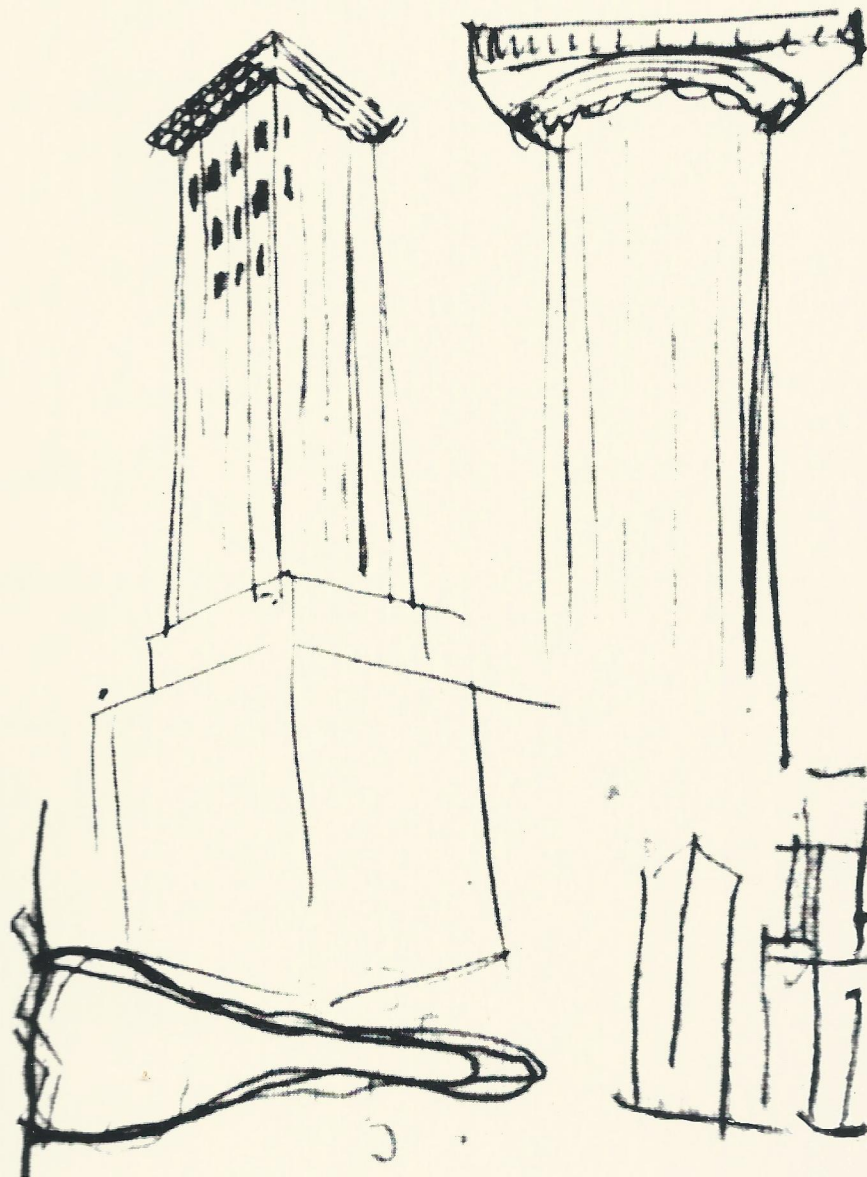


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Architecture as Index: Toward a Theory of Contingency

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Many theorists explore the problem of content in architecture in terms of representation, or the utilization of symbolic and often historicist imagery to extend an object's meaning within a larger spatial/cultural context. This paper suggests that an alternate mode of establishing associative content can be based in abstraction, or nonrepresentational means in terms of architecture's capacity to perform as "index." The notion of index is an attempt to understand architecture as a direct physical manifestation of an external cause based on establishing an explicit physical connection, or cross-referencing between "cause and effect." The result is an architecture contingent upon those factors that can generate an inalterable formal response, or an architecture that "makes itself."

ALTERNATE MODES OF UNDERSTANDING THE WAY A BUILDING ESTABLISHES meaning within its larger spatial/cultural context generate parameters for defining content. Most are based on the work of theorists who explore the relationship of meaning related to forms that represent pre-established cultural content in some fashion.¹ This broad framework of concerns covers a wide area, including the study of symbols and archetypes, as well as the use of narrative, allegory, and metaphor in the translation from program to design. A more structural investigation of these and similar issues characterizes the field of semiotics, including the study of signs, syntax, iconography, and, generally, many of the dominant perceptual concerns during the 1980s about modern architecture's purported failure to communicate a specific content relevant to time and place.²

All of these modes of extracting meaning from architecture share a number of characteristics. First, they tend to be highly interpretive, so that meaning tends to fluctuate depending on personal, cultural, and territorial differences. Second, cognition takes place through an indirect and rather extended process of linguistic coding and translation. And finally, they tend to be highly dependent on examples that utilize symbolic and often historicist imagery to convey the message.

There is another method of communicating contextual meaning, which concerns a building's capacity to act as an index. While buildings are traditionally interpreted as "symbols," or signs that signify an object by some learned relationship, I am suggesting that another mode of interpreting architecture is in terms of how buildings can be read as signs that arise out of a physical, nonrepresentational manifestation of a directed cause.³ This definition is further refined by art critic Rosalind Krauss: "As distinct from symbols, indexes establish their meaning along the axis of a physical relationship to their referents. They are the marks or traces of a particular cause, and that cause is the thing to which they refer, the object they signify."⁴ In other words, the meaning of the index is not achieved by having to engage intermediate stages of coding and association subject to cultural con-

ditioning and interpretation, but, rather, through an objective translation of explicit physical conditions that generate an inalterable formal response.

