To End a Continent

The Courtyard of the Salk Institute

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The scientist, snugly isolated from all other mentalities, needed more than anything the presence of the immeasurable, which is the realm of the artist.

Louis Kahn, *Louis I. Kahn: Talks with Students*

Few visitors to the courtyard of the Salk Institute remain unmoved by its tranquil dignity and powerful thrust to the sea (Figure 1). In its deft combination of openness and closure, simplicity and richness, and elegant and poor materials, the Salk complex, like the architecture of the Japanese tea ceremony, elevates "refined poverty" to an art form.[1] It is above all the courtyard's very power to *condense* seeming oppositions and conflicts within the simplest of spatial structures that produces its initial and lingering effects. As a totality, this concrete, stone, and wooden construction in La Jolla, California, effectively supports the endeavors of the biological research institution it serves while offering a fitting conclusion to a continent and a frame for the Pacific Ocean beyond.[2]

Since the completion of the courtyard in 1966 (and its landscape a year or two later), various legends have attached to its design. While rumor assigns its creation to the noted Mexican architect Luis Barragán, this attribution is fallacious. Louis Kahn did consult with Barragán on the design, but only well after the principal elements of the scheme had been determined. In other ways, however, Barragán's contribution was hardly negligible, even if it was one of affirmation rather than creative conception. A third party, landscape architect Lawrence Halprin, also played a part in the story of the Salk environment, although his studies for the court were largely left unrealized, and his interventions were confined for the most part to the greater landscape that extends and supports the central building grouping. The scope of this essay, therefore, is not to retell the entire story of the design of the Salk Institute—which has been well recounted in numerous publications—but to focus on that powerful hollow between the blocks: that void lined with concrete, paved with travertine, and roofed by the changing skies.

The Client

Dr. Jonas Salk has been justly credited with the development of the first vaccine to counter the germination of poliomyelitis. The disease had run rampant in the early years of the twentieth century, and in the immediate postwar period various outbreaks—particularly in the summer months—had instigated a near panic, at first in urban centers and then in the rapidly expanding American suburbs. Accepting an appointment in 1947 to the University of Pittsburgh Medical School, Salk had hoped to cultivate a vaccine against influenza. But profiting from an opportunity provided by the National Foundation for Infantile Paralysis, he spent eight years devising and refining a vaccine against polio. His success was announced on 12 April 1955 and acknowledged worldwide soon thereafter.[3]

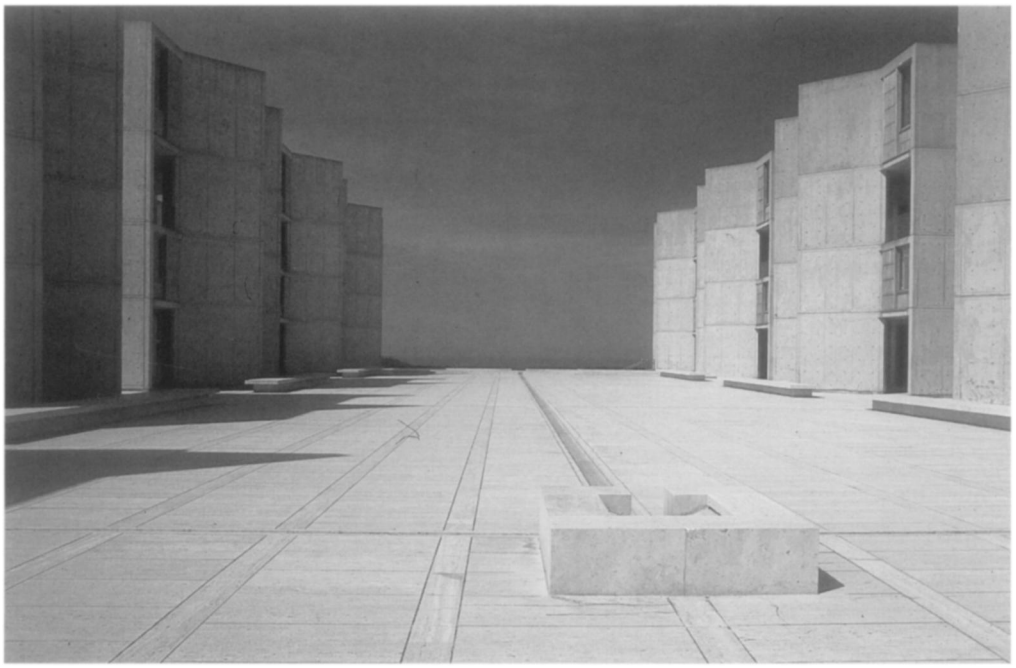


Figure 1 Louis Kahn, Salk Institute, Torrey Pines (La Jolla), California, 1965, courtyard, view west

The achievement of the polio vaccine placed Salk squarely at the forefront of medical research, allowing him access to considerable funding. His vision was to create a research institution in Southern California that would tackle a range of basic scientific issues facing medical science and human health rather than being devoted to any single task. "I also saw the fundamental studies in biology to help give us the basic background on which to understand the problems of cancer, for example, or immune disease. . . . I also recognized that it would be necessary to address the human dimension as well, appreciating how much more morbidity and mortality is associated with war, crime, drug abuse, and so forth. And so, I thought that it would be well to consider establishing an institution that would be concerned not merely with nature, but with the human side of nature, not only with the molecular, cellular dimension, but what I call the human dimension."[4] The institution would support a team of people sharing a single vision if not any single voice or method.

On the recommendation of a friend who had heard Kahn speak in Pittsburgh, Salk visited the architect's office late in 1959 to determine how best to choose a designer for a new building. Impressed with Kahn's approach to architecture and abstract thinking, the selection process ended there. "Salk foresaw a facility that would both support scientific research and foster the exchange of ideas between scientists and cultural leaders," wrote David Brownlee and David De Long; the building would serve as a vehicle for integrating thinking from all fields.[5] Artistic practice and scientific method alike relied on creativity and the one could benefit from the other. Indicatively, Salk told Kahn: "There is one thing I would like to be able to accomplish. I would like to invite Picasso to the laboratory."[6] In another context, late in life he stated: "I also felt the need myself to lead a double life, you might say, because of my dual interests in nature and the human side of nature, my interests in science, and I see myself as having some artistic and philosophical inclinations. And I tried to create a place for people like myself. I didn't find too many who fit those specifications, so to speak, but a great many who liked being here, and who I think have been strongly influenced by their interactions that take place."[7] Conversely, he also discussed with the architect his love of the Franciscan monastery at Assisi, and echoes of that Umbrian religious complex reverberate, however softly, in the communal open space, the rhythmic modulation of the institute's two principal buildings, and the tinge of monasticism suggested by the cell-like studies of the resident scientists.[8]

Kahn's vision well matched Salk's ambition, though for Kahn architecture created where science discovered: "Science finds what is already there, but the artist makes that which is not there."[9] By the time of the Salk commission, the architect had begun to veer from more rigorous modernist essays such as the Yale University Art Gallery addition (1953) to an architecture amalgamating a classical temperament with the modular structuring of postwar modernism. His success in mixing the solidarity of the block and the intricacy of the component, while harkening back to

aspects of part and whole that characterized classical architectural design, was nearly unique for its time—at least in the United States. The result was the sense of timeless modernity that has qualified Kahn's place in architectural history. The Salk complex vividly represents this turn, its sense of profundity enriching the more directly modern structural frame and towers of Kahn's Richards Medical Research Building in Philadelphia (1965).

