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Louis Kahn's Indian Institute of Management's Courtyard: Form versus Function

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The courtyard form was fundamental to Louis Kahn's institutional architecture. From the Trenton bathhouses and the Salk Institute laboratories to the Exeter library and the Yale Center for British Arts, he created buildings whose focus was situated at their center rather than at their edges and whose courtyards doubled as places of community and contemplation. It is not possible, however, to draw a straight line through these commissions, as the organization of the first two was far less complex than those of their successors. Kahn learned only slowly to design courtyards in which functional considerations would not overwhelm or obscure his search for archetypal forms. In particular, the ways in which he mined a largely unsuccessful early experiment in courtyard planning, the school building of the Indian Institute of Management, in the far more celebrated courts of the Exeter library and the Yale Center for British Arts illustrates this progression from a focus on the individual pieces to an understanding of the power of the whole. A close examination of this process sheds light on the obstacles involved in his rejection of the highly flexible plans characteristic of such contemporaries as Alvar Aalto, in favor of the beaux arts–influenced geometry that he reinjected into the mainstream of twentieth-century architecture.

TWO EXCELLENT RECENT STUDIES OF THE ARchitecture of Louis Kahn by Patricia Cummings Loud and by Peter Kohane have focused on the architect's approach to two individual building types: the museum and the library.[1] In this article, I would like, by looking primarily at the courtyards in five buildings designed to serve different functions—especially the school building of the Indian Institute of Management in Ahmadabad, India—to turn away from issues of type to a consideration of form, in particular of forms that might fulfill Kahn's ongoing quest for general solutions to the issue of the character of institutions, solutions that would transcend the particularity of their uses. This is particularly important because it is this aspect of his work that is most unlike that of most of his contemporaries, and because of the way it can be traced through his design process.

Such a study also reveals the constant tension in Kahn's own thought process between a humanistic understanding of community and visions of sublime spaces. The first was something he often discussed in lectures and in conversations with his clients. He found the second harder to put into words and conveyed it only obliquely even in his drawings, but it is this quality that makes his courtyards so poignant. This personal dilemma, which contributed to his difficulty in satisfying pragmatic and, in particular, parsimonious clients, reflected the larger fault line within the architecture of the Modern Movement in the quarter century after World War II. Torn between the style's antihierarchical origins and its new role housing the institutions of powerful establishments, architects asked whether modernism and monumentality could be brought together, and if so, then how? An analysis of Kahn's courtyards provides one way of understanding his answer and its relationship to the solutions reached by his contemporaries.

Like most architects educated during the twenties, Kahn was trained in the compositional traditions established in the eighteenth and nineteenth centuries at the École des Beaux-Arts in Paris and disseminated by its graduates to architecture schools around the world, rather than in the alternatives to this system being developed at such radical new institutions as the Bauhaus in Germany and Vhetumas in Moscow. Courtyards and other centralized spaces were an important component of the carefully developed hierarchy of axially disposed spaces favored by the French academic tradition. Enclosed entrance, central, and stair halls, as well as the open courtyards through which light entered into their inner recesses, were, even more than classical ornament, fundamental to the civic and institutional architecture sponsored by the liberal, bourgeois state (or those that at least wished to appear liberal and bourgeois) after the French Revolution, including the very building types—the museum, the library, and the university—which Kahn would later be called on to reinvent.[2]

The importance of courtyards faded with the rise of the Modern Movement. Nowhere is this shift more obvious than in Walter Gropius and Adolf Meyer's Dessau Bauhaus, which opened in 1926 (Figure 1). As seen from the air, its pinwheel plan is resolutely antihierarchical and even unmonumental. Instead, Gropius and Meyer exploited the degree to which they could use individual functions—studios, dormitories, and classrooms—to generate a variety of elevations. Influenced as well by abstract painting, especially de Stijl and constructivism, this kind of planning relied upon the compositional talents of each architect who employed it to create fresh alternatives to what had become academic clichés.[3] Furthermore, in contrast to the continued popularity of neoclassical state architecture through the thirties, the freedom from the load-bearing wall made possible by skeletal construction in steel and concrete seemed uniquely democratic, especially after its adoption in Scandinavia, Britain, and the United States.

Kahn's placement of courtyards at the center of the inward-oriented bathhouses for the Jewish Community Center in Trenton, New Jersey, which he designed in 1955, and the laboratories of the Salk Institute for Biological Studies in La Jolla, California, completed a decade later, distinguished these buildings from the dominant fashion for open planning set by the Bauhaus.[4] Furthermore, their radically deemphasized and unusually austere facades were completely different from the emphasis many other ar-

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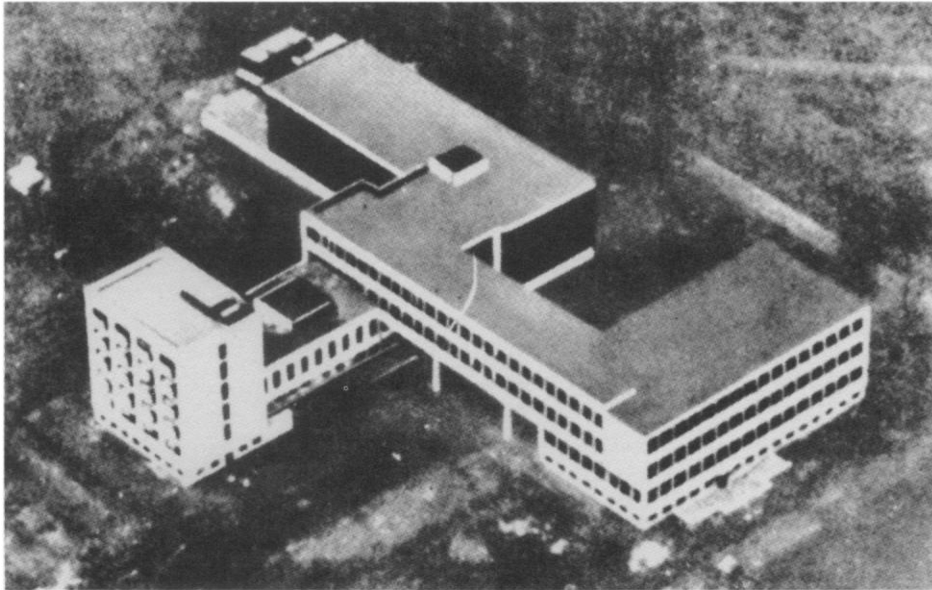
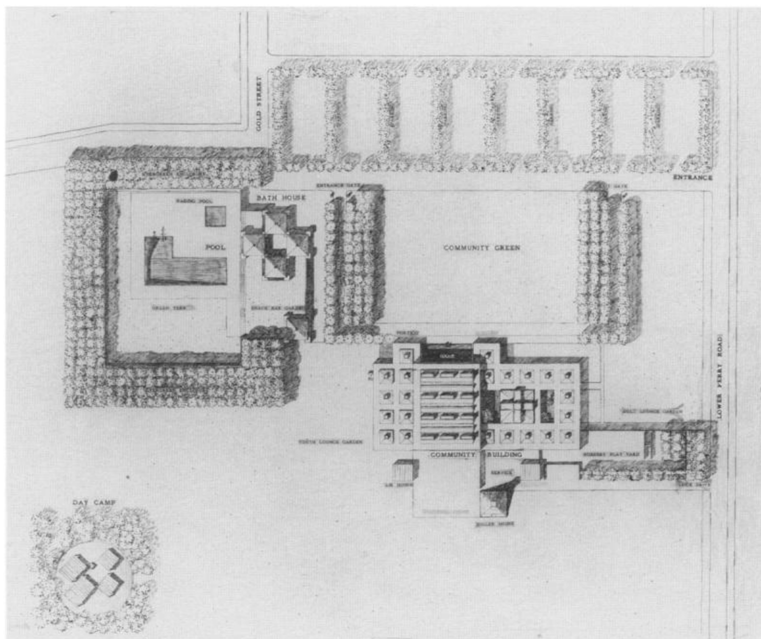


1. Walter Gropius and Adolf Meyer, Bauhaus, Dessau, Germany, 1926. (L. Benevolo, *History of the City* [Cambridge, MA: MIT Press, 1980]), p. 849.