More specifically, examining architecture as index might disclose information about the process of its formulation, the nature of its construction, or the ways that it is to be inhabited. An architectural index might also illuminate certain characteristics of its physical surroundings based on the building's capacity to establish a focused dialogue with the site, which becomes completed or answered by the building's intervention.

If a building as index can be interpreted as a physical manifestation of some cause, architecture can be understood as a responsive *effect* of such a cause. The condition of cause and effect is key here and serves as the basis of what might be considered a theory of contingency. In this case, meaning in architecture is defined by its capacity to be contingent, that is, physically dependent on or conditioned by certain factors that inalterably guide the derivation of its form. Indexical buildings evidence these physical determinants as clues that refer to the original cause; information is presented directly, without being cloaked in disguises or symbolic coding. Clues, of course, must be deciphered if they are to communicate and be meaningful. But while deciphering can be understood as another form of interpretation, it further suggests that the search for the actual cause inexorably leads to a limited range of possible alternatives based on an objective analysis of facts. Interpretation, on the other hand, is a subjective translation of information that leads to a wide range of possible meanings. If deciphering a cause is based on a preexisting truth, or physical reality that must simply be uncovered, interpretation involves the breaking of syntactic codes that continually shift depending on cultural associations and the passage of time.⁵ It is this difference between deciphering indexical clues and interpreting representational signs that suggests another possibility for extracting architectural content, as well as a shift in how one approaches the reading of a building.

Another aspect of a contingency relates to the capacity of architectural form to act as a kind of cross-referencing to other realizations of the building's essential characteristics. In other words, the reading of one view or component of a building automatically refers to another invisible condition outside of one's immediate perception. Such a cross-referencing may occur internally as a discussion of the building's referral to earlier stages of its development or may occur externally as a clarification of the building's role in its larger context. The notion of cross-referencing may be established on a number of levels; information about a building's internal spatial order may be signaled through the articulation of its facade or external form; the ordering of the plan may offer clues concerning the building's massing;

graphic documentation may refer to earlier or later stages of design transformation; or the building may incorporate materials or building techniques that may leave various signs or imprints of the process of construction. In each case one aspect of the building performs as an index of some other physical characteristics of the building's form.

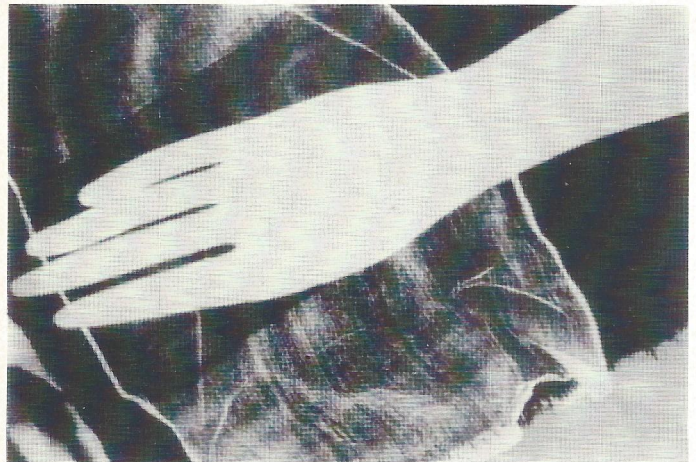
Indexes exist in many forms outside of architecture that may shed further insights as to their characteristics. For instance, if an index is considered to be a physical effect of a particular cause (i.e., a form of clue), any number of obvious signs of previous human presence (footprints, fingerprints, traces of clothing, e.g.) constitute objective *facts* referring to a certain person to which they belong. Or a cast shadow, as the absence of form, establishes an even more objective sign, as its contour must be precisely contingent upon the specific form of the object to which it refers. Evidence of an obscured cause can also be found in the reclaimed polder lands of the Netherlands, where the agricultural fields are often marked by parallel dark strips of vegetation (Figure 1). These lines signify that the ground underneath has a higher moisture content, which, in turn, has been caused by the presence of underground drainage pipes directly aligned with each darkened strip. The notion of index here is not simply the imprint of the pipes and high moisture levels on the surface (the invisible made visible), but it also signifies the *process* of how the land was reclaimed, a direct reference to earlier stages of its construction.

Photography, similar to the notion of the cast shadow, is a physical sign of a parallel reality, a reference to a particular object or place transformed through its mode of presentation and selection. As described by Krauss, "Every photograph is the result of a physical imprint transferred by light reflections onto a sensitive surface. The photograph is thus a type of icon, or visual likeness, which bears an indexical relationship to its object."⁶ The final two-dimensional image is a direct physical translation and is contingent upon the form of the three-dimensional object. Krauss further notes that photograms, produced by placing objects on top of light-sensitive paper, produce a trace of the object's shape caused by the absence of light exposed to the paper, similar to the phenomenon of x-rays (Figure 2).

Other forms of index are archeological—they exist as traces of a previous state, or form, and thus act as a kind of window to the past. "Old Sarum" in England consists of a central mound, the raised evidence of an early Iron Age camp, next to which is a paved pattern on the ground that precisely indicates the foundations of a Middle Age cathedral; both markings are an index of the previous evolution of building forms that occurred there (Figure 3). Another example can be seen in the artificial hills in Germany at the edge of major urban centers known as Trummerberg, or garbage mountains, which are composed of the debris that was removed after the Allied bomb-



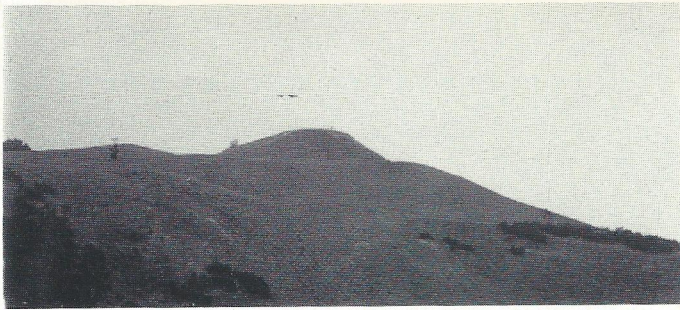
1. Landscape, Northeast Polder, the Netherlands.