From conversation and correspondence with Salk—who had initiated discussions before determining any specific program or space assignments—Kahn conceived the program as embracing research laboratories, office and administrative spaces, housing, and a meeting hall. "The first thing that is done is the rewriting of the program," Kahn told a group of attentive students in 1969. "Now this must be accompanied by something which interprets it. Your program alone would not mean anything because you are dealing with spaces. So you would send back your sketches which encompass your thought about what the nature of it is. Invariably, more spaces are required because every program written by a non-architect is bound to be a copy of some other . . . building."[10] Site planning and conceptualization ensued. Kahn's first response sprawled the buildings in clumps across the oceanfront site north of La Jolla proper, in an area called Torrey Pines after the indigenous species *Pinus torreyana*.[11] The meeting house, with its mixed program, assembled its spaces in a manner that distantly recalled the Maritime Theater at Hadrian's Villa in Tivoli, while the fellows' residences assumed a less formal aspect in plan and stepped with the topography. But that was only the first proposal. The scheme would change drastically during the years of design, ultimately taking the form of two laboratory blocks with a courtyard between them. The meeting house and residential wing would remain unrealized due to lack of economic resources.[12]

Consulting

Those buildings were well under construction, yet despite the late date Kahn still harbored doubts about the design of the landscape and the courtyards. The landscape planning began with Kahn. The names of Philadelphia landscape architect Harriet Patterson and consulting San Diego landscape architect Roland Hoyt appear on several site plans but their precise contributions, if any, are undocumented. There is no evidence of Patterson's work in any of the existing drawings; Hoyt is believed to have selected the plant materials, given his mastery of subtropical vegetation.[13] Sometime in 1965, Kahn received (or possibly purchased) a copy of Elizabeth Kassler's *Modern Gardens and the Landscape*, published by the Museum of Modern Art the previous year. MoMA's director, René d'Harnoncourt, had commissioned the book as an independent project, not associated with any of the museum's exhibitions.[14] Apparently d'Harnoncourt, like Munroe Wheeler before him, included landscape architecture within the museum's purview.[15]

Despite the reference in Kassler's title to Christopher Tunnard's pioneering and highly influential *Gardens in the Modern Landscape* (1938), the Kassler text is relatively light.[16] The book is in effect a compendium of projects presented in pictures. Important for the Salk story, however, is a Barragán fountain—reproduced on the cover—and a collaborative commission by Kahn and sculptor Isamu Noguchi for a playground on the Upper West Side of New York (1961–66). The latter ultimately appeared as a series of bronze reliefs prepared by the sculptor for exhibition and could well have been the reason that Kahn came to possess the book.[17] Barragán's fountain graced Plaza del Campanario in the residential development of Las Arboledas, outside Mexico City (1958–63). The photograph appears a second time, in black and white, on the same page as one of Barragán's demonstration gardens of 1949 for El Pedregal and faces a color image of the celebrated *bebedero*, or horse trough, not far from the Plaza del Campanario. The trough is an elevated line of water that in earlier days flowed continually over its bounding edges, creating an elevated recumbent mirror set within an existing allée of eucalyptus trees (Figure 2). The design of the fountain balances the horizontal plane of flowing water against the vertical solidity of a rough-stuccoed wall, which gathers the shadows of the trees on its surface and visually terminates the grand sweep of the approach. Like Kahn at the Salk Institute, Barragán built simply and stoutly.

Taken by Barragán's impressive integration of vegetation and architecture, on about 19 January 1965 Kahn telephoned Barragán from Philadelphia to solicit his participation in making the garden (as it was then known) for the institution, whose construction was rapidly nearing conclusion. Kahn seemed pleased with their discussion and followed the conversation with a letter: "I was very much impressed with your work in the Museum of Modern Art booklet on Landscape Architecture, and feel that your guidance will be of importance for the land development of the canyon site of the Salk Institute for Biological Sciences in La Jolla, near San Diego. I also feel that from the work of yours I have seen, you are in touch with the virility of approach to man's will of shaping ground and planting of shrubs, compared to the way of nature."[18] Thus, from the outset of the project, Kahn dismissed naturalistic plantings, instead seeing the court as an architectonic construction in

Figure 2 Luis Barragán, *bebedero,* or horse trough, at Las Arboledas, Mexico City, Mexico, 1962

which built elements and void were complementary facets of a single entity. (Kahn's conceptual stance—that landscape and architecture should be jointly ordered—created problems when landscape architect Halprin entered the project arena a year or so later.) As Kahn was departing for Pakistan the following day, he explained to Barragán that he would be abroad for about a month but would be sure to follow up this initial contact as soon as time allowed.

Although the Mexican architect seems to have spoken English sufficiently well to converse with his American caller, he did not quite understand just *who* had called him. That full realization came only after he received Kahn's letter and a book on his work (possibly Vincent Scully's monograph[19]) some weeks later. In a letter dated 9 February 1965, Barragán made amends: "I have to confess that, when I talked to you over the phone, I didn't realize exactly to whom I was speaking. My English is rather poor, as you must have noticed—and I didn't understand your name. Now, when I saw your letter and the book, I have to say that I know your work since years by reproductions and to [*sic*] admire it sincerely." He closes by adding, "I even had cut some reproductions out from the magazines and talked often about you and your work with a good friend of mine, the sculptor Mathias Goeritz. In other words: I do consider any collaboration with you as a great honor."[20]

No documentation exists for the following year, but during that interval Kahn traveled to Mexico and visited representative works by Barragán.[21] One doubts that Kahn would have been intrigued by Barragán's own garden—as opposed to his house—which by that time had become somewhat overgrown, except perhaps for its mysticism and sense of solitude. The Barragán garden had been conceived as a simple green space with shrubbery along the periphery; a circumferential path created a sort of ambulatory. A large tree provided its principal feature but whether due to the owner's temperament or benign neglect, over the decades ivy had come to cover its moribund frame. In time, the distinct elements of the garden were transformed into volumes of undifferentiated greenery, perhaps more to be experienced through the living room window than from the outside on foot. Nonetheless, the garden charmed Kahn, who would later describe it in this way: "No paths, no flowers, just wild wind-blown grass. In the clearing is a very large bowl carved out of the same dark hard stone filled to overflowing with water. A source tipped with a rotted splinter of wood breaks the flow of water and each drop as it falls looks like a silver tear making spreading rings of silver falling over the sides of the great bowl wetting all the stones under it. The black stone is the alchemist."[22]

On 8 February 1966, Kahn wrote to Barragán to schedule a meeting on site in La Jolla. The laboratory buildings already stood; the installation of glass and wooden infill panels was proceeding apace and the interior was being fitted out. Construction photographs show that the site grading had produced a substantial mounded platform between the two laboratory blocks (Figure 3). The central areas were left unpaved, as if to receive the bosks of trees proposed from the earliest schemes. The meeting took place on 24 February; attending were Kahn, his project architect Jack MacAllister, Barragán, and Salk. This pivotal session determined the courtyard's fate.

The Biography of the Salk Design

Although the vision of the Salk project was holistic, in the beginning no directives established the institutional structure or guided the division of its spaces. Like Kahn, Salk

Figure 3 Construction of the Salk Institute's laboratory blocks required moving considerable amounts of earth, leaving a flat-topped mound, which become the courtyard

considered the sciences and the humanities a single entity, and felt that the creative impulse that governed them both derived equally from conscious and unconscious thought, from casual meeting and discussion as much as from reading and laboratory investigation. Critical, too, was their common belief that scientists do not work in isolation, that research benefits enormously from personal interchange and a sense of community, and that architecture could allow for personal withdrawal while encouraging participation in the collective hive. In response, Kahn first proposed an institute with three principal elements: the research laboratories, the residences, and the meeting house.

When, in the fall of 1959, the city of San Diego learned of Salk's interest in founding a research institution, it offered to donate land north of the downtown, closer in fact to La Jolla than to San Diego proper. Mayor Charles Dail, who had suffered from polio as a child, was a major supporter of the project and worked enthusiastically for its realization. A public vote supported the mayor's eagerness. With Kahn's consultation, the institute selected a suitable shorefront site on a plateau high above the sea. The city council transferred title to about twenty-seven acres of land to the nascent institute on 26 April 1960.

Comprising a pincer-shaped plot with an arroyo between its two arms, the site opened majestically onto the Pacific Ocean. The vegetation was characteristically Californian chaparral, concentrated in the gullies and slopes, where water runoff assured a secure source of water in all but the driest months of summer. Dense stands of eucalyptus distinguished the eastern perimeter and buffered it from Torrey Pines Road. These were the remnant plantings of the former La Jolla Farms "Black Gold" estate of which the site had once been a part.[23] During World War II, the property was administered by the military as part of Camp Callan; it was later ceded to the city. Its most dramatic feature was the fall of the land, which dropped several hundred feet from the top of the plateau to the waves below. When unhampered by coastal fog, the views were long and startling, the sunsets awe-inspiring.[24] Kahn captured both the lay of the land and the scale of the site in a small sketch made at the time of his first visit in January 1960. In his few lines, clouds and skies equaled in authority terrain and human presence.