2. Louis Kahn, preliminary site plan, Jewish Community Center, Trenton, New Jersey, 1954–1959. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)

chitects placed during these same years on compelling exterior form. The facades left the court as the only possible focus for the expression of institutional identity. Yet little about the design process of these buildings prepares us for the far more complex organization of functions around the Exeter and Yale courtyards.

Kahn conceived the Trenton bathhouses, his first important centrally organized building, as a fragment of a larger whole that was never built (Figure 2). He intended to contrast the rigid symmetry of the pavilion's four pyramidally roofed spaces, axially disposed around an open court, with the more flexible arrangement of similar modules in the main community center.[5] The image of this isolated piece had an enormous impact, however, in part because seen alone it suggested a return to geometrical absolutes at a time when much contemporary architecture was even less rigidly organized than the Bauhaus had been. Denied the chance to complete the community center, Kahn left the elaboration of its more irregular aspects to the many other architects, including Aldo van Eyck and Charles Correa, who built clusters of bathhouse-like modules in the years that followed.[6]

The courtyard at the center of the Salk Institute laboratories, too, was originally almost incidental to Kahn's understanding of this commission, although it became its most memorable space. At Salk, the architect did not yet have to address the complex mix of functions set around a central space that would complicate the design process in the Indian Institute of Management school building. Salk acquired its centralized focus only slowly, and indeed to some degree by default; the meeting house, which would have overshadowed the laboratory's blank facades, was never built, due in part to the budget problems that dogged Kahn's overly ambitious designs

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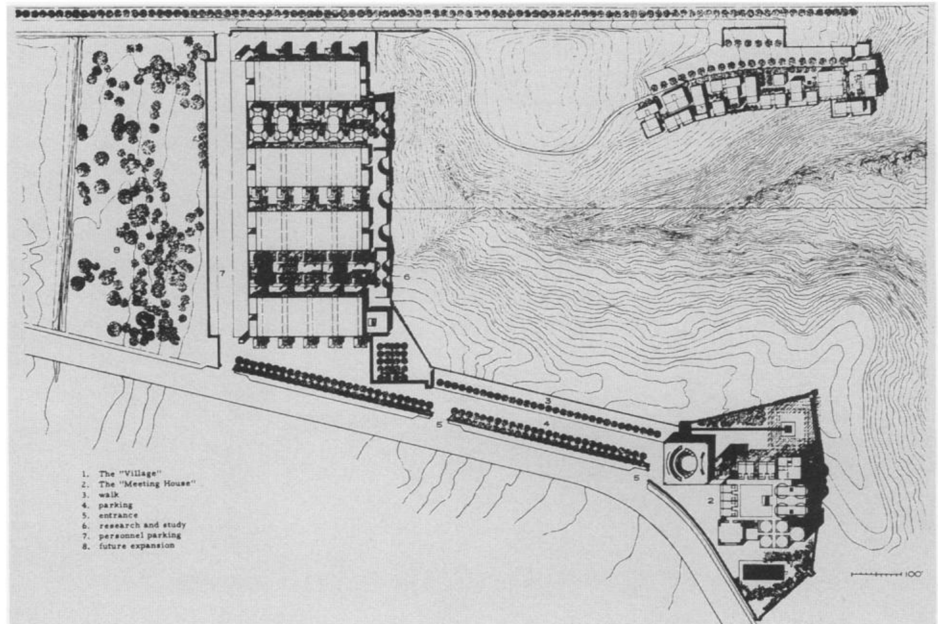
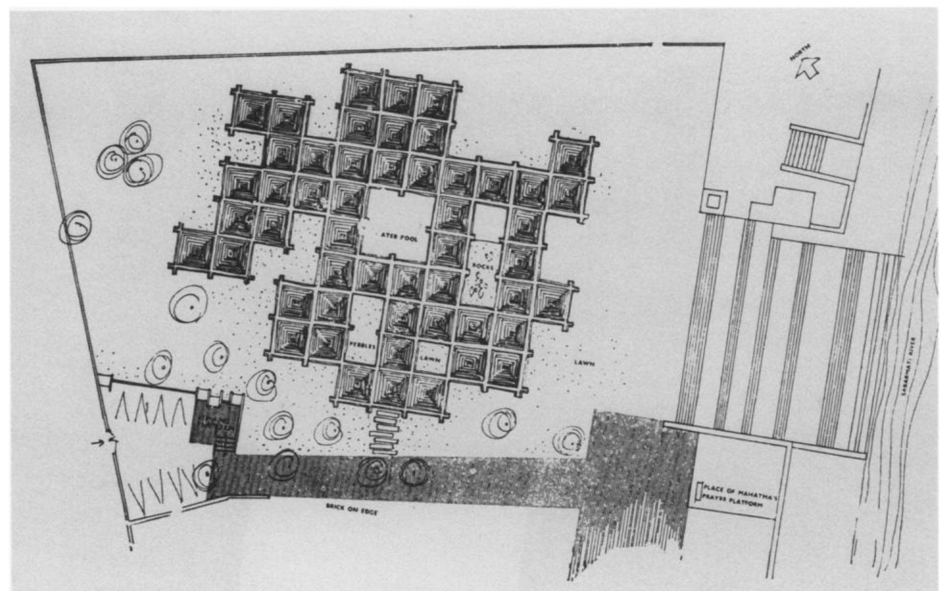
throughout his career. His initial plan featured four laboratory blocks with a variety of open spaces between them (Figure 3). Even after halving this number late in the design process, he continued to include two lines of trees in his drawings of the space.[7] Only with their elimination did the space finally acquire the prominence it has today.

The stone-paved area between the two laboratory blocks is a highly unusual courtyard, as only two of its four sides are actually defined architecturally. Until recently, a grove of trees to the east buffered the end of the laboratories from the parking lot; the fourth and most magnificent edge is the horizon line separating the Pacific Ocean from the sky. This spectacular setting left Kahn free to design symmetrical, but extraordinarily complex facades to the north and south. Jagged office towers float free from the solid mass of the laboratories to create solitary little islands of thought perched high above the calm of the court itself. It is an arrangement that could not possibly be duplicated in any other setting; its success depends on the breathing space provided by the open-ended ocean view. In the future, Kahn, unable to borrow from nature, would have to rely entirely on his architectural imagination to shape the almost mystical places that were now expected of him. This was a task he would first face in the design of the school building of the Indian Institute of Management.

We must return to Correa's astonishingly early and sensitive adaptation of the Trenton bathhouses to understand why Kahn received this commission and why the school building was eventually organized around a courtyard. Correa's Gandhi Memorial Museum, or Gandhi Smarak Sangrahalaya, designed in 1957 to 1958 and constructed between 1960 and 1962, stands on the grounds of Mahatma Gandhi's ashram in Ahmadabad, India (Figure 4). It



3. Kahn, master plan, Salk Institute for Biological Studies, La Jolla, California, circa 1961. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)



4. Charles Correa, Gandhi Memorial Museum, Ahmadabad, India, 1960–1962 (*L'Architecture d'aujourd'hui* 140 [November 1968]), p. 32.