2. Man Ray, Photogram.



3. "Old Sarum," near Avebury, England.



4. Trummerberg ("garbage mountain") Munich, Germany.



5. Richard Serra, "Shift," 1970-1972 (courtesy, Richard Serra).

ing of World War II (Figure 4). In this case, the mass of the mountain becomes an index of past destruction, roughly equivalent to (albeit in a transformed state) the fabric that once existed as built form.

More literal possibilities for the idea of index as an architectural reference can be observed in certain works of art. The notion of index in art first became evident with the development of Minimal Art in the early 1960s. In this case, the art object was removed from all metaphorical and symbolic association, relying purely on its physical properties of mass, shape, and surface and the object's ability to establish a dialogue with the viewer's space. One example of such a dialogue would be Richard Serra's seminal "Shift" of 1970-1972 (Figure 5). Here, the slope of the concrete planes dispersed in the rolling topography forms a horizontal datum from which one can perceive and measure the fluctuations of the natural landscape. The sculpture thus becomes an index of the landscape's form and would have no meaning unless it could be positioned in the context to document the im-

print of the varying degree of its surface exposure. A related example is Donald Judd's "Untitled" of 1971, specifically conceived for a temporary installation in the Guggenheim Museum. The work consists of two steel rings: the inner ring is parallel to the slope of the 3 degree ramp, while the top of the outer ring is level, providing a true horizontal reference played against the sloped surface. The relationship of the inclined (variant) and level (normative) plane forms a continual dialogue between the ideal and circumstantial, or cause and effect, and refers specifically to the nature of the architectural context to convey meaning.

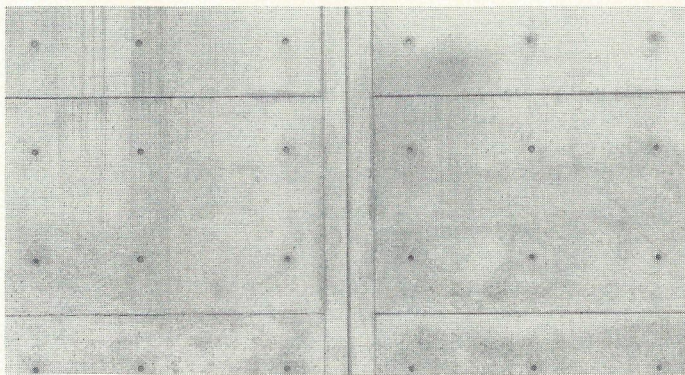
The notion of index in architecture in terms of the building as a contingent effect that is cross-referenced to other aspects of its organization can be found through examining the architectural projects of Louis Kahn. In the Kimbell Art Museum (1969-1972), the building's elevations, through the differentiation of load-bearing versus infill materials, concurrently offer an equivalent reading of the internal structural organization (Figure 6). In turn, the shaped patterning of different materials on the elevation performs as an index of the building's spatial organization or becomes the drawing of the building's cross-section taken at any point along the vault. Further, the open exterior porch provides the visitor with an exact replication of the interior spatial order as well as a full-scaled model of the structural solution that one will eventually encounter upon entering the building. Finally, the wire ties used in the concrete formwork concealed by lead plugs, as well as the articulation of 4' x 8' subdivisions in the concrete (which are a trace of the plywood panels used to build the forms), help to document a history, or the process of the building's construction now permanently captured on the wall's surface (Figure 7).

Kahn's work is often characterized by a recurring interest in articulating some tectonic detail (usually at or near the building's entrance) that is an index of the essential structural organization established throughout the building. In other words, Kahn uses a fragment to signify the whole, and the recurrence of the fragment in terms of structural form becomes a constant framework which restates in varying degrees of clarity the initially expressed index. In the Richards' Medical Research Laboratory (1957-1961), for instance, the corner is removed at the main entry to expose a portion of the cantilevered prefabricated structural units. The decrease in depth of the spanning members toward the corner is a result of the structural characteristics of the cantilever, while the system of connections and exposed members establishes an index of how the building was put together—a record of its own construction.⁷

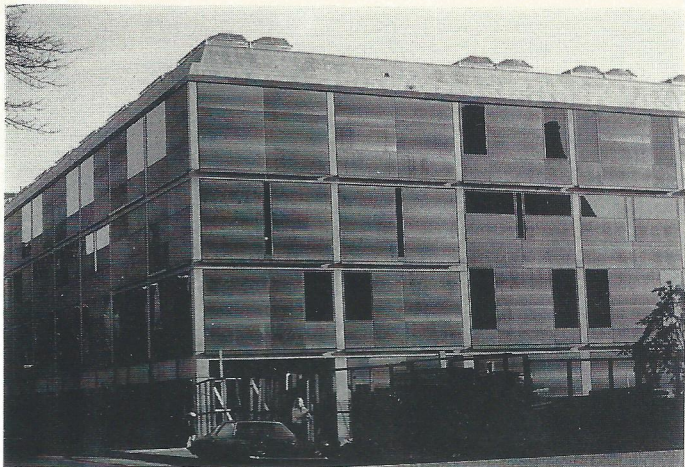
One also enters through a removed corner at the Yale Center for British Art (1969-1974), which allows one to acquire an understanding of the square columnar bay and concrete frame with infill