The early studies assigned the planned facilities to three principal parcels: the laboratories to the east; the meeting hall near the western limit of the northern arm; and the residences nestled into the opposite ridge to the south.[25] The first scheme, presented on 15 March 1960 at the formal announcement of the institution, concentrated the laboratories in clusters reminiscent of the Richards medical laboratories at the University of Pennsylvania, then reaching completion. At the outset, Salk thought of the institute's scope as embracing research, development, and manufacture, and Kahn's first scheme acknowledged this programmatic zoning.[26] More accustomed to working on constrained urban land, Kahn perhaps had not yet adjusted to the opportunities offered by the open site, and the scheme did little to address the more dramatic aspects of the situation and land-

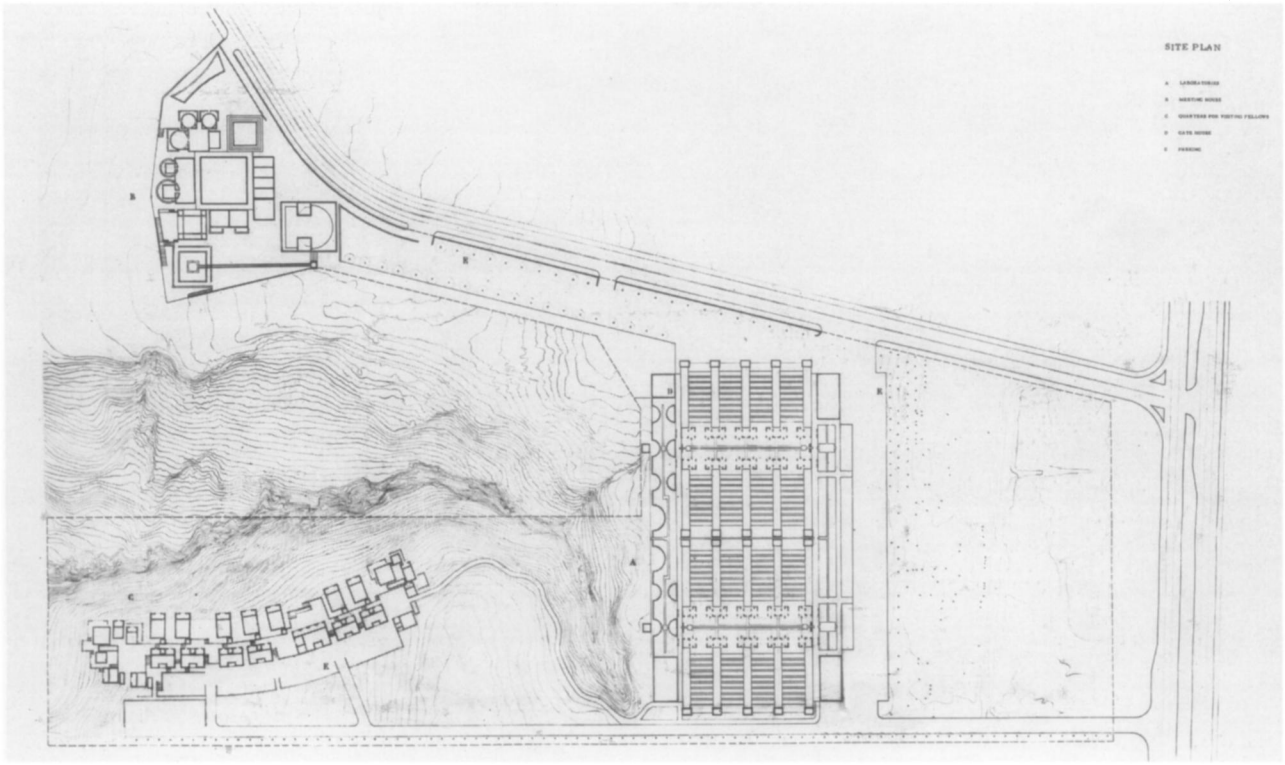


Figure 4 Kahn, Salk Institute, revised site plan showing the four-block, two-courtyard arrangement of the laboratories and offices. A narrow light court divides the pairs. The meeting house complex occupies the north mesa, at the upper left; the residences are situated on the south mesa, at the lower left.

scape, as well as the community that the client envisioned. Salk's criticism of the first scheme led to a rethinking of the laboratories, if not a radical challenging of the tripartite concept. In the second scheme, dating to April 1961, the laboratories were reconceived as four blocks—set east-west—of two stories each, with linear exterior spaces between them treated both as shaded garden areas and as conceptual bridges to link land and sea (Figure 4).

Apparent even in small charcoal studies, Kahn established an architectural treatment for the landscape plantings that would complement and extend the spatial formations of the buildings. Alignments, constrictions, and openings were rigorously set out in a formal geometric manner, emulating in living materials, at small scale, the larger gestures realized in concrete. Central rills, perhaps intended to irrigate the court's vegetation, reinforced the visual trace from land to water. Also suggested within these broad sketches was the zoning of functions characteristic of Kahn's mature work. In a later interview, he addressed the separation of areas for directed or applied thinking from those for freer and more creative work: "I realized that there should be a clean air and stainless steel area, and a rug and oak table area. From this realization form became. I separated studies from the laboratory and placed them over gardens. The garden became the outdoor spaces where one can talk."[27] More developed presentation sketches depict lines with central allées of fastigiate trees—possibly Lombardy poplars or Italian cypresses—that would be used in both the laboratory/administration gardens and those of the residential areas (Figure 5). Smaller spherical trees occupied the periphery and anchored the corners of the space while marking transitions to the greater landscape—one of the key roles assigned to landscape architecture at the Salk.

While muting the brilliance of the sunlight and the hard edges of the architecture, in other respects the proposed plantings were problematic, as Kahn himself would realize and later note. The rows of tall, vertically figured trees—although successful as vehement markers of the axes—rose higher than the laboratories themselves, creating a green wall that divided both the court and the two building blocks (Figure 6). The result was to undermine the coherence of the spaces, albeit in a way formally sympathetic to the architecture. Were the species to be evergreen cypresses, the impact would have been even more pro-

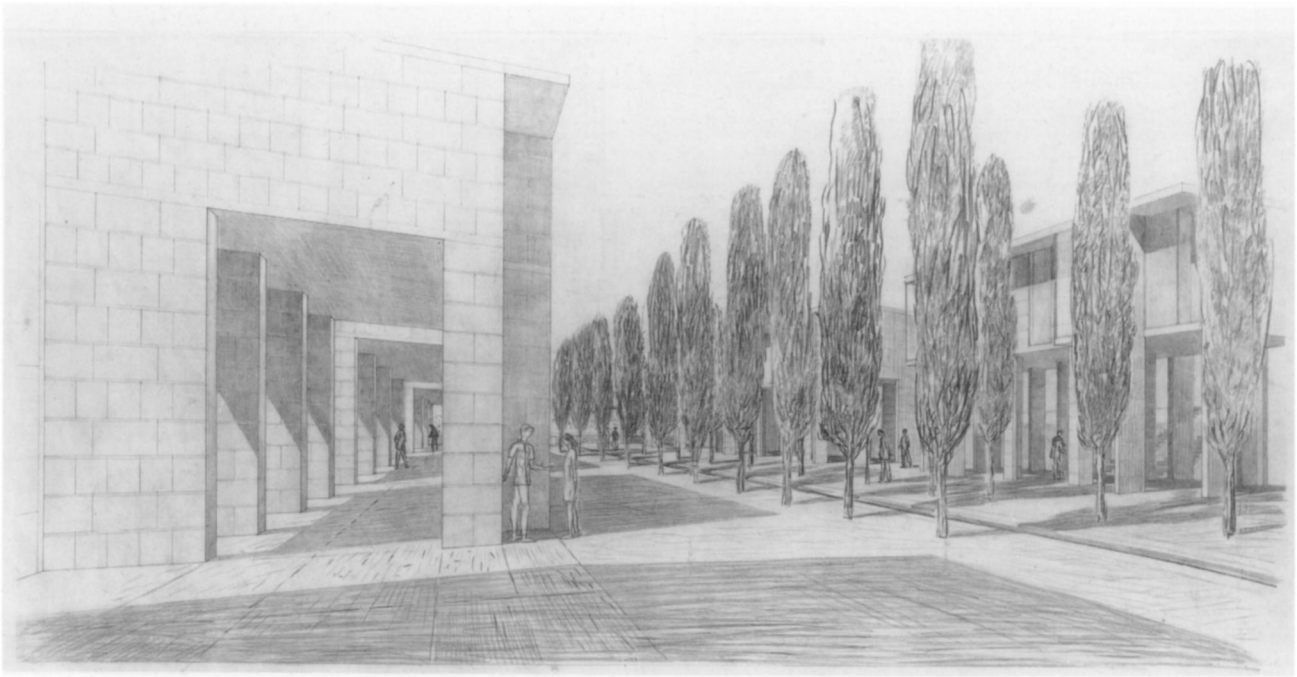


Figure 5 Kahn, study for courtyards, second scheme. Twin rows of fastigiate trees, possibly poplars or cypresses, flank a central rill.