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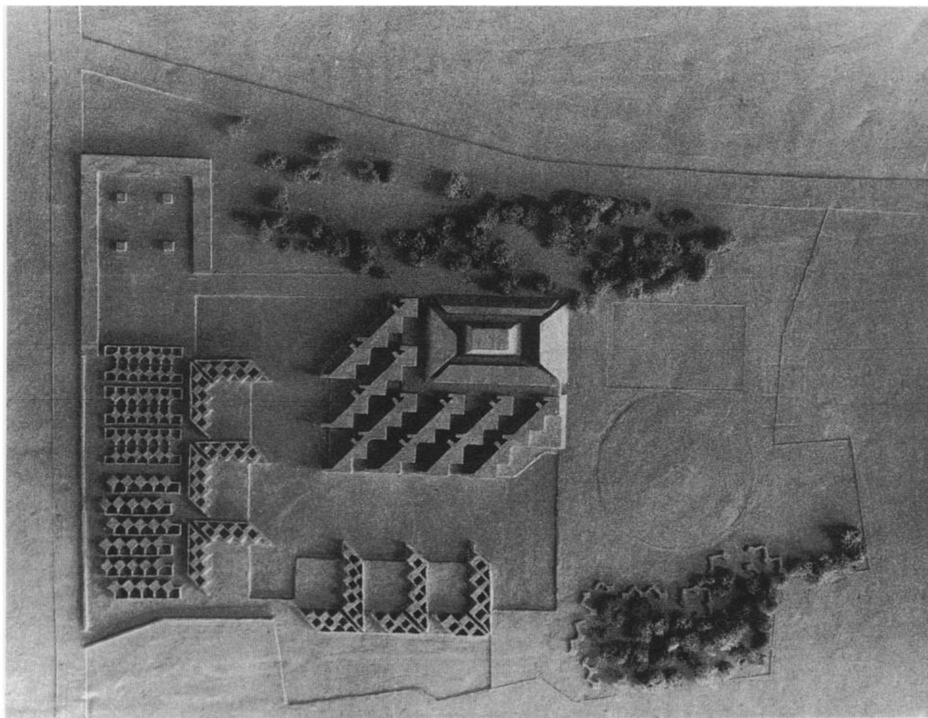

5. Kahn, plan view of site model, Indian Institute of Management Ahmedabad, India, 1963. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)

was quickly recognized in India as one of the country's most important recent buildings by both advocates and opponents of western influence, all of whom admired Correa's low-key arrangement of nearly identical walled and unwalled square pavilions grouped around intimate open courtyards, the largest of which was filled with a shallow pool of water.[8] In particular, the complete absence of pretension and the uncomplicated use of concrete, brick, and tile seemed appropriate to Gandhi's own character and to the neighboring ashram buildings in which he had lived and worked. This success must have helped inspire Balkrishna Doshi, Ahmadabad's other ambitious young architect, to turn from his own mentor, Le Corbusier, toward Kahn.[9] After first enticing Kahn to enter the competition to design the new state capital of Gandhinagar, he turned the commission he had been offered to design the Indian Institute of Management over to the older American architect.[10]

The Indian Institute of Management (IIM) is best known for the most imposing aspect of the commission: the series of dormitories in which Kahn combined picturesque memories of Roman ruins with visions of geometric purity inspired by the drawings of French neoclassicists like Louis-Etienne Boullée and Claude-Nicolas Ledoux.[11] Asked by his clients to build in labor-intensive brick with only a minimum of reinforced concrete for floor slabs and tie beams to fulfill their goals of low-cost, labor-intensive construction, he resorted to an almost scaleless grandeur quite unlike the intimacy of Correa's Gandhi Museum.[12] Although he discussed the dormitories in terms of their plan and, specifically, the need to create spaces for informal gathering, as little as a quarter of their space responded directly to program, and the cost of constructing them did much to slow the erection of the rest of the campus.[13]

Kahn also designed faculty and servant housing, a water tower, and a school building for the institute, working intermittently on the commission from 1962 until his death twelve years later. The ground breaking for the school building took place only in 1967, a year after the first completed dormitories were first published.[14] In contrast to the relatively speedy design and construction of the dormitories and of the faculty housing, a taut reworking of Le Corbusier's Maisons Jaoul, the design process of the school building often seemed interminable. The program called for classrooms, a library, faculty and administrative offices, a dining hall, and a kitchen. It was the most complex assortment of uses that the architect had yet addressed, and the scale of the entire campus exceeded that of any of his other commissions except, of course, for Sher-e-Bangla Nagar, the capital of Bangladesh.[15]

In the school building, Kahn's understanding of institutions, his sense of order, and his expressed desire to be faithful to both function and construction jostled against each other rather than galvanizing to produce a consistent whole. He drew twenty-two versions of the building between 1963 and 1969; it was another three years before construction proceeded far enough to eliminate tinkering with the final version. Yet from this struggle, he learned to strike the balance between form and function, and between community and monumentality, that so delights the visitor to Exeter and Yale. Earlier, the courtyard had represented only one of a number of alternatives for him. Through his struggle with

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the design of the school building, it emerged as the preeminent expression of his philosophy of prototypical form.

In an early scheme for the school building, drawn and modeled in March 1963, Kahn conceived of it as a rectangle and four surrounding trapezoids, each separated from the others by narrow passageways (Figure 5). A number of his designs from the late fifties, including the 1956 library project for Washington University in Saint Louis, anticipated the stepped elevations of this scheme.[16] He took this ziggurat motif one step further at the Indian Institute of Management, where he originally intended the building to have battered, sloping walls. In each of the successive versions of this scheme the abstract geometry of the whole was further eroded by function until the underlying organization became almost undetectable.

A memo in an unrecognized hand from the summer of 1963 states, "Remove library from central space and substitute an open court."[17] Although the design problems, including the placement of the remaining diagonal axes, remained similar, the tenor of the building and of Kahn's design philosophy changed dramatically with the introduction of the courtyard. The ziggurat and the pyramid, the shapes invoked in his initial scheme for the building, are basic forms of religious and funerary architecture that demonstrate the power of their builders to make a mark on the landscape. The courtyard, also popular in many cultures from around the world, gives a focus to the community it shelters. Turning quietly inward, rather than aggressively outward, came to seem to Kahn especially appropriate for institutional commissions. The challenge would now be to infuse the courtyard with the awesomeness so easily achieved with the monolithic forms he had now rejected.

The choice of Kahn and his client of a courtyard plan for the school building was certainly influenced by his earlier mapping out of the campus site plan as a succession of three-sided courtyards strung along diagonal axes (Figure 5). During his first visit to Ahmadabad, the institute's building committee undoubtedly told him of their desire to model the curriculum and their building on those of the Harvard Business School in Cambridge, Massachusetts, where two large and four small courtyards, several open on one side, flank a central lawn.[18] In October 1964, the architect credited this arrangement's influence on the organization of the IIM site: "The plan came from my feelings of monastery. The idea of the seminar classroom and its meaning of 'to learn' extended to the dormitory comes from the Harvard Business School."[19]

The Harvard Business School, Harvard houses, Yale colleges, Princeton dormitories, and University of Pennsylvania quadrangle—the buildings that were most likely responsible for Kahn's image of academic architecture when he began work on IIM—were all designed in the first four decades of the twentieth century, often by men whose training, like Kahn's, was in the beaux-arts tradition. The variety of picturesque styles they employed seldom masked the rational order of their plans.[20] All were inspired as well by British university architecture, which had also conditioned its Indian successors.[21] Characteristically, Kahn, who always sought the philosophical essence and geometric abstraction of the thing he was designing, turned not to this model or to its recently updated adaptation by Eero Saarinen for Samuel Morse and Ezra Stiles Colleges at Yale, but to the monastic type on which both ultimately depended.[22]

Although Kahn's planning could easily be identified with classical and medieval European traditions, courtyards organized into repetitive modules are in no way unique to western architectural traditions. Kahn's patrons were familiar with stepwells and mosques in Ahmadabad and nearby Sarkej which offered the American architect outstanding examples of well-disciplined courtyard compositions (Figure 6).[23] By completely abstracting his references to the monasteries that had inspired him, Kahn allowed his buildings to participate as well in these local traditions. This was particularly important because Doshi had brought Kahn to Ahmadabad as much to aid in the education of young Indian architects as to design a superb building.[24]

Kahn, however, was not initially able to match the unified plans and elevations of his Indian predecessors. In the school building, his desire to give individual expression to the varied functions surrounding the courtyard often diverted his attention from the central space. Throughout the design process he was particularly apt to experiment with the light wells and exterior features of the blocks of faculty offices, independently of their relationship to the courtyard.[25] These difficulties are clearly apparent in a 1963 design (Figure 7). Here the shape of the office blocks' light wells, which he described as reverse bay windows, echoes the semicircular form of the classroom seating.[26] The solution, elegant in plan, would have been invisible from the courtyard itself, however, and he abandoned it when he could not easily fit the rectangular offices around the competing curves of the light wells.

