995*, ed. Kate Nesbitt (New York: Princeton Architectural Press, 1996), 348-52.

13 On the differences between Karl Bötticher and Gottfried Semper, see Mitchell Schwarzer, *German Architectural Theory and the Search for Modern Identity* (Cambridge: Cambridge University Press, 1995).

Translation II

According to Joseph Rykwert, Semper was obsessed with the knot, a cultural artefact, which for Semper represented the first detail produced throughout the long history of civilization. Considering his own obsession with making analogies between the body and architecture, Rykwert goes further, saying that what intrigued Semper was “the body in motion that he would have wanted to contemplate”.¹⁴ I would like to take Rykwert’s observation and remind the reader, firstly, of my own discourse on the tectonic of theatricality. Secondly, I would like to improve this notion of theatricality in analogy to the figure of knot. What is involved in the idea of theatricality is the necessary disjunction between the constructed form and the cladding. What this means is that architecture is construction plus something else. Considered artistically, the implied excess is embellished in reference to the physical body of the building, as is the case with the mask and the face behind. The implied duality should not be taken literally. It rather should be channelled through *image*, re-presentation; the mask denoting happiness or sadness, either way but always in reference to the topology of the face. The gestural nature of the tectonic of theatricality can be better understood in analogy to the knot, itself a form generated out of a twisted rope. Therefore, the analogy I made earlier between the Caribbean hut and the Crystal Palace correlates to the analogy I would like to make between the knot and the tectonic of theatricality. This proposition illuminates Semper’s discourse on surface as the architectonic element mediating between construction and ornament: from material to detailing; from rope to the knot.¹⁵

Now, as evidenced in numerous review reports written in the aftermath of the Great Exhibition, there was a sense at the time that the entire business of ‘design’ ought to be reconsidered. Following Redgrave’s report, most nineteenth century architects and critics turned their attention to the relationship between ornament and construction.¹⁶ The principle that *design* should follow, Redgrave argued, is how to ornament construction rather than constructing the ornament. This was in criticism of most objects displayed in the Exhibition. His observation also promoted a different notion of style, one that was concerned with the artistic (aesthetic?) dimension of the work. Learning from the applied arts, it was obvious that the design of a vase, to remain with Semper’s example, should first follow its purpose, and then be ornamented accordingly. It was also suggested that a carpet “should express flatness”, without ornaments that would discourage one from treading upon it.¹⁷ This interest in purpose (function) rather than unnecessary decoration was indeed the core of Semper’s materialism. In his London lecture, Semper underlined the fact that he was more than before convinced that “the history of Architecture begins with the history of practical arts,

14 Joseph Rykwert’s Preface to “Gottfried Semper, London Lecture of November 11, 1853,” *Res: Anthropology and Aesthetics*, 6 (Fall 1983): 5.

15 For a comprehensive literature review of the theme of ornament see Antoine Picon, *Ornament. The Politics of Architecture and Subjectivity* (Chichester: Wiley, 2013).

16 Here, I am following Harry-Francis Mallgrave in *The Idea of Style*, 218.

17 Harry-Francis Mallgrave, *The Idea of Style*, 217.

and that the laws of beauty and style in Architecture have their paragons in those which concern industrial art.”¹⁸ According to Semper, what architects should learn, in addition to the idea of purposefulness evident in the form of a vase, is the significance that practical arts give to the surface embellishment. The comparison Semper made between the Egyptian and the Greek vase is not only centred on their formal differences but, more importantly, on how the surface articulation (ornament) is conceived in reference to purpose. These early aesthetic and artistic motifs, first achieved in industrial arts, were then translated into architecture. Again, Semper reminds his reader that the decorative motifs used in wall surfaces were originally developed in tapestry, and then used in mosaic. In most of Henry Sullivan’s building, an architect who was likely familiar with Semper’s theory, the brick cladding follows the embroidery developed in the edges of carpets and/or ceramics. Also noteworthy is Frank Lloyd Wright’s use of “textile” concrete blocks in Alice Millard house (1923). Upon the completion of the building, he called himself a “weaver”. According to Kenneth Frampton, Wright considered “his conception of the textile block as an all enveloping woven membrane”.¹⁹ Semper’s historico-theoretical argument endorses the idea that the artistic experience emanating in textile and knot is the progenitor of the surface aesthetics emulated in architecture. Thus, the tectonic task is to establish cohesion between purpose, construction, and ornament as expressed in the final form, and contemplated through its surface articulation.

Translation III

To further elaborate on what has been said so far, I need to return to the idea of surface embellishment as discussed in Semper’s theory of cladding. My intention is to throw critical light on the current turn to “surface”, which, more often than not, is legitimized as part of the zeitgeist of the present digital age. Recalling Semper’s theory of *Bekleidung*, Adolf Loos suggested that the first task of the architect is to put up four carpets. He then stated the obvious: that the carpets cannot stand erect by themselves. The second task of the architect, he continued, is to think of a framework that will support the four carpets. If style is not to be reduced to preconceived images of historical forms then, to refer to the third translation outlined earlier in this essay, how does the structural attain surface expression? More importantly, in what ways do the suggested Loosian skin and bone precede and differ from the contemporary interest in surface?