Figure 6 Kahn, study for courtyards, second scheme. The trees hug the façades of the buildings more closely, opening the central space.

nounced, precluding visual contact between the building elements throughout the year.

Dramatically—at a rather late hour, after the construction contract had been signed—Salk decided against the four-block scheme. He felt, understandably, that the resulting double-courtyard disposition might create a sense of two communities—one front, one back—and provoke unproductive competition.[28] The question of the space between the two pairs of blocks was also unresolved; in the drawings, this area appears as a narrow light court. The project then underwent continuous development and refinement through April 1962, when the construction contract was finally signed.[29]

In response to Salk's veto of the second scheme, Kahn was forced again to rethink the laboratories and ultimately reconfigured them as mirror-image blocks of six stories, with intermediate floors devoted entirely to services.[30] Kahn's planning concentrated the laboratory, administrative, and library spaces into two buildings that maintained the original east-west orientation of the four-block scheme. The greater site plan loosely assumed the shape of a Y, a three-part scheme united by tightly bound arboreal links. Sketches suggest the prominent role assigned to the landscape elements, for example along the north where plantings along the boundary of the parking lot would create the effect of a stoa, or colonnade (Figure 7).[31] The compression of the building elements into two bars reduced the twinned courtyards to a singular space, granting it greater breadth

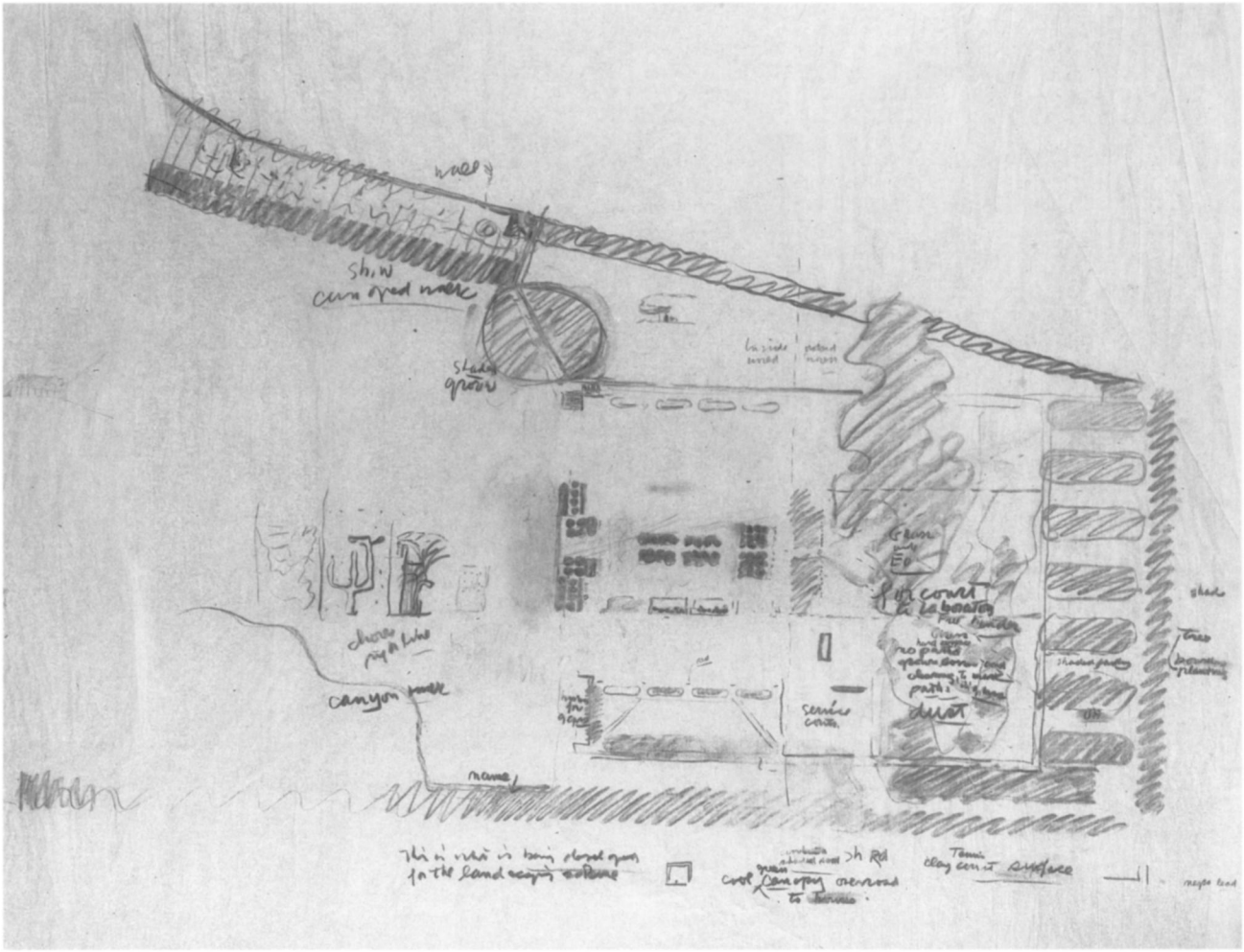


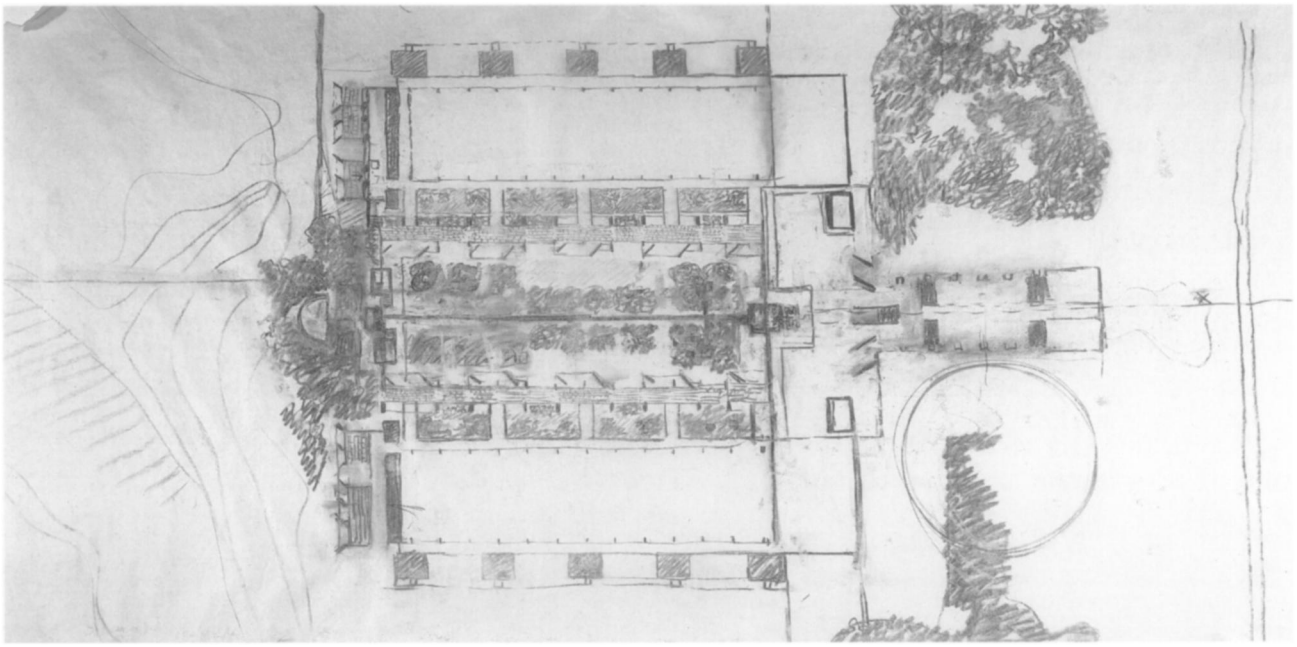
Figure 7 Kahn, sketch plan for the Salk Institute landscape. Kahn has mapped out the lines of vegetation to buffer the south, east, and north edges of the site, playing their rigidity against the sweep of the existing eucalyptus wood. No formal pathways lead visitors to the court from the parking area, seen to the right, under the horizontal blocks of trees. Note the arrangements of trees planned for the courtyard. In many ways, this is the *ur*-plan, later developed by Roland Hoyt and Lawrence Halprin.