When Kahn did turn his attention to the core of the complex, he often focused on the introduction of the asymmetrical stair towers and library, giving almost no consideration in drawings or models to the elevational issues these might pose. In the designs that followed in 1964 and 1965, a diamond-shaped library block, hidden from

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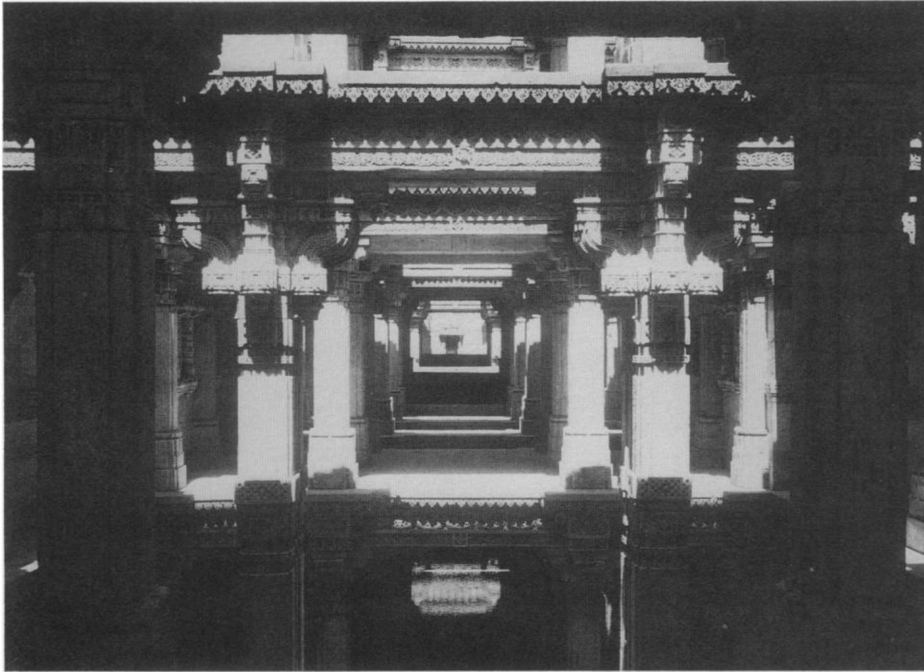
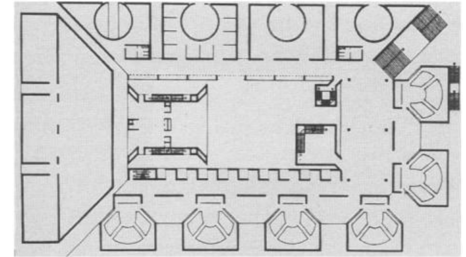
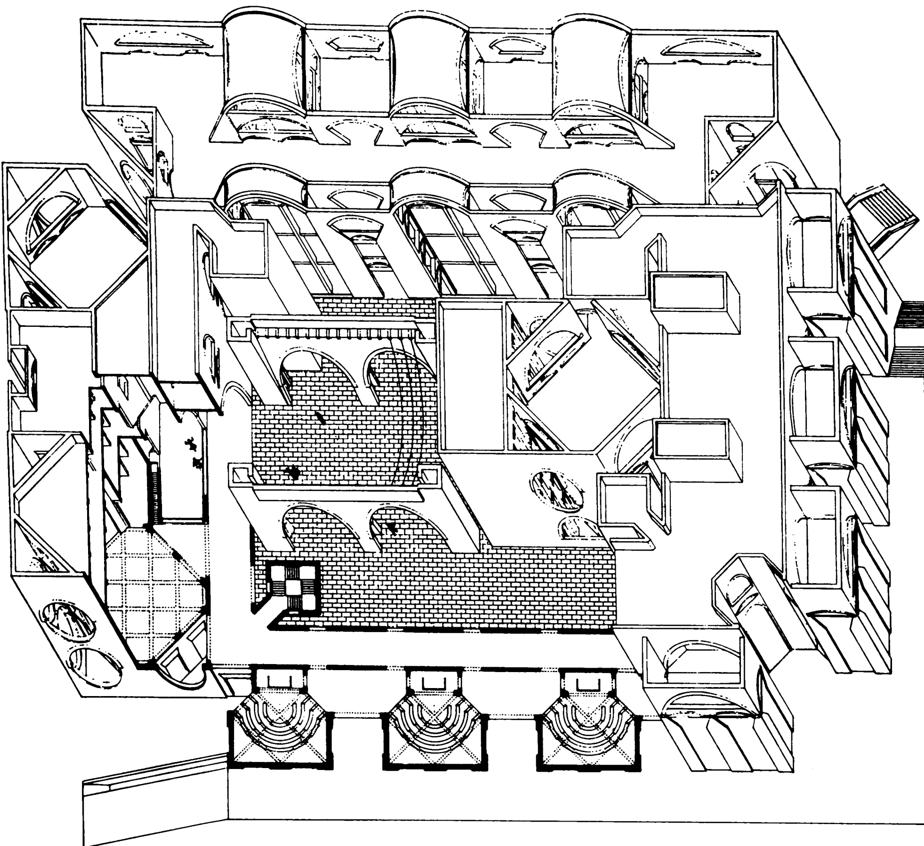


6. Stepwell, Adalaj, India, fourteenth century. (Klaus Herdeg, *Formal Structure in Indian Architecture* [New York: Rizzoli, 1990]), p. 14.



7. Kahn, schematic plan, classroom building, IIM, 1963. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)



8. Kahn, schematic axonometric, classroom building, IIM, 1964. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)

the courtyard by a screen wall, dominated the plan of the entrance and of the court (Figure 8). His patrons rejected this scheme, the most fully realized to date, because it exceeded the square footage they required—and thus their budgets—by 50 percent.[27] In a series of drawings made in June 1966, Kahn revised the relationship between the library and the eastern end of the courtyard *before* turning to the issue of its interior plan the following year. The rectilinear character of this design never extended, however, to the elevations of the classroom block, which retained the texture and scale so carefully established in 1965 (Figure 9).

To the frustration of his client, Kahn never fully conquered the ambiguities of these schemes. Finally, in April 1969 more than six years after the architect's initial proposal for the building, Kasturbhai Lalbhai, the chairman of the institute's board, threatened to take the commission from him.[28] Although Kahn salvaged his association with the Institute, Anant Raje, who had been involved with the project from its inception, was largely responsible for transforming Kahn's sketches and models into a finished building.[29] Unable to find enough guidance in Kahn's unfinished designs for the dining hall and kitchen proposed for one end of the court, Raje built his own dining facilities on a separate site, leaving the court open.