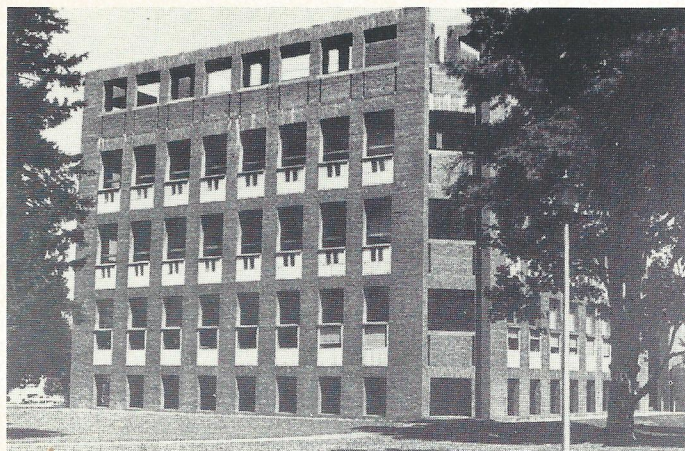
6. Louis Kahn, Kimbell Art Museum, Fort Worth, 1969–1972.



7. Wall detail, Kimbell Art Museum, Fort Worth.



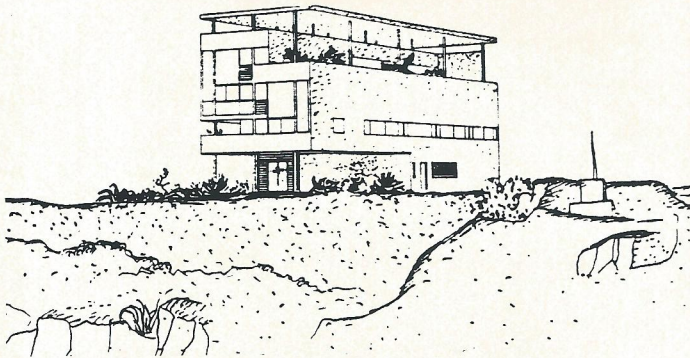
8. Louis Kahn, Yale Center for British Art, New Haven, Connecticut, 1969–1974.



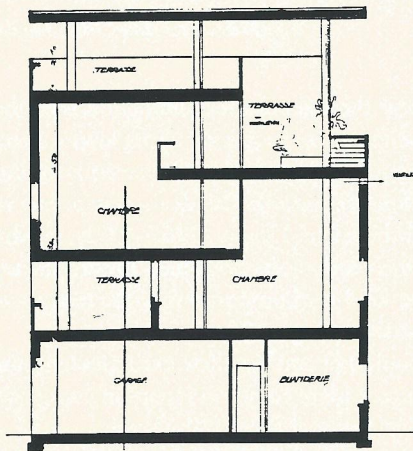
9. Louis Kahn, Exeter Library, Exeter, New Hampshire, 1967–1972.

panels that recur throughout the building. Further, the concrete columns decrease in size on successive upper levels, directly contingent on the decreased loading on higher floors versus the cumulative loading on lower floors (Figure 8). This device also occurs with greater differentiation at the Exeter Library (1967–1972), in which the vertical resolution in the width of the brick piers toward the top of the building adjusts the solid-void proportions of the fenestration/carrel infill versus brick structure (Figure 9).

One should not confuse these examples with the mere expression of structure, a more common intention going back to the functionalist experiments of the 1920s. Kahn's use of structure here performs as a physical index because rather than simply being exposed for its expressive value, it serves as an indicator of several characteristics of the building's order cross-referenced in plan and elevation that are not typically self-evident. These include: a reading of the varying structural forces and loads being brought into equilibrium with minimal means; a clarification of what portion of the building's fabric are performing structurally and that are nonload-bearing (which establishes the essence of the elevational order); finally, an indication or record of the building's process of construction. It is also suggested that such references go beyond a purely rationalist intent based in geometry and formal composition, as is evident in, for example, Renaissance works by Alberti and Brunelleschi, and elsewhere. In Kahn's work, it is the nature of structure based in the laws of statics that manifests itself as an inalterable statement of formal necessity; the statement of structure becomes the index of internal spatial order or gravitational forces without any possibility of stylistic layering, narrative or contradiction, forming an absolute bonding between cause and effect.

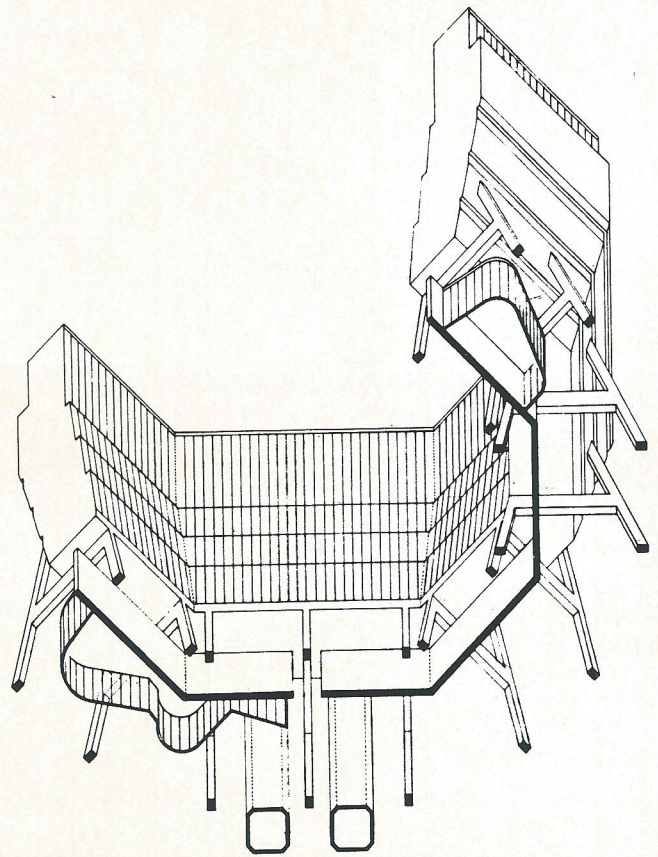


10a. Le Corbusier, Carthage House I, Perspective, 1928 (courtesy, Praeger/Greenwood Press, Inc.).