and ultimately a more intensely developed design. "I realized that two gardens did not combine in the intended meaning," Kahn later wrote. "One garden is greater than two because it becomes a place in relation to the laboratories and their studies. Two gardens were just a convenience. But one is really a place; you put meaning in it; you feel loyalty to it."[32]

To provide the almost four-hundred thousand square feet required by the expanded program (including the service floors), there were now in effect two blocks of six floors each, the bottom (laboratory) level of which would be below grade. A series of light courts running almost continually along the lowest floor of the buildings was intended to mitigate any sense of claustrophobia within the internal laboratory spaces by strategically admitting light. The administrative offices and the library were positioned to the west; the scientists' personal offices that lined the interior of the courtyard were inflected to increase the awareness of the sea (Figure 8). Their blank east façades suggested simultaneously the wings of a theatrical stage—reinforcing the visitor's focus on the ocean—and the measured play of niches and chapels characteristic of the historical basilica.[33] The new scheme demanded extensive excavation, as is evident in early construction photos; the eastern segment of the site was scraped flat, and the central court area left as an earthen mass standing a full floor height above the lowest levels of the north and south wings (see Figure 3). As the balanced scheme of solid and void developed during the course of

Figure 8 The scientists' offices, inflected to ensure a view of the sea, are clustered in sets of towers that line the court. In the foreground is the recessed seating area intended for both personal retreat and group discussions.

Figure 9 Kahn, study for the court and surrounding landscape. Vegetation flanks the rill, with trees projected as two bosks and an allée.



design studies, the building's exterior spaces assumed an increasingly important role in maintaining both the architectural integrity of the design and the social efficacy of the institute.

As noted above, from the outset trees were a ubiquitous ingredient of the courtyard designs, set either in rows or, in later schemes, as blocks of vegetation that articulated the greater space defined by the buildings (Figure 9).[34] Most of Kahn's correspondence from the period speaks of the "garden," or in some instances a "court," perhaps prompting the notion that greenery and water are essential to the central space. A garden differs from a room in its materials and degree of enclosure, but, as Kahn made clear, the order of the garden—being a construction in the service of humankind—should not mimic untouched nature. "The garden is a personal gathering of nature, and the room is the beginning of architecture. The garden has to do with nature as it applies to a place that has been chosen by man and is developed for man's use in a certain way. The architect becomes the advocate of nature, and makes everything in the deepest respect for nature. He does this not by imitating nature at all, and not allowing himself to think that he is a designer—he imitates how, let us say, the bird plants the tree. But he must plant the tree as a man, a choosing, conscious individual."[35] The Salk Institute thus reflects Kahn's comprehensive view of architecture and landscape as well

Figure 10 The Patio of the Oranges, Seville, Spain, begun in the tenth century, presents an intricate tapestry of irrigation rills, a gridded orange grove, and fountains.

as the relation of smaller and larger—or at times "servant" and "served"—spaces.

Strong precedents for the scheme as it then appeared, and well-known to Kahn, were the two celebrated Patios of the Oranges in Cordoba and Seville, Spain. During the considerations of the Salk court, Kahn brought a book on Spanish gardens into the office and requested that MacAllister visit the two courtyards on an upcoming trip to Europe.[36] At the Great Mosque of Cordoba, the orange trees along one axis of the grid align with the division of columns on the mosque's interior, a neat transformation of stone pillars into tree trunks.[37] More consequential were the irrigation runnels used as the court's primary ordering device, with check dams inserted as needed to guarantee the complete saturation of each tree. The restored Patio of the Oranges in Seville possesses a higher level of refinement, with each of its bricks contributing to a grand mosaic of water, orange tree, brick, and marble, the product of climatic necessity and horticultural achievement (Figure 10). Like the single rill at the Salk Institute, the watercourse in Seville organizes and directs, assuming a power far beyond what its modest dimensions would suggest.[38] Other Spanish precedents, such as the Alhambra in Granada, were also familiar to Kahn, and the water source at the eastern end of the rill could be read as a chunky transformation of the bubblers that animate its Court of the Myrtles (Figure 11; compare with Figure 28). The *charbargh* tradition—with its quadripartite intersection of four rivers—also suggests certain parallels to the Salk waterway. But fountains in Islamic gardens often occupied the center rather than the ends and were rarely set in parallel; Spanish sources of inspiration, however indirect, seem more likely.