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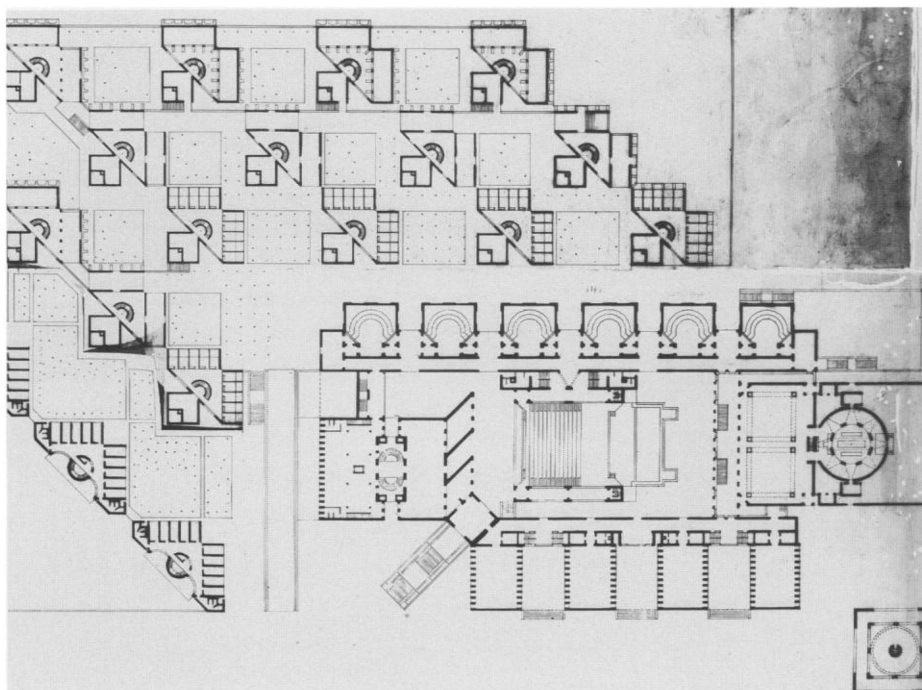
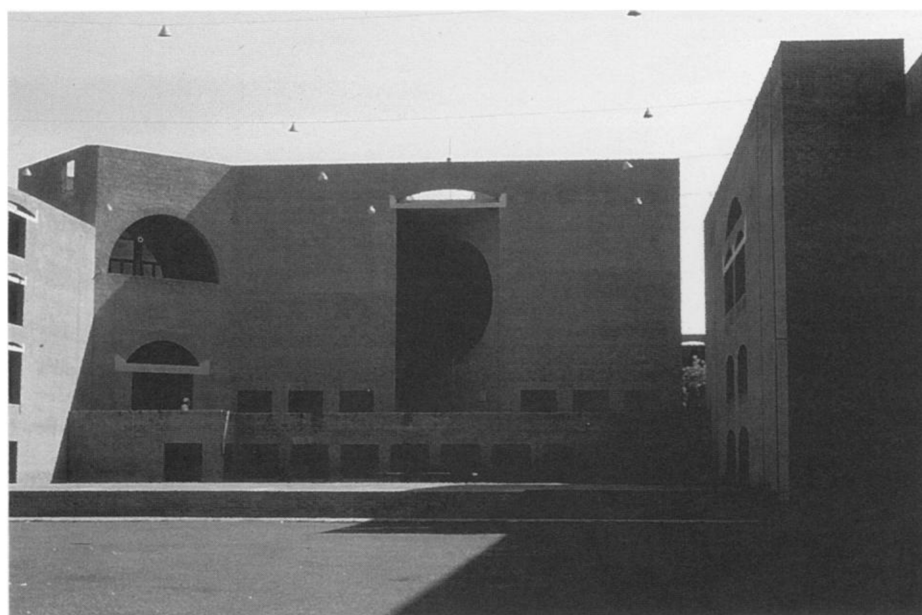
As built, the school building remains unresolved (Figure 10). The courtyard, the proper focus of the entire campus, is compromised by the meager scale of most of its details, their apparently random placement on its facades, and the way in which the circulation system encourages visitors to walk around, rather than through, the plaza. The discontinuity in the number and placement of the surrounding classrooms and offices is in part screened by these hallways and by the elevations themselves, but their two external facades remain asymmetrical in both plan and elevation. The library facade is also asymmetrical, but here the grand gesture lacking on the flanks, the half circle cut out above the jointed entrance, and the whole circle cut into the adjacent wall, unify the composition. From the shadowed hallways that skirt the plaza the building's users glimpse the lawn beyond only furtively.

At first impression, the stately, abstract, and thus universalizing forms into which Kahn shaped his IIM buildings mask the tensions that give the complex so much of its character, and undermine the success of the school building. Two dialogues—between the specificity of function and the generality of purpose, between the harsh Indian light and the dark core of the campus's buildings—are responsible for the best and worst in this large project: the drastic overbuilding in which the architect stressed transitional zones over interiors, and the skeleton of hallways, poised between light and shadow, that connect the places with defined uses. Here, in a realm in which architecture overpowers the community building that Kahn identified as his goal, we are diverted from the courtyard and enter the sublime.

In the late sixties, as Kahn increasingly lost interest in the Indian Institute of Management, he turned his attention instead to buildings in which he could more



9. Kahn, plan, classroom building and dormitories, IIM, 1969. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)



10. Kahn, courtyard, classroom building, IIM. (Photograph by the author.)

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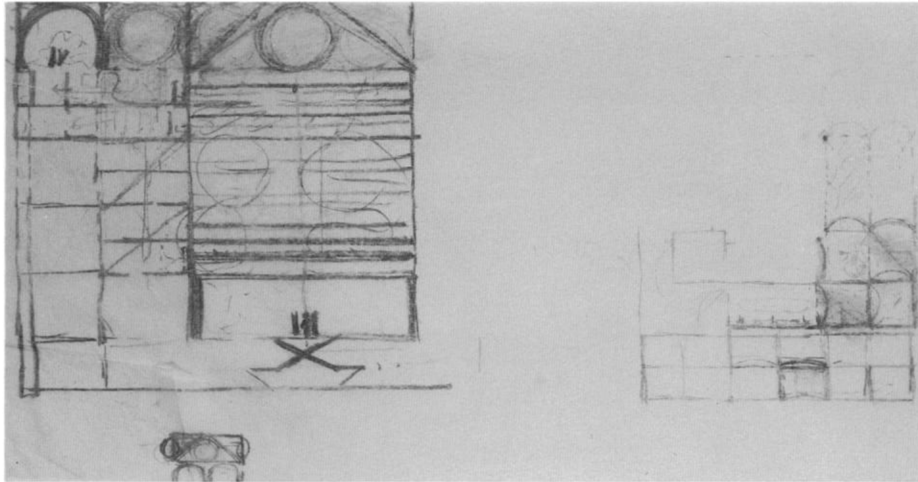
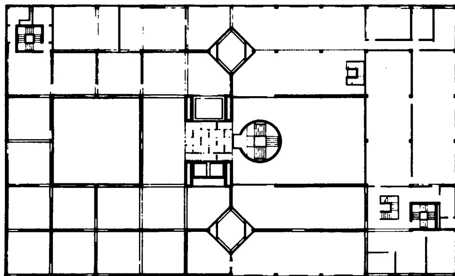


11. Kahn, schematic section, library, Phillips Exeter Academy, Exeter, New Hampshire, 1966. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)



12. Kahn, third floor plan, Yale Center for British Arts and British Studies, New Haven, Connecticut, 1969–1974. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)

easily solve the problems posed by the school building, most notably the Exeter library, designed and built between 1966 and 1971. The brick vocabulary of this commission is fundamentally the child of his Indian buildings, especially the dormitories. There are also major differences, however. At Exeter, for instance, he subdued the grandeur of the best of his Indian facades, saving the drama, complete with circular cutouts, for the interior.[30] In addition, although the tightly organized plan of the library emerged from early sketches similar to those for the school building, he was careful to subordinate any expression of function to the overall geometry of the design. This can be seen especially clearly on the main floor, where he unified the appearance of the circulation and reference desks and the card catalog by capping them with identical cutouts. Although he worked out the school building by struggling almost exclusively with its plan, his drawings for the library include many quick studies of entire interior elevations (Figure 11).[31] Only through employing a range of representational strategies was he fully able to unify the Exeter court.

It is possible at Exeter, as in the Ahmadabad school building, to avoid the central court entirely, but few who enter the library, even those who use it daily, choose to deny themselves the opportunity to stride across its travertine floors, gaze at the imposing quartet of circular cutouts, and perhaps hazard a glimpse upward to see the way the light strikes the concrete cross brace suspended terrifyingly just under the roof. The subdued but varied choice of materials helps to animate the highly centralized composition, and the intimate breadth of the space balances its dramatic height. Dedicated largely to ceremony, the court is unreservedly at the heart of the building, its grandeur unchallenged by the orderly, but much more private, successive rings of aisles, book stacks, and reader's carrels that surround it.