Coupe des chambres

10b. Le Corbusier, Carthage House I, Cross-section, (courtesy, Praeger/Greenwood Press, Inc.).

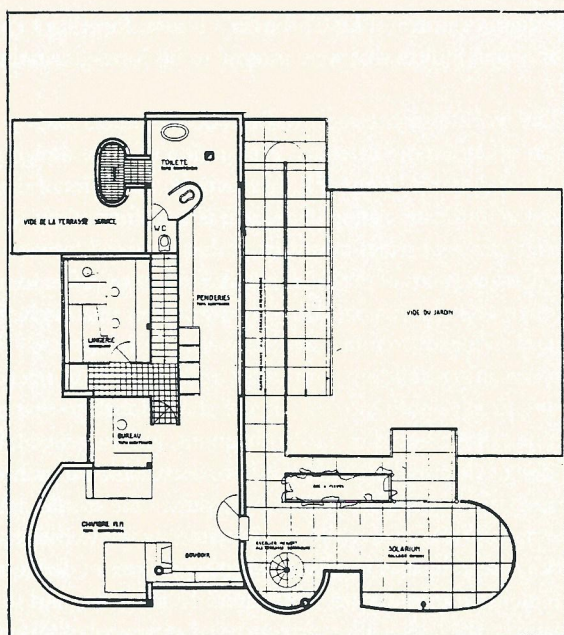


11. James Stirling, Florey Dormitory, Queens' College, Oxford, 1966-1971 (courtesy, James Stirling).

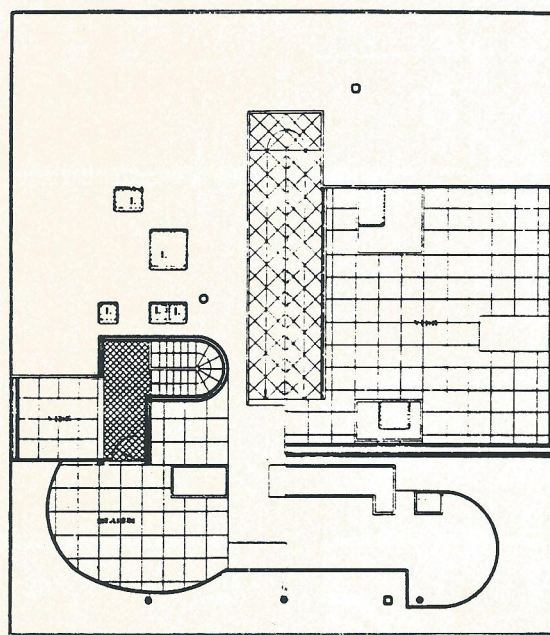
Another example of an architectural index capable of mirroring aspects of its own making are building extrusions, of which the aforementioned Kimbell Museum might again be cited as an example. While the cross-section of an extrusion can spatially establish highly variable, hierarchical relationships, any given section must also be seen as a constant, as it has the same shape as any other section taken along its length. In Le Corbusier's first Carthage House proposal of 1928, for example, the spatial order is contingent upon the sectional *parti*, while the end elevation is also an index of the generating section, a kind of coding of the building's spatial evolution (Figures 10a and b). Rather than the facade or section merely being a reference, or reflection of the building's interior (a standard paradigm of architectural synthesis since the Renaissance through the evolution of modernism),

the elevation and section here become the *causal agent* of the interior order, a direct physical consequence without intermediate deviation or reinterpretation.

Several of James Stirling's early works share this cross-referencing among section, elevation, and spatial form, for example, the Dorman Long Headquarters of 1965 and Queens' College, Oxford, of 1966-1971, in which the sectional template is wrapped or folded to define an open court, a deformation carried out to relate the project to Oxford's pervasive system of colleges established around quadrangles (Figure 11). Or, in Rudolph Schindler's Lovell Beach House of 1925-1926, the spatial section becomes physically designated and restated internally through the repetition of shaped structural planes, as well as expressed again externally on the end elevation.



12a. Le Corbusier, Villa Savoye, roof plan, October 1928 (courtesy, Praeger/Greenwood Press, Inc.).



12b. Le Corbusier, Villa Savoye, roof plan, April 1929 (courtesy, Praeger/Greenwood Press, Inc.).

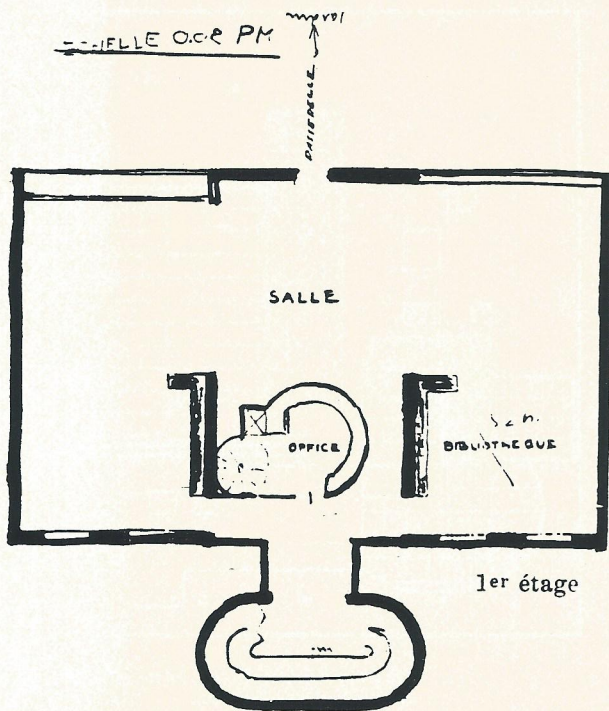
In all cases, the extrusion or overall mass is an index of the initially conceived sectional template that, in turn, generates contingent readings in plan and elevation.