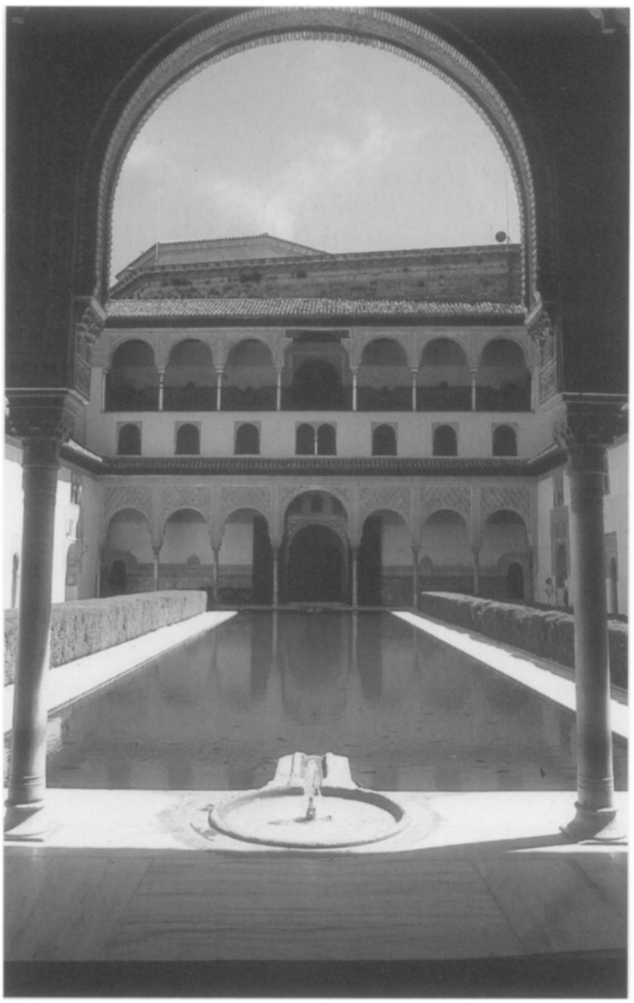


Figure 11 Court of the Myrtles, Alhambra, Granada, Spain, fourteenth century

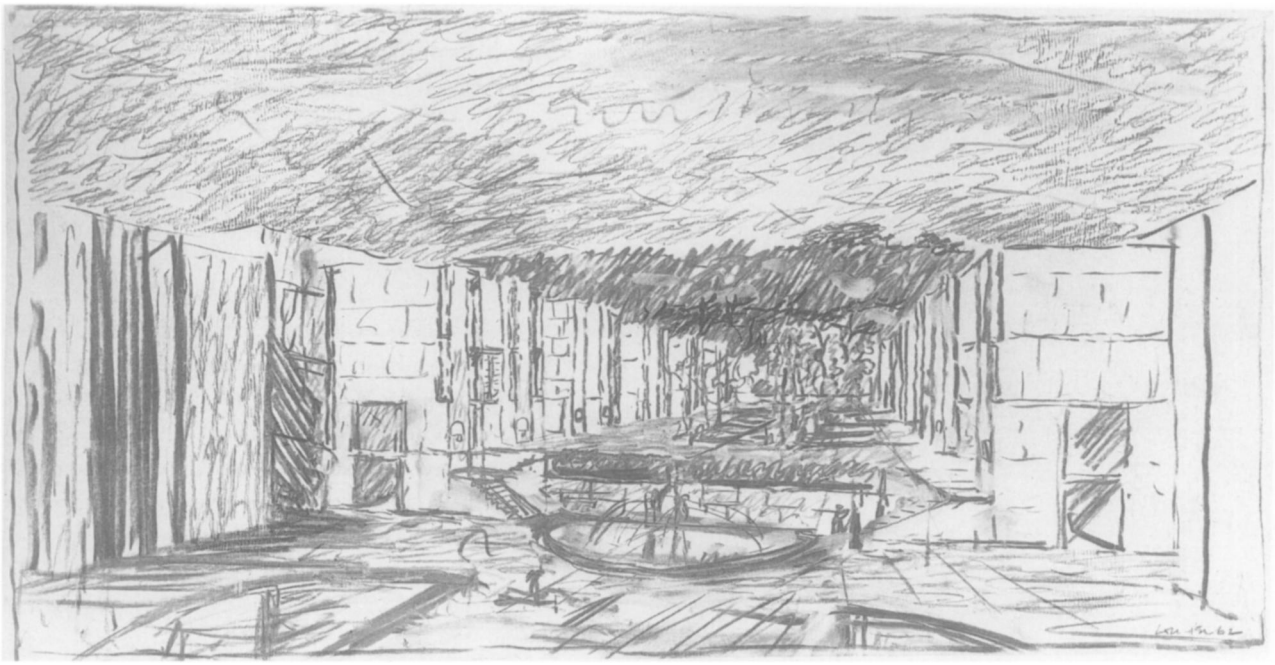


Figure 12 Kahn, Salk Institute, study sketch. The lower terrace on the western edge of the laboratories and court receives the spill of the court's central rill and collects its waters in one of three semicircular pools.

Various sketches for the courtyard design—whether by the Kahn office or their associated landscape designers—suggest such a network of watercourses, necessary for many species to thrive in the desiccated Californian Southland. But whatever its ultimate sources, the small rill seemingly emptying into a vast ocean dates from Kahn's earliest studies (Figure 12). Kahn's sketches also established the block massing and linear arrangements that would be more formalized and specific in later drawings with the name of a landscape architect attached. Masses of trees evident in a site plan dated 26 February 1965—but revised almost monthly until 8 October of that year—show the existing eucalyptus grove would be augmented by new ground cover and planting beds. The entrance to the court would be defined by the regularly massed plantings of Calamondin orange trees, an idea that persisted through the development of the project and was ultimately realized. Curious perhaps are the stands of red birch (*Betula nigra*) at either end of the site and the allée of *Malaleuca leucadenova* positioned along the central rill. While the names of landscape architects Roland Hoyt and Harriet Patterson appear in the title block of the drawing, the plan follows Kahn's early scheme almost to the letter.[39]

Other sketches study the court in section, in particular the watercourse and its accompanying network and overflow drainage. In one late sketch dated 2 February 1967, Barragán's horse trough at Las Arboledas seems to have exerted an influence on the conception of a watercourse raised a foot or so above the paved surface but allowed to spill continuously over its sides, collected in a rill at either side at its base. A network of additional rills flanked the central feature (in the final scheme the smaller rills would drain overflow and rainfall from the court). Perhaps as a consequence of the earthwork, the rill flows past a sunken conversation area at the west end of the courtyard, collects into a broad tank that spans the width of the court, and tumbles into a travertine basin on the lower level (Figures 13, 14).[40] Here the researchers and staff would enjoy the climate of Southern California; the courtyard above would remain primarily architectural and ceremonial—the "immeasurable" void that formed the still and inspiring heart of the research complex. Originally planted with yellow-blooming African acacias (*Acacia baliana*), this area was conceived as a private space for the Salk community, removed from work and the public view and presenting a stunning vista of the landscape and the sea.[41]

The Meeting and Its Consequences

More than a year passed before Kahn again contacted Barragán to determine his availability for meeting on site to discuss the court's design. On 24 February 1966, Kahn, Salk,

MacAllister, and Barragán met amid the hubbub of construction. The shells of the buildings stood impressively but the earthwork evident in photographs reveals a landscape left undetermined (Figure 15). The story of the meeting has become almost legendary, and this has led to some confusion about the nature of Barragán's participation in the project. Throughout the course of design, Kahn had uncertainties about the configuration of the vegetation in the central space and its relation to the laboratory blocks and their stacks of angled private offices (what he had termed the "oak table spaces"). When Barragán experienced the courtyard for the first time, he read the space as an almost sacred void into which nothing should intrude. Kahn told the story this way: "When he entered the space he went to the concrete walls and touched them and expressed his love for them, and then he said as he looked across the space and towards the sea, 'I would not put a tree or blade of grass in this space. This should be a plaza of stone, not a garden.' I looked at Dr. Salk and he at me and we both felt this was deeply right. Feeling our approval, he added joyously, 'If you make this a plaza, you will gain a façade—a façade to the sky.'"[42]

For his part, some twenty years after the event, Barragán recollected his experience in this way: "My contribution was only advice. When Kahn had finished the buildings at the Salk Institute in California, he invited me so I could give him my opinion regarding the central patio. Some trees had already been planted. I suggested that they be removed and that the sea was left as the closing for the court: the sea would

Figure 13 The western terrace of the Salk courtyard, photographed in 1983. The lower terrace provides outdoor eating areas for the cafeteria and a platform from which to view the sea, out of sight of those on the main court above. Note the acacia trees, groves of which originally flanked the recessed court that roofs the large cisterns below; they were later replaced by low-lying shrubs.

Figure 14 The travertine seating and collection tank on the lower terrace

Figure 15 The courtyard space about the time of the meeting of Louis Kahn, Jonas Salk, Jack MacAllister, and Luis Barragán at the site on 24 February 1966

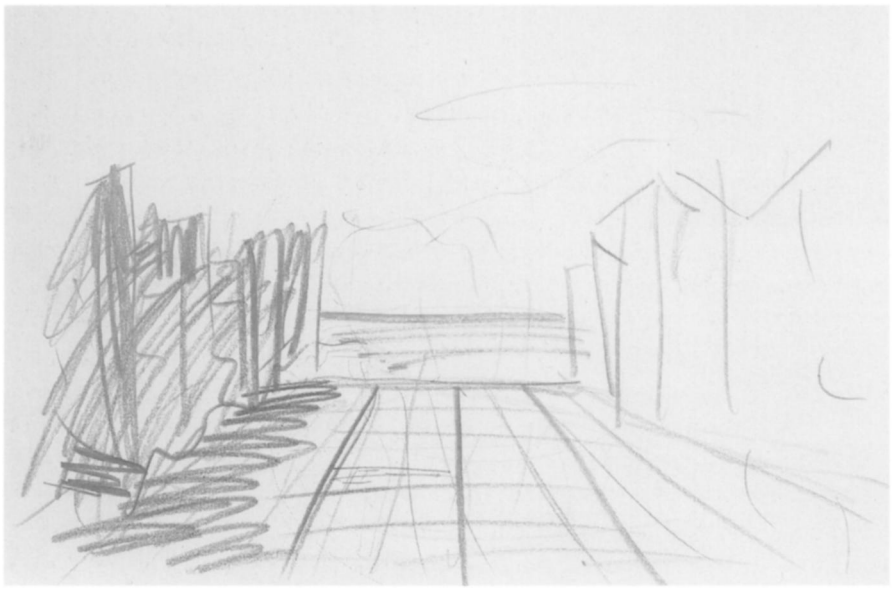


Figure 16 Luis Barragán, sketch of court, 1965. This sketch reinforced Barragán's judgment that nothing should be planted in the central space and that the travertine paving should present a fifth façade, to the skies.