The connections between the IIM school building and the Yale Center for British Arts, which Kahn began to design in 1969, are more subtle. Like its concrete-framed, metal-clad facade, the building's double courtyard plan is at first glance remote from the Ahmadabad model (Figure 12). Indeed, this organizational strategy, which had a distinguished history in museum design, was in part the brainchild of Jules Prown, the museum's first director.[32] It is precisely this plan, however, that enabled the architect to address properly the idea of variety that was posed in such a troubling manner in the school building. He now knew better than always to organize all elements of such a diverse program around a single central volume. Avoiding another of the school building's flaws, the visitor to the museum is compelled to traverse the entrance courtyard to gain access to the rest of the building and upstairs galleries open directly onto both the courts. This eliminates the circulation spaces that are necessary and

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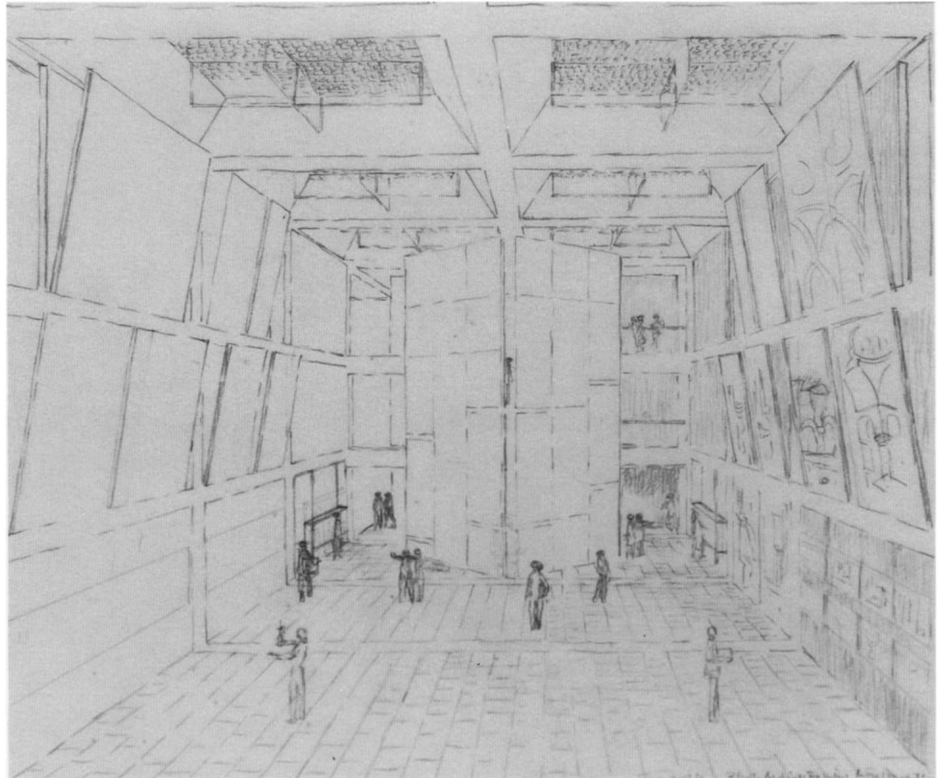
successful at Exeter but in Ahmadabad help to keep people on the fringes of the court, rather than in its center.

Turning to the design process, we find that Kahn's repertoire had grown yet again. Perspective sketches as well as section drawings of the two courts, similar to those he drew for Exeter, supplemented the plans to which he largely limited himself while working out the design for the school building (Figure 13).[33] The perspectives, in particular, emphasize the individual's experience of the space over the diagrammatic qualities stressed in the plans. In a final acknowledgment of the school building's importance to him, a drawing of the penultimate version of the library court shows a diamond-shaped stair tower penetrating the rectangular volume in a manner clearly indebted to early designs for the school building's library (Figure 8).[34]

In the final design for the Yale Center for British Arts, it is only the invasion of this courtyard by the cylindrical volume of the stair tower that introduces an emphatically monumental, indeed almost threatening, note. The museum's facades are as understated as the elevations of the courtyard and the galleries. All provide a quiet, but never banal, background for the stately portraits and bucolic landscapes displayed within. Filtered carefully through the skylights, daylight too no longer overpowers visitors in its contrast with secluded corners, but instead washes gently across oak and fabric-paneled walls.[35] Here, especially when chamber music wafts upward from the library court into the galleries, the architecture fulfills the promise of its inward focus, creating a sanctuary in which visitors can peacefully turn their attention to the art while sensing a community with others who would do the same.

Ideally, a Kahn courtyard is a place to which we come to be oriented intellectually as well as literally. Book stacks at Exeter and galleries at Yale are clearly visible, whereas corridors veiled the Indian Institute of Management's classrooms and offices. Far more than fostering the casual conversations between community members to which the architect often referred in his own discussions of these buildings, Kahn's greatest courtyards are formal settings that intentionally awe the individual. The circular cutouts of the two libraries are windows through which the knowledge housed within is tantalizingly glimpsed; their enormous scale also reminds us of how much greater than we ourselves that accumulation of wisdom is. There is no room here for self-confident ownership; we remain always humble and meditative students.



13. Kahn, schematic perspective, Yale Center for British Arts and British Studies. (Copyright 1977, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission.)

Kahn's task in all five of these commissions was to create an emphatically modern institutional architecture that is free, for instance, of historicist ornament. To this end, he also made prominent use of twentieth-century materials like reinforced concrete. In the Exeter library and the Yale museum, he also openly displayed a good deal of the buildings' mechanical systems. At the same time, however, he sought to imbue this modernity with a sense of timelessness and permanence that transcended mere fashion—an ambition that was substantially furthered by his use of the courtyard form.[36]

Kahn's attitude was in no way unique. Alvar Aalto, Le Corbusier, and Eero Saarinen, all faced similar issues in the first