A similar form of referencing to the building's earlier generation occurs through allowing the exploration of design alternatives, or earlier phases of the design process that were either discarded or transformed, to somehow come through and exert some tangible presence in the final built form. In this case, the design evolves from a cognitive sequence of earlier decisions, each one acting as a kind of signal to trigger subsequent acts, which, in turn, provide clues for continued transformation. Each stage of the process is indexically related to earlier beginnings, so that in the end the building contains traces or fragments of physical information referring to conditions that existed previously. This presents a rather different approach to the traditional mode of design synthesis, whereby one initially establishes a comprehensive design *parti* that preconceives the limits of all subsequent design decisions. In an indexical process, the design traces are never finalized but are rather one stage of a directive that came before and might take on additional characteristics, or evolve along unexpected paths of development before the process is terminated.

One example of a building containing the archeological remains, or index, of an earlier design has been documented in the

excellent study by Max Risselada of the evolution of Le Corbusier's Villa Savoye of 1928.⁸ The earlier plans clearly show that the rooftop, which forms a pedestal for the freestanding sun/wind screens, was actually a remnant of an earlier design in which Mme. Savoye's bedroom was located on the roof. When the room was removed to the second level in the final plan, Le Corbusier reduced a number of the bedroom walls to define a rooftop sun deck, resulting in a kind of trace or ruin of the original spatial interior, thus maintaining the essential idea of the vertical *promenade architecturale* (Figures 12a and b).

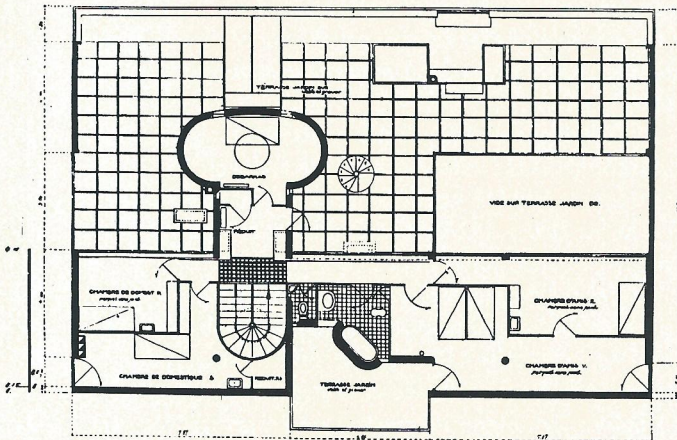
One might also suggest that a process of staged transformations and recurrences can extend across several design projects over time. An argument could be made, for instance, that Le Corbusier's unbuilt Villa Meyer (1925–1926) and the Villa Stein (1926–1927) constitute a single extended series of design investigations, however “interrupted” by the exigencies of time, site, and program. Thus one design element—the lozenge-shaped bedroom on the third level of the Villa Stein—is indexically related to the similarly shaped external stair in the first study for the Villa Meyer; one gesture comments on the other through its figure-ground reversal, and together they are similarly grounded to the frontal plane (Figures 13a and b). As pointed out by von Moos, this kind of formal and typological cross-referencing oc-



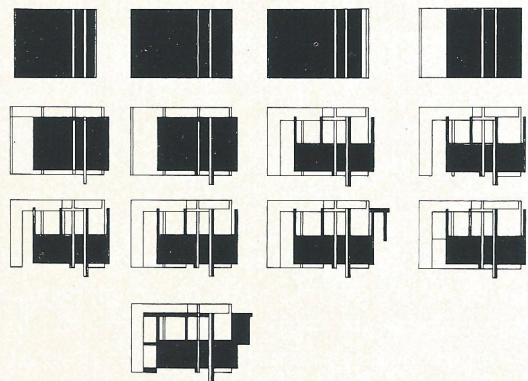
13a. Le Corbusier, Villa Meyer (first design), second level plan, 1925 (courtesy Praeger/Greenwood Press, Inc.).

curs throughout much of Le Corbusier's *oeuvre*, forming a complex lattice of design indices that were integral to his form-generating process.⁹

The work of more recent syntactic architects such as Peter Eisenman offers a more extended exploration of these design procedures. In Eisenman's House VI, for example, the series of diagrams document an intricate staging of sequential transformations in which each design phase provides information that is carried forward to the next, so that any point of the series establishes a cross-reference to previous design acts and can concurrently direct how one might further proceed, evolving an architecture that in a sense makes itself (Figure 14). The resulting building is an index or archeological trace of the generating process both in terms of actual relationships that certain conditions exhibit found in earlier diagrams, and in general, by the lack of design closure that could not have been achieved without going through such a transformational procedure. One should note here that the transformations, while not initiated by the traditional programmatic/site influences that lead to further degrees of design resolution, are neither arbitrary nor accidental. In this case, and in other investigations, the designer has preconceived an arsenal of formal rules or mechanisms based on semantic operations, such as shift, invert, rotate, contract, extend, subdivide, solidify, extract, and slice, which evolve both overall fields of geometric orders described by planar, volumetric, or columnar systems of subdivisions, and particular form fragments within these systems. In the case of House VI, "the object not only became the end result of its own generative history but re-



13b. Le Corbusier, Villa Stein, third level plan, 1926-1927 (courtesy, Praeger/Greenwood Press, Inc.).