Central to Semper’s discourse on the tectonic is the organic balance needed between the forces of gravity and the substance of material. It is true, Semper claimed, that most styles are based upon “sound principles of statics and construction”. However, it is only the Greek temple that seems “grown” organically. Therefore, what lies behind the beauty of a Greek temple is not applied ornaments or unnecessary accessories. It is rather material constructs and detailing that are animated aesthetically, as is the case with natural forms that are animated by their presumed

¹⁸ Gottfried Semper, “London Lecture of November 11, 1853,” *Res*: 6 (Fall 1983): 9.

¹⁹ Kenneth Frampton, *Studies in Tectonic Culture*, 109.

organic life.²⁰ Spyros Papapetros has recently taken up the subject of organic life, exploring its aesthetic implications throughout history. Recalling Semper and others, he writes that animation “subsists on ‘exaggeration’ and hyperbole, as well as an increasing ‘abstraction’ from real life; it thrives in its denunciation of ‘frugality’ and celebrates the excess of imagination and its luxurious use of visual means.”²¹ I would go further and suggest that animation is also at work in both the figurative form of knot, and in the classical Orders, the aesthetic of which was achieved through surface articulation of the material used, stone in most cases. The twenty-four flutes used in the Ionic column, which run out to a knife-edge, were easily scarred. Interestingly, the grooves inscribed on the surface of the same column were used, etymologically, in recollection of sounds reminiscent of a flute. Therefore, the aesthetics implied in tectonics is not merely a matter of materiality, but the end result of the processes of translation through which the constructed material is imaginatively animated. The tectonic of theatricality should be understood in terms of surface articulation that aims to defy the material as such. This is achieved through the very act of *fabrication* wherein the object is transformed into a meaningful cultural artefact. That is when the object of craft is translated into an object of industry.

There is another dimension to Semper’s discussion of the column. Much discussed in reference to the body, and considered the ornament par excellence by Leon Battista Alberti, the column for Semper was the ultimate tectonic analogue. In the remainder of this essay I will briefly plot the implications of the Semperian tectonics of column for contemporary architecture. But for now, I would like to recall Semper’s reflection on two primordial columns, the Egyptian and the Persian: whereas the former’s capital used ornaments mostly drawn from the ladies’ hat, the Persian capital, instead, presents a higher stage of stylistic development. From the Semperian viewpoint “the higher stage” connotes an objective and subjective state that benefits from a level of technical and aesthetic sensibility that is more advanced than in the immediate past. According to Semper, the metal sheeting, initially used to cover the wooden shaft of the Persian column, was later discovered to be, in itself, capable of doing the job of support. This transformation, I would suggest, facilitated the possibility of the translation of the form of metal capital of the Persian column to the stone capitals of the Persepolis. And this is what I meant earlier regarding Semper’s discussion of type as a built *analogue*.

Interestingly enough, without mentioning the distinction Quatremère de Quincy makes between type and model, Semper defines “type” as a *primitive* form (or ur-form) originally prescribed by necessity. Unique to ur-form is the cohesion it establishes between material, form, and the process of making, which basically involves tools and skills developed in using each material. In its subsequent treatment, the original form (type) becomes “plastic or pictorial”. To underscore his point, Semper reminds us of the higher transformational processes through which doors were coated with bronze

20 Gottfried Semper, “London Lecture,” 14-15.

21 Spyros Papapetros, *On the Animation of the Organic* (Chicago: University of Chicago Press, 2012), 60.

plates. These plates, similar to the cladding of the Persian column, were hollow, and panelled like the original wooden doors that were covered by metal plates. How does this transference (Semper coined the term *Stoffwechsel*) relate to contemporary skin and bone tectonics?

To Be Continued...

My interest in Semper's theory of tectonics neither works towards "operative criticism," nor intends to make a myth out of the nineteenth century episteme. That said, there should be no doubt about the uniqueness of that century's discursive formation and its significance for contemporary architecture. Most historiographies are still preoccupied with tropes such as style, cladding, ornament, monumentality, and tectonics. However, what I wanted to demonstrate in this paper is the importance of my reading of Semper's text based on the Russian notion of *analogy*, and the possibility of establishing three ur-forms of column as essential for a critical reading of contemporary theorization of tectonics.

My first analogical reading concerns the Ionic column, which represents the ultimate stone tectonics, and selected projects of Zaha Hadid, as extensively discussed on another occasion.²² Benefiting from Robin Evans's reflection on "stone cutting", I would say that Hadid's Phaeno Science Centre, for example, discloses what might be called a "higher" development in the use of concrete, which in the traditions of Brutalism, I have discussed in terms of "Brute Tectonics".²³ Recalling Kahn's notion of "empty column", the conical piers of the Phaeno are conceived as part of the spatial organization of the volume. Informed by the major urban axis of the site, a number of these cones provide access to the elongated main volume of the building. These pillars are detailed to appear as if rising from the sculpted ground plane, the earth-form. Their dynamic figuration, however, distinctively differs from the pilotis of Le Corbusier's Marseilles apartment block. Unlike the latter, the Phaeno's large volume is supported and structured by hollow cones, the skin of which seems shaped as if pushing the skin of the floor downward. The pilotis in Le Corbusier's building instead resemble arms holding up the mass. In Hadid's buildings, they follow a modest generic version of the dendriform columns of F. L. Wright's Johnson Wax Factory (1939).²⁴ The theatricality of the entire volume, including the pleats and cuts of the concrete enclosure marks a distinct departure from the ethos of the New Brutalism. In the Heydar Aliyev Center in Baku (2013), to mention one of her most recent works, Hadid uses the figurative traditions of calligraphy to animate the form and to exhaust the plastic potentialities of concrete. What makes the literal shape of a word different from its calligraphic analogue is this: similar to a knot, the straight line is inked to translate the word to a figural element. Thus, blurring the conventional boundary between the earth-work and the framework, the Heydar Center is turned into a crown (ornament) for the landscape.

22 Gevork Hartoonian, "Zaha Hadid: *Proun Without a Cause*," *Architecture and Spectacle: A Critique* (London: Ashgate, 2012), 145-72.

23 Gevork Hartoonian, "Brute Tectonics: A Paradox in Contemporary Architecture," *Time + Architecture*, 123 (January 2012): 50-59.

24 Gevork Hartoonian, "Zaha Hadid: *Proun Without a Cause*," 155-56.

The second analogy I would like to make concerns contemporary implications of the cladding evident in the Egyptian and Persian columns noted earlier. In my *Modernity and Its Other* (1995), I suggested that, in addition to political and cultural issues, the possibility of a post-modernist approach to surface was already implied in the architectonic of Le Corbusier's Dom-ino frame. I would like to go further and posit that the idea of free-façade can be associated with the translation of bronze used in wooden doors into hollow bronze doors as discussed by Semper. I am also reminded of the postmodernist abuse of the Dom-ino frame, covering it with the simulation of historical forms. The postmodernist adventure inaugurated a concept of surface that had little to do with Le Corbusier's notion of "free façade". What is troubling with postmodern historical eclecticism, and the current turn to surface, is that both tendencies sidetrack the tectonic nature of the Corbusian idea of the free-façade. In the Dom-ino frame, each column's measured set back from the face of the slab provides a perception of surface the openings and aesthetics of which are not independent of the dictates of its structural system. It also initiates the possibility of volumetric compositions that draw from a sense of orientation already in place in the geometry of the Dom-ino frame. Another tectonic implication of the Dom-ino frame is the novel sectional organization evident in the architect's *Maison Carthage* (1928). Not until the emergence of postmodern architecture, I argue, were the most innovative surface articulations sought, occasionally in a complex way, in reference to the architectonic elements such as column, wall, slab, and the place of openings and windows.

Through digital reproduction processes emerged a "higher" development of surface, the main achievement of which is to further drag architecture into the present culture of spectacle,²⁵ and surface treatment, which are enforced by techniques of materiality. This development, and this is my third analogy, destabilizes the dialectical rapport Semper sought between cladding and the structure behind it. The material surface spreading over the structure of most contemporary architecture relies on its own structural system independent of the building's main support system. This development has dismantled the Miesian skin and bone tectonics. The relationship between the skin of the Seagram building to its steel-frame structure is similar to Loos' discussion of the four carpets and the need for a frame to support them. In Hadid's Opera building in China, by contrast, the shape of the surface (skin?) dictates the structural system of the building. This inversion, interestingly enough, is attributed to D. H. Burnham and Co's design of the Reliance Building, Chicago (1895).²⁶ Here too the terracotta and glass cladding seemingly stands as an independent veil, disregarding the building's steel frame structure. For Rykwert, the Reliance Building "has some claim to have the first curtain-walls."²⁷ The comparison of these last two buildings, built almost a century apart, together with my brief reflection on the suggested three column analogies, suggests that Semper's theory of the tectonic provides the thematic of an analytical criticism of both modern and contemporary architecture, a research project that I intend to continue in the near future.

25 On this subject and its difference from the tectonic of theatricalization, see Gevork Hartoonian, *Architecture and Spectacle*.

26 Joann Merwood, "The Mechanization of Cladding: The Reliance Building and Narratives of Modern Architecture," *Grey Room* 4 (summer 2001): 52-69.

27 Joseph Rykwert, "Architecture Is All on the Surface: Semper and Bekleidung," *Res* 20 (1998): 24.