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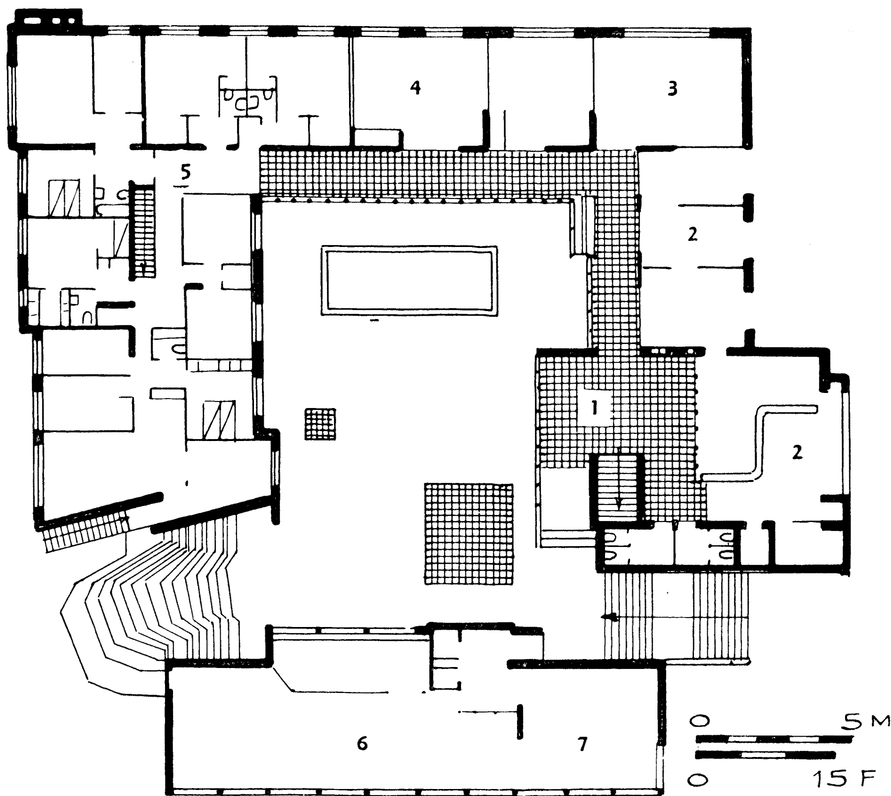
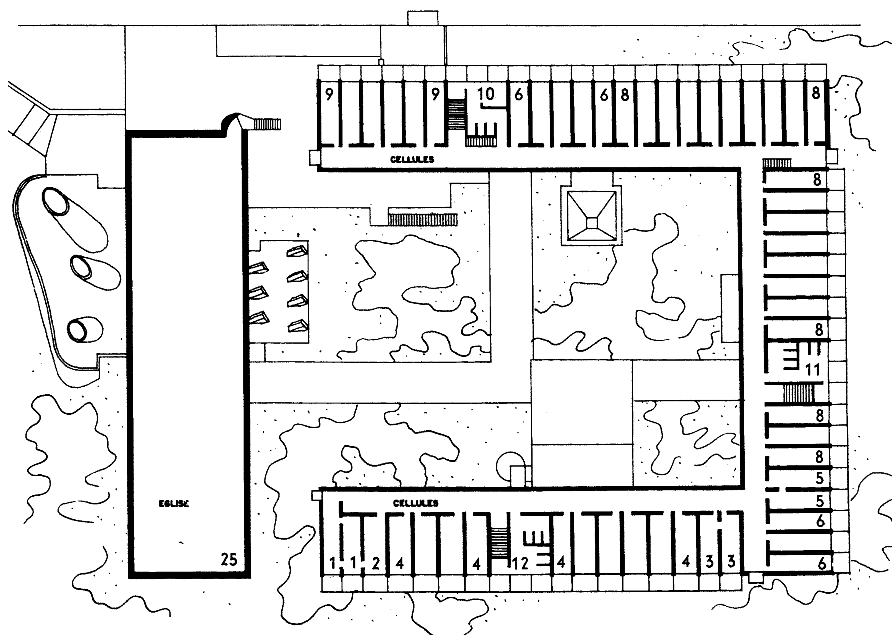


14. Alvar Aalto, plan, town hall, Säynätsalo, Finland, 1950. (*Architectural Review* 723 [April 1957]), p. 249.



15. Le Corbusier, plan, monastery, La Tourette, France, 1952–1960. (Willy Boesiger, ed., *Le Corbusier and his studio rue de Sevres 35: The Complete Architectural Works*, vol. 6 [London: Thames and Hudson, 1957]), p. 45. (© Artists Rights Society [ARS] NY/SPADEM, Paris.)

two decades after World War II, and each resorted at least once to the courtyard to resolve them. Aalto's town hall for Säynätsalo, Le Corbusier's monastery at La Tourette, and Saarinen's Morse and Stiles Colleges at Yale remain, however, quite distinct both from one another and from Kahn's courtyards, although all four men shared the conviction that modern architecture should move beyond industrial imagery to dignify enduring issues of human activity and institutions with an appropriately understated grandeur.[37]

The Säynätsalo town hall, designed between 1948 and 1950, was the earliest of these buildings; La Tourette was the most influential, albeit more for its rugged facades than for its court. Recalling an Italian piazza rather than neoclassical civic architecture, Aalto's town hall works very differently from Kahn's courtyards, which it precedes.[38] As the plan of the complex makes clear, Aalto, unlike Kahn, did not feel compelled to find a single organizing geometry: instead, he created subtle variety that was not necessarily called for by the rather uncomplicated program (Figure 14). Both stairs to the raised court enter it off-axis, and one cascades down with a sculptural irregularity entirely foreign to Kahn. A single door leads into the corridor that runs around two sides of the court. The ebb and flow of this area are controlled by a rectilinear discipline that defines the more tightly bounded rear section of the court, but even here asymmetry prevails, above all in the deft placement of the pool.

Le Corbusier's monastery at La Tourette, designed and built in southeastern France between 1952 and 1960, offers a second opportunity to judge the uniqueness of Kahn's approach to the courtyard (Figure 15).[39] Although the plan of the building is organized around the existence of this central space, Le Corbusier designed the courtyard itself, studded with architec-

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tural events like the pyramidally roofed chapel, as a place to look into rather than out from. A place of architectural, if not much human, activity (the passageways through it are completely enclosed, as well as lifted above the ground on pilotis), it decisively lacks the meditative character fostered by its medieval precursors. With such busyness at its core, the monk's studied calm is instead encouraged in relation to the external landscape, an exact reversal of Kahn's Salk Institute. It is these same edges, seen from without, that carry the expression of monumentality that the monastery shares, for instance, with the courtyard facades of the Exeter library.

In comparison with these courtyards, as well as Saarinen's, Kahn's are distinguished by the rigid absoluteness of their rectilinear boundaries, eroded neither by function nor by whimsy. Also unique is their degree of architectural elaboration when measured against the blankness of their external facades. Kahn's courtyards dignified the communal, and especially the individual, experiences of those who entered his buildings, which he believed to be more important than the creation of the monumental public imagery so important to Le Corbusier, in particular, during these years. Indeed, one of the merits of Kahn's courtyards is the degree to which they encourage a sense of community, not from serving as the casual meeting places that he often described them as becoming, but because those who use them frequently share a delight and wonder in their mutual familiarity with what they often describe as an almost mystical atmosphere.

Kahn achieved such powerful solutions only through rigorously subordinating the varied function of individual institutions to the design of each courtyard, a process that he mastered slowly and one that also hindered the expression of building type. The difficulties he had in designing the school building of the Indian Institute of Management around such a courtyard reveal at least as much about the issues he faced in the creation of these places as do his more successful courtyard spaces in the United States. In the aftermath of Kahn's courts, the geometric abstraction of both their plans and their elevations became more important to a whole generation of architects from around the world (including Tadeo Ando, Mario Botta, and Aldo Rossi) than the functionalism of the Modern Movement. However, like Aalto, Le Corbusier, and Saarinen before them, they were seldom willing to save their most dramatic gestures for the more private interiors of their buildings. In the end, it is this generosity toward the smaller audience that uses rather than merely views his buildings, and the stimulus his courtyards provide that audience with, that sets Kahn's architecture apart from so much else that has been built in the twentieth century and harks most clearly back to the character of both his Indian and his medieval European sources.

Acknowledgments

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Notes

1. Patricia Cummings Loud, *The Art Museums of Louis I. Kahn* (Durham, NC: Duke University Press, 1989); and Peter Kohane, "Louis I. Kahn and the Library: Genesis and Expression of Form," *Via* 10(1990):99–131.

2. David Van Zanten, "Architectural Composition at the École des Beaux-Arts from Charles Percier to Charles Garnier," in Arthur Drexler, ed., *The Architecture of the École des Beaux-Arts* (New York: Museum of Modern Art, 1977), pp. 110–323.

3. One of the best discussions of these aspects of the Bauhaus plan remains Siegfried Gideon, *Space, Time and Architecture* (Cambridge, MA: Harvard University Press, 1949), pp. 423–28.

4. Susan G. Solomon, "Jewish Community Center," and Daniel S. Friedman, "Salk Institute for Biological Studies," both in David Brownlee and David De Long, eds., *Louis I. Kahn: In the Realm of Architecture* (New York: Rizzoli, 1991), pp. 318–23 and 330–39.

5. Solomon, "Jewish Community Center," p. 320, figure 428. See *The Louis I. Kahn Archives: Personal Drawings* (New York: Garland, 1987), pp. i, 382, for evidence of Kahn's plan to employ a pyramidal roofing system in the Community Center similar to the one he had designed for the bathhouses.