14. Peter Eisenman, House VI, elevation diagrams (courtesy, Oxford University Press).

tained [my italics] this history, serving as a complete record of it, process and product beginning to become interchangeable.”¹⁰

Perhaps the most useful notion of interpreting architecture as a form of index is the implication of creating specific references to aspects of a building’s context. One must be careful here to not confuse this with theories related to contextualism, in which buildings are designed to relate sensitively to their surroundings and complete spatial implications generated by the patterns of the existing context. Indexical references differ in that rather than offering a local response to perceived orders directly related to the site, relationships might be established to other physical implications either beyond the limits of immediate perception, or they might provide clarification of irregular or unknown conditions impossible to comprehend without reference to a known constant. The building thus becomes absolutely dependent on remote or invisible characteristics of a context to complete itself and acquire formal resolution. Another potential is for architecture to take on a more assertive, didactic role, in which the building itself can become a kind of signifier or informing agent about the nature of the context, and through the architecture one achieves a greater understanding of the context than could have been attained prior to the building’s intervention.

One possibility for this form of cross-referencing between architecture and context is the ability of the building to clarify certain larger characteristics of the city’s pattern that could not easily be perceived otherwise. One form of clarification involves establishing a known constant or datum that is placed in opposition to that which

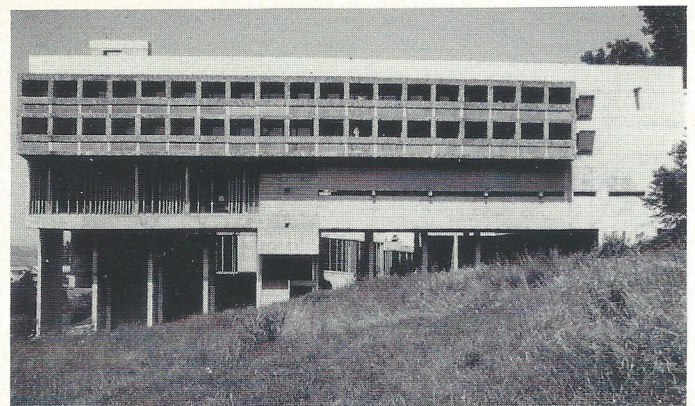
varies, or is less structured. The Winkelgebouwen Ter Meulen department store (1950) in Rotterdam designed by Van den Broek and Bakema, for instance, is an attempt to clarify the obtuse corner of its particular site in terms of its variance from the normative 90 degree grid of the city (Figure 15). While a portion of the lower level conforms to and reinforces the form of the street, two of the levels are articulated from the mass to form a true 90 degree corner. The fracturing of the building’s corner into both the ideal and the circumstantial relationship to the street allows one to perceive and understand the true nature of the atypical condition of that particular portion of the city grid. Thus, the building becomes an index or marker of the characteristics of its site that can now be more clearly understood and measured by the observer.

Another example of architecture performing as a form of “measuring device” or agent of clarification is Le Corbusier’s Monastery of La Tourette (Figure 16). In this case, the building again dialectically performs as a datum, or constant reference, that establishes a clear opposition to the variability of natural order (not unlike Serra’s “Shift,” previously discussed). The absolute horizontal plane of the upper levels hovering above the hill allows us to observe and measure more clearly the natural fluctuation of the topography, perhaps in a more focused way than if the building did not exist.

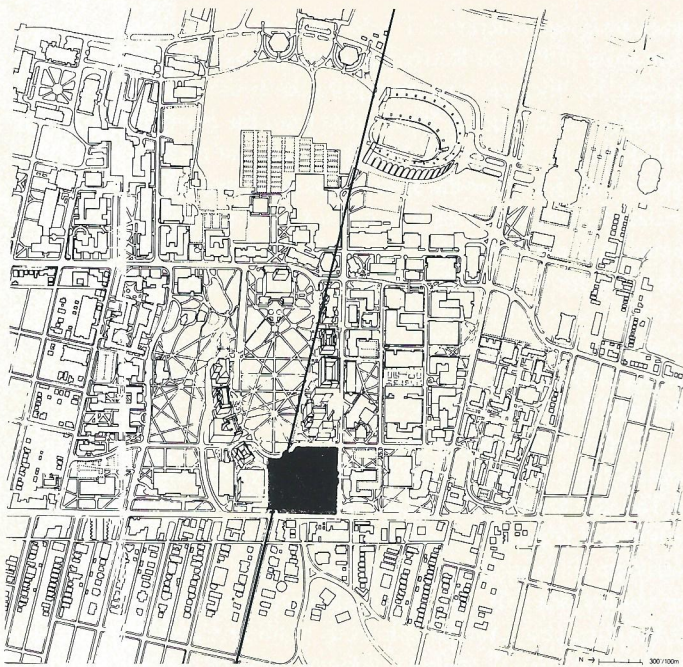
Possibly the most comprehensive example of establishing contingencies between local and remote contextual information occurs in Eisenman’s recently completed Wexner Center for the Visual Arts. Almost any component in the project seems to refer to or be caused



15. Van den Broek & Bakema, Winkelgebouwen Ter Meulen, Rotterdam, 1950 (from *Nederlandse Architectuur* [Argus, Amsterdam, 1956]).