be our wall. Besides, the site was extraordinary and Kahn's buildings were very good: it would not do to cover them with trees. It was necessary that they both could be seen, the buildings and the sea. I proposed a plaza, whose pavement would be treated as a fifth facade."[43] Barragán's sketch—which seems to be the sole graphic document of his involvement in the design (and which may have been drawn after the visit to the site)—depicts the space as an unimpeded channel that directs the sight and soul to the sea (Figure 16).[44] "'All right, I prefer that,' he [Kahn] told me," Barragán recalled. "'We will decide in ten minutes when Dr. Salk comes by; he will decide what should be done.'" Salk was in agreement: "It shall have a plaza."[45] A month after the meeting in La Jolla, Barragán wrote MacAllister: "I have to tell you how positively impressed I was of the work of Mr. Kahn at the Salk Laboratories, it has been one of my strongest and [most] interesting experiences on the architectural field, being sure of the amount of valuable knowledge that rose up from the discussion with Mr. Kahn and you."[46]

The notion of the fifth façade intrigued all present at

the site meeting. However, either Salk had second thoughts afterwards, or some influential members of his staff absent from the discussion remained uneasy about the prospect of an architectural hardscape untempered by greenery. Nature or architecture? In early studies, Kahn himself had conceived the space as a verdant garden rather than a lithic courtyard. "Architecture is what nature can not make, Nature cannot make anything than man makes. Man takes nature—the means of making a thing—and isolates its laws."[47] Contrast this idea with the view of the celebrated landscape architect Dan Kiley, who—despite his predilection for geometrically plotted bosks and linear alignments of trees—saw man as a part of nature, and thus everything made as natural.[48] Some months after the site meeting, Barragán wrote to Kahn: "I was very glad to have had the opportunity of visiting one of your masterpieces, the Salk Laboratories. This ensemble left me deeply impressed and visiting it I was moved in a way that rarely happens in one's life."[49] Kahn and MacAllister traveled to Mexico City in late April: "Our purpose in coming to Mexico is to get your comments on the drawings we have made of the Plaza and other site considerations, and to get your help in finding appropriate paving materials available in Mexico."[50] At this point in the design, the intended paving material was San Miguel Allende stone, although factors of shipping and costs ultimately determined the use of travertine.[51] After his return to Philadelphia, Kahn sent his Mexican collaborator a small sketchbook as a "modest token of my appreciation." An honorarium of $1,000 was also forthcoming.

Given the brilliance of the sun and the heat of the summer months in Southern California, the staff's concerns (if, in fact, the concerns were those of the staff) were not unfounded. Indeed, one could say that despite its sublimity, in warm weather the courtyard produces some degree of physical discomfort except during the early morning and late afternoon hours. The courtyard is a spiritual more than a physical amenity. In his designs for the laboratory blocks and smaller courts, Kahn had adeptly addressed the problem of brilliance and glare, using layers of loggias, stair towers, and office blocks to filter direct sunlight while effecting a mysterious play of shadows. Many would agree that occasional physical unease is a small price to pay for a fitting end to a continent and a masterful conjunction of architecture and ocean. But not everyone would—and those doubters and their doubts needed to be addressed.[52] In response, Halprin, a noted landscape architect from San Francisco, was commissioned to propose designs for the courtyard and the lower courts, with extended development of the site as a whole. The archival documents do not reveal why or by whom Halprin was commissioned, but a catalogue entry from a 1986 exhibition on his work states he had been invited by Salk himself in 1966 "to study the original architectural design by Louis Kahn that calls for paved courtyards within the institute and to propose an alternate scheme." Although he proposed "landscaped gardens," the text continues, "Kahn remain[ed] with his original plan for paved courtyards, and Halprin's design [was] eventually abandoned."[53] A decade later, Halprin recalled: "They said, *We've had some unfortunate experiences with someone else who wasn't very good who designed the garden and Lou said you and Barragán are the only two people in the world he could work with and he'd talked to Barragán, but that doesn't seem to be working.* Are you sure Lou is accepting of the fact that I'm coming? They said, *He looks forward to it very much.*[54] The design sketches clearly indicate, however, that Kahn and Halprin were on different tracks almost from the start.

By 1966, Halprin had become one of the leading figures in American landscape architecture. Representing the second generation of landscape modernists—following Thomas Church and the slightly younger trio of Garrett Eckbo, Kiley, and James Rose—Halprin had studied at Harvard University after the war, worked for several years with Church in San Francisco, and established his own practice in 1949.[55] Beginning with gardens for single-family houses, he quickly moved into far larger arenas that included landscapes for housing, plazas—such as the celebrated fountains in Portland, Oregon, from the early 1960s—and large-scale urban design.[56] Given his national prominence and a status virtually unchallenged on the West Coast, Halprin was the natural choice to design the Salk landscape, at least in terms of quality and celebrity. In addition, in certain of his projects he had demonstrated an affinity for working in a formal manner when appropriate. His McIntyre garden in Hillsborough, California (1961), for example, accompanied a house by Joseph Esherick and fully explored the range of sources provided by the gardens of Moorish Spain (Figure 17). The water runnel and the fountain—both of which had always been a part of Kahn's designs for the Salk courtyard—animated a field that used water and paving to complement the pavilions that comprised the architecture of the McIntyre house. The garden appeared in Kassler's *Modern Gardens and the Landscape* and may have been known to Kahn even before the book was published. But despite this seeming affinity, two characteristics of Halprin's work placed him on a collision path with the Kahn office: first, he tended to favor the asymmetrically composed over the formally structured; second, his detail was looser, abstractly naturalistic, and far less precise than the almost surgically determined forms of Kahn's work in general—especially those at the Salk.[57]

Figure 17 Lawrence Halprin, McIntyre garden, Hillsborough, California, 1961. The network of bubblers and water courses recalls the gardens of Moorish Spain.

Halprin's notebooks reveal his deep interest in the institutional aspects of the project as well as the particularities of the site and the architecture. Undated notes from a meeting with Dr. Salk read:

> The institute is like a body—functions are separated but all working together.
>
> Finite size. Change will be eternal not growth in size.
>
> Any intelligent cell knows how to divide and become 2 instead of just growing bigger.
>
> The two buildings facing each other become a single unit.
>
> Bldg—static element—people=change
>
> The total environment will affect creativity.
>
> We are interested here in seminal research not engineering . . . the search for basic principles.
>
> We do not want to categorize our research into disciplines—but emphasize interdisciplinary (work).
>
> It is the total human being who is our focus.[58]

Significantly, in his first sketches Halprin looked back at the buildings though a natural matrix, a human figure centrally positioned to supply scale and to create a human presence (Figures 18, 19). A project like this was a natural assignment given Halprin's longstanding interest in human creativity and expression: his later publications, for example, would explore group dynamics and creativity, movement, and the creative process.[59]

Figure 18 Halprin, sketch recording his first impressions of the Salk site, late 1966

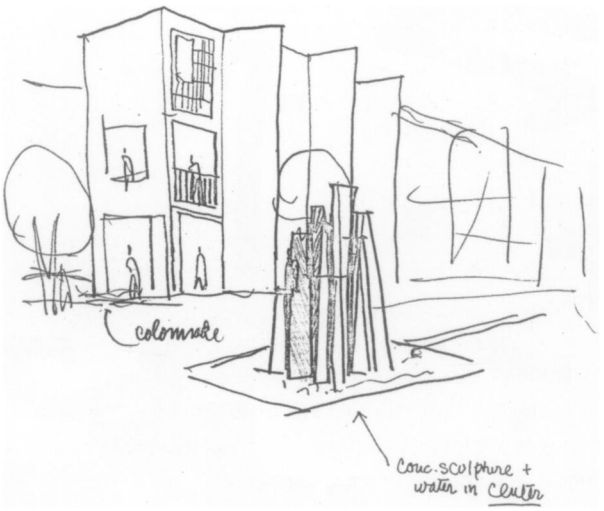


Figure 19 In this early sketchbook study, Halprin proposed a vertically oriented sculpture and fountain that echoed the thrust of the office towers.

There were few questions about Halprin's master plan and plantings along the southern edge of the site, which required a buffer against the suburban development beginning to threaten the Salk Institute's grounds, and the traffic and development on and across Torrey Pines Road to the east. The site plan of 24 September 1966 structured the landscape design along lines long established by the architect's studies (and may have included Hoyt's suggested tree species)—the notable exception being the radiating sidewalks that would collect and deposit pedestrians at the gateway of the court with no suggestion of the orange grove that ultimately anchored the entryway (Figure 20). Sketches focus on the bosks within the court and the paving materials below them, showing schemes that vary from a courtyard lined with (possibly) orange trees with specimen olives within, to those that suggest formal groves of six trees to complement each of the scientists' office towers. As a group, the Halprin office's site studies explore the play between formal linear plantings used to anchor the edges of the site on three sides (opening to the ocean) and "drifts" of massed vegetation more freely contrived. The lines of *Eucalyptus citriodora* along the south, east, and north—whether first specified by Hoyt or Halprin—form allées that achieve a nearly architectural identity. A secondary, interior line of the more spherical *Eucalyptus lehmannii* reinforces the eastern rank of the *Eucalyptus citriodora* along Torrey Pines Road. Irregularly planted clumps of Monterey pine foster the connection between the eastern edge of the north laboratory block and the parking and meeting house to the west. Halprin's landscape plan of 30 November 1966 further developed this planning. Surrounding the laboratory blocks to the east are massed plantings of ceanothus that mix with the existing and proposed eucalyptus as a dense understory, anchoring the entrance to the site. A gridded grove of orange trees (a note reads "trained as mass planting") forms a propylaea to the court, providing the enclosure and framing necessary for a dramatic entrance into the courtyard (Figure 21). Within the court itself, trees were still a strategic part of the design: two sets of olive trees closed the eastern end, complemented by a similar grove on the western edge set on the lower terrace level.

The design studies were carried out primarily between October and November 1966, when the buildings stood substantially complete. Several of the existing sketches are dated but unsigned, and they seem to be the work of two, possibly three, different hands. Most of them display the urge to soften and naturalize the formality and symmetry of Kahn's architecture. The most misconceived of the possible designs uses the canted blocks of the scientists' studies—an articulation of the highly orthogonal scheme—as the basis for a plaza diagonally contrived. Thankfully, this idea did not progress beyond a few sketches and may never have been presented for Kahn's appraisal (Figure 22). Other sketches and models depict paving as brick or stones spaced several inches apart to allow grasses or ground cover to grow between them to loosen the formal aspect of the court. These plantings would have been hard to maintain, however. Almost all the schemes accept Kahn's central rill but some efface the aqueous line with considerable vegetation. In drawings from the Halprin office dated as late as 7 February 1967—curious in that by then Halprin had officially retired from the design of the courtyard—the treatment of runnels and tree plantings (possibly oranges) demonstrates that the issues were still far from settled. The irrigation courses are developed almost as a grid, suggesting more closely the Patios of the Oranges mentioned above (Figure 23).

The sketched proposals for the subgrade courtyards are no more sympathetic to Kahn's architectural ideas. In all cases, they are cast as antitheses to the building elements rather than furthering the architectural order. "The small gardens," Halprin noted in his sketchbook, "at the lower levels (16 of them) should be varied but all have a family resemblance . . . mostly paved—some should have fountains with a trickle of water so you can hear them from the main court" (Figure 24).[60] Designing these courts was, admittedly, no easy task given their meager dimensions and their

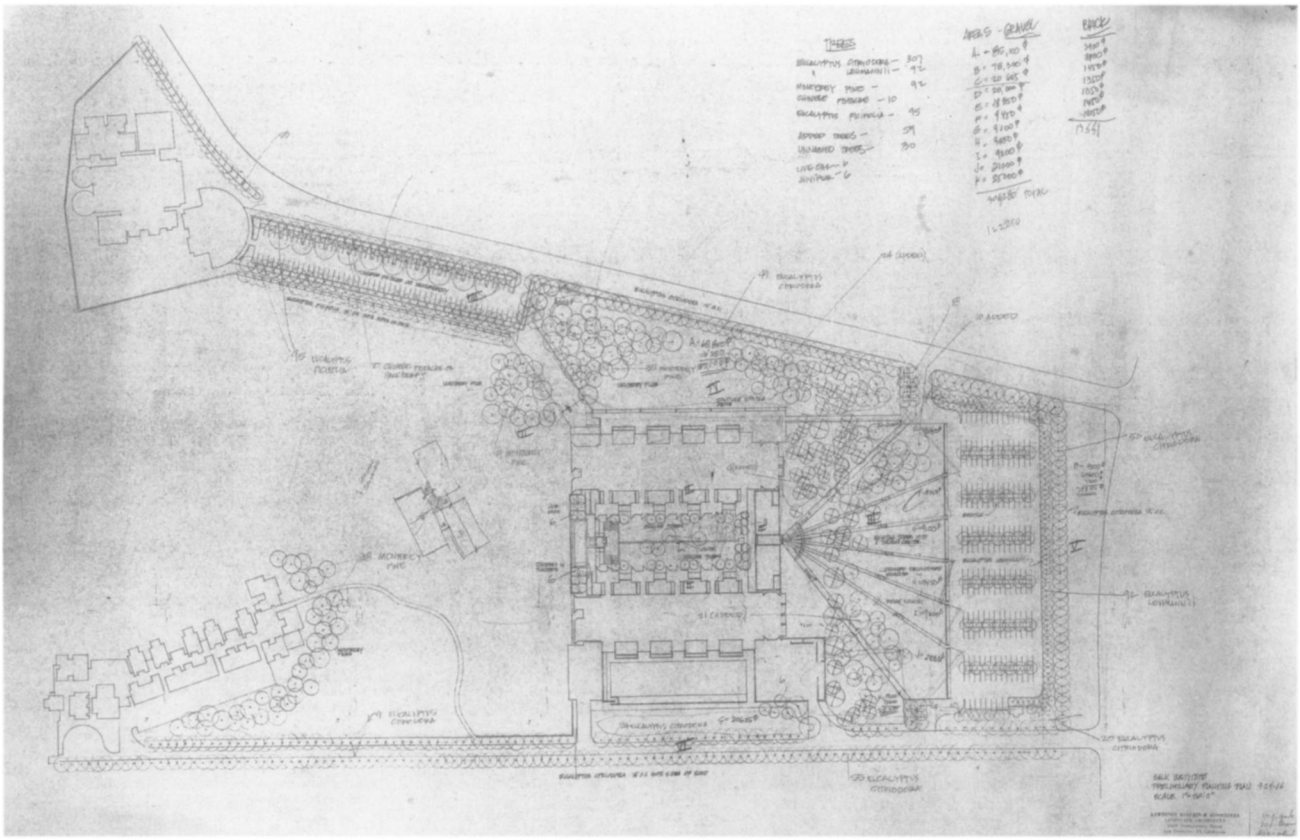


Figure 20 Halprin office, site and landscape plan, 24 Sept. 1966. This plan develops in greater detail the planting established by Kahn's earlier study. Rows of eucalyptus anchor three edges of the site, while an informal wood of Monterey pines creates a buffer between the labs and the proposed meeting house. Trees still line the court, with staggered orange trees along the rill. Note the radiating paths through the eucalyptus, a proposal that was not accepted.

position some twenty feet below the upper court level. Islands set off-center in the spaces broke the paving along an irregular line; trees planted on or within the beds further tested the rigidity of the architectural limits (Figure 25). It seems as if Halprin either wanted to humanize the building milieu or was incapable of creating work that paralleled in formality the classical modernism of the institute's architecture. Correspondence suggests that the Kahn office was not pleased with the ideas coming from San Francisco, except concerning the landscape of the site as a whole. Halprin's interest in countering the architectural purity of the space challenged Kahn and Barragán's conception of the court. His naturalism was less problematic for them in the land around the buildings, but even in those areas, some with existing trees and vegetation serve architectonic purposes in Kahn's sketches.

On 4 November 1966, Halprin's office sent sketches and photographs of model studies of the plan, paving details, and fountains. The models depict what appears to be brick or other small-unit pavers. Gaps in the paving would be occupied by dichondra, "which is a very durable material that grows well in both sunlight and shade."[61] Studies of fountains show one variant of the fountain design emerging from the paving without a containing basin; in another, water overflows its source and tumbles into a larger basin that dominates its small space; a third fountain was constructed of stone blocks in a manner customary to Halprin.[62] Though the design was given Salk's "tentative approval," it seems to have