6. The bathhouse was originally published in Louis Kahn, "Order of Movement and Renewal of the City," *Perspecta* 4(1957):621.

7. *Personal Drawings,* pp. ii, 47, 49, 50, 86, and 87, document Kahn's early thoughts about the landscaping.

8. Early publications of this building include "Gandhi Dmarak Sangrahalaya," *Indian Institute of Architects Journal* 17 (Apr.–June 1963): 26–33; *Marg* 17 (Dec. 1963): 59–63; *World Architecture* 3 (1966): 10–33, and *L'architecture d'aujourd'hui* 39 (Oct.–Nov. 1968): 32–33.

9. Doshi had worked in Le Corbusier's office in Paris and moved to Ahmadabad to supervise construction of the Swiss architect's buildings there. See William J.R. Curtis, *Balkrishna Doshi: An Architecture for India* (New York: Rizzoli, 1988), pp. 12–14.

10. See Letters, Balkrishna Doshi to Louis I. Kahn, May 26, 1961, LIK Box 66; Doshi to Kahn, Sept. 24, 1963, LIK Box 113; and Kahn to Doshi, Nov. 16, 1962, LIK Box 9, Louis I. Kahn Collection, University of Pennsylvania and Pennsylvania Historical and Museum Commission, Philadelphia [Kahn Collection].

11. Kathleen James, "Indian Institute of Management," in Brownlee and De Long, eds., *Louis I. Kahn,* pp. 368–73. See Kohane, "Louis I. Kahn and the Library," pp. 110–11 for Kahn's interest in Boullée.

12. Like the courtyard planning that they would soon insist on, this choice, described by Kahn in a 1974 interview published in Richard Saul Wurman, *What Will Be Always Has Been: The Words of Louis I. Kahn* (New York: Access Press, 1986), p. 252, and by Anant Raje in an interview with the author on Dec. 20, 1986, reflects a turn away from the

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functional and technological orientation of modern architecture in the West. Kahn claimed to have created a composite order out of ancient Roman and modern reinforced concrete construction. See Heinz Ronner, Sharad Jhavari, and Alessandro Vasello, *Louis I. Kahn: Complete Illustrated Works, 1935–1974,* 2d ed. (Boston, Birkhauser Verlag, 1987), p. 230.

13. For Kahn's own description of their plan, see Louis I. Kahn, "Remarks," *Perspecta* 9–10 (1965): 322; and Wurman, *What Will Be Always Has Been,* p. 253, which again quotes the 1974 interview.

14. James Bailey, "Kahn in India: An Old Order on a New Scale," *Architectural Forum* 125 (July–Aug. 1966): 39–45.

15. The congruences between the design processes these two enormous commissions for the subcontinent have yet to be fully explored. For the design history of the Bangladeshi project, see Peter S. Reed, "Sher-e-Bangla Nagar; Capital of Bangladesh," in Brownlee and De Long, eds., *Louis I. Kahn,* pp. 374–83.

16. Kohane, "Louis I. Kahn and the Library," pp. 103–6; and Ronner, Jhavari, and Vasello, *Louis I. Kahn,* pp. 94–97.

17. Memo, n.d. (Summer 1963), "National Institute of Design," Box LIK 113, Kahn Collection.

18. For the architecture of the Harvard Business School, designed by the firm of McKim, Mead, and White in 1926, see Bainbridge Bunting, *Harvard: An Architectural History* (Cambridge, MA: Harvard University Press, 1985), pp. 207–9. I am also grateful to Joshua Mack for sharing with me an unpublished paper he wrote for a 1992 seminar at the Institute of Fine Arts, New York University, which includes an extended discussion of the relationship between IIM and Harvard, and Kahn's awareness of it.

19. Kahn, "Remarks," p. 322.

20. Paul Turner, *Campus: An American Planning Tradition* (Cambridge, MA: Architectural History Foundation, 1984), pp. 215–48.

21. For instance, Sir William Emerson's Muir College in Allahabad, as described in Philip Davies, *Splendours of the Raj: British Architecture in India, 1660–1947* (London: John Murray, 1985), p. 188; and Swinton Jacob's St. John's College in Agra, cited in Jan Morris, *Stones of Empire: The Buildings of the Raj* (Oxford: Oxford University Press, 1983), p. 104.

22. For Salk's monastic component, see Friedman, "Salk Institute for Biological Studies," who describes the client's interest in Asissi. Morse and Stiles Colleges were published in "Saarinen," *Perspecta* 7 (1961): 29–42; "Saarninen Colleges *in situ* at Yale," *Progressive Architecture* 43 (Nov. 1962): 57–60; and "New and Old at Yale," *Architectural Record* 132 (Dec. 1962): 93–100.

23. For the architecture of Ahmadabad and the surrounding area, see Klaus Herdeg, *Formal Structures in Indian Architecture* (New York: Rizzoli, 1990), 8–15, 22–30; and George Michell, *The Penguin Guide to the Monuments of India* (Harmondsworth: Penguin, 1990), vol. 1, pp. 276–78, and vol. 2, pp. 335–47. See also Curtis, *Doshi,* p. 20, on the influence of India's Islamic architecture on Kahn.

24. Kahn was not originally the architect of record, for instance. That position was assumed by the National Institute of Design, where Doshi was teaching architecture at the time. Kahn was credited as the assistant architect when the campus was published in "Indian Institute of Management, Ahmadabad," *Marg* 20 (June 1967):32.

25. *Personal Drawings,* pp. iv, 56, 63, 65, 67.

26. Kahn, "Remarks," p. 324.

27. Letter, Kasturbhai Lalbhai to Kahn, Sept. 3, 1965, Box LIK 113, Kahn Collection.

28. Letters, Lalbhai to Kahn, Apr. 18 and 29, 1969, Box LIK 113, Kahn Collection.

29. Anant Raje, interview with the author, Dec. 20, 1986.

30. Indeed, a primary criticism of the building has always been the low-key character of these facades (see, for example, William H. Jordy, "Kimbell Art Museum, Fort Worth, Texas; Library, Phillips Exeter Academy, Exeter, New Hampshire," *Architectural Review* 155 [1974]:333), which, as Peter Kohane makes clear, was partly a product of budget considerations. (Kohane, "Library and Dining Hall, Phillips Exeter Academy," in Brownlee and De Long, "Louis I. Kahn and the Library," pp. 390–95.) The continuity between the four facades is, however, very different from the situation in Ahmadabad where the treatment of the exteriors of the classroom and faculty office blocks not only are quite different, but date to different stages of the project's development.

31. *Personal Drawings,* pp. iv, 427, 429–30.

32. Loud, *Art Museums of Louis I. Kahn,* pp. 174, 214.

33. *Personal Drawings,* pp. vi, 490, 555–60.

34. This element originated in Kahn's Eleanor Donnelly Erdman Dormitories at Bryn Mawr College in Bryn Mawr, Pennsylvania, designed and built between 1960 and 1965.

35. For more details of the lighting, see Jules Prown, *The Architecture of the Yale Center for British Art* (New Haven, CT: Yale University Press, 1982).

36. For further analyses of the role of these themes in his architecture, see Sarah Ksiazek, "Architectural Culture in the Fifties: Louis Kahn and the National Assembly Complex in Dhaka," *Journal of the Society of Architectural Historians* 52 (1993): 416–35.

37. This attitude, minus the emphasis on grandeur, was also shared by a number of architects in Europe. See Alison Smithson, ed., *Team X Primer* (Cambridge, MA: MIT Press, 1968).

38. Malcolm Quantrill, *Alvar Aalto: A Critical Study* (London: Secker and Warburg, 1983), pp. 128–34; and Gören Schildt, *Alvar Aalto: The Mature Years* (New York: Rizzoli, 1991), pp. 139, 157–61.

39. Willy Boesiger, ed., *Le Corbusier: Oeuvre Complète, 1957–1960* (Zurich: Les Editions d'Architecture, 1965), pp. 32–53.

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