16. Le Corbusier, Convent of La Tourette, Eveaux-sur-Arbresle, south elevation, 1956–1957.



17. Eisenman Architects, Wexner Center for the Visual Arts, context plan (courtesy, Eisenman Architects).

by other conditions both internal and external to its site boundaries. Reading these references also allows one to draw distinctions between information relative to contextualism, as well as symbolic and indexical signs. For instance, contextualist connections are developed through the building's direct relationship to the two adjacent grids of the town and university: the town subdivision determines the orientation of the circulation spine, while the field primarily assigned to programmed spaces and surrounding landscape is shifted 12 1/2 degrees to coincide with the Ohio State campus plan (Figure 17). The mounding of grassed plinths defined by sandstone walls, however, is a *symbolic* reference to the Indian mounds existing throughout Ohio, as the gridded landscape must be interpreted as an open sign that does not establish a physical connection to any specific Indian mound form. Also symbolic is the axis through the campus perpendicular to the building spine, which by being tangential to the oval and aligned to the football stadium, refers to a ritualistic journey, i.e., the processional route connecting fraternity row to the stadium.

One can, on the other hand, also perceive this same axis to have an *indexical* relationship to the flight path of planes and the airport runway some miles away, as both exactly coincide in their alignment, and can be visually cross-referenced to the physical evidence of paving and tower fragments defining the axis. An even clearer physical rela-

tionship to a referent occurs by the shift in the landscape grid, which directly refers to the Greenville Trace, the break in the Ohio subdivision caused when two land companies, starting their surveys in opposite directions, failed to meet exactly due to error caused by the earth's curvature.

Eisenman also exposes the historic traces of the old foundation walls that indexically refer to the actual form of the previous armory that stood on the building site, as opposed to the changed location of the abstracted built towers, an intended dissimulation of the original building. Finally, a number of cross-references internal to the gridded structure exist in both plan and section, which become displaced and restated as shadows of other built orders—once again, indices of the overall process of form derivation.¹¹ In the end, little of the building stands alone as an autonomous statement; by being conceived essentially as a fragmented conduit cross-referenced to *other* contextual information, both local and remote, past and present, the building achieves resolution only through its inextricable physical ties to those external causes.

The above examples, and the notion of index in general, suggest a reevaluation of certain conventions concerning the generation of form and the interpretation of built artifacts. Architectural synthesis has often been conceived as a clean, linear process of design, irrevocably leading to a final built form, all based upon the purity and strength of the *parti*, an independent vision of absolute, completed order that must be held intact, despite all of the complexities of the problem that might suggest otherwise. Nonsupportive information about site, culture, program, structure, and other factors must be submerged, if not completely silenced, for the *parti* to retain its clarity and mastery. Architecture as index suggests a far more complex, interactive process of formal derivation. An indexical process implies a cross-referencing to various conditions, some supportive, some conflicting, in a shifting, nonlinear evolution, referring to other levels of meaning, contextual implications, processes of construction, or spatial orders that are assembled on to an emerging interactive construct. Any final design is simply a snapshot of an open design continuum that can refer back to earlier stages of development or could be further elaborated and transformed if the problem warranted.

If the predominant mode of interpreting meaning in architecture has been through the study of symbol, narrative and linguistic codes, and other types of discourse all based on the representation of cultural content, it is clear that architecture can also convey content through nonrepresentational means. But by whatever mode of interpretation, what is most important is to increase our ability to unlock architecture's full capacity to be referential at all levels, both within its internal formal development and through the dialogue established outside its boundaries. An architecture of index suggests a theory of

connections, whereby buildings exist as a physical contingency to that which lies beyond, referenced to both their physical and cultural context, temporally grounded to both past and future conditions, and informed by the processes of their own making.

Notes

1. Many theorists have investigated these issues; among the more influential are Robert Venturi, *Learning From Las Vegas* (MIT Press, Cambridge, MA, 1972); Charles Jencks and George Baird, *Meaning in Architecture* (Braziller, New York, 1970); Christian Norberg Schulz, *Meaning in Western Architecture* (Praeger, New York, 1975); and Geoffrey Broadbent et al., eds., *Sign, Symbols and Architecture* (Wiley Press, New York, 1980).

2. Just a few of the early statements of what has by now become a familiar litany would include: Peter Blake, *Form Follows Fiasco: Why Modern Architecture Hasn't Worked* (Little, Brown, Boston, 1977); Brent Brolin, *The Failure of Modern Architecture* (Van Nostrand Reinhold Co., New York, 1976); and Charles Jencks, *The Language of Post Modern Architecture* (Rizzoli, New York, 1977).

3. One of the more thorough examinations of the nature of index and symbol is found in C.S. Peirce, "Logic as Semiotic: The Theory of Signs," from *Philosophic Writings of Peirce* (Dover, New York, 1955).

4. Rosalind Krauss, "Notes on Index: Seventies Art in America," *October* 3 (1977): 70.

5. For further discussion on the interpretation of signs, see Umberto Eco, *Semiotics and the Philosophy of Language* (Indiana University Press, Bloomington, 1984), pp. 43-45.

6. Krauss, op cit., p. 75.

7. This notion of structural indexing is certainly not confined to Kahn, as it perhaps could be said to be one of the paradigms of the Modern Movement in general. One should also examine much of the early work of Frank Lloyd Wright to trace some of the initial investigation of these ideas, in particular, the cross-referencing between plan and massing of the Martin House (1904), the Larking Building (1903), and other works of this period.

8. Max Risselada, ed., *Raumplan Versus Plan Libre* (Rizzoli, New York, 1988), pp. 61, 112, 113.

9. Stanislaus von Moos, *Le Corbusier: Elements of a Synthesis* (MIT Press, Cambridge, MA, 1979).

10. Peter Eisenman, "Misreading," from Eisenman, *House of Cards* (Oxford University Press, New York, 1987), pp. 178, 181.

11. The particular usage of the terms "dissimulation" and "shadows," as well as other insights, are based on Eisenman's discussion of the project in a lecture given at Cooper Union on 13 December 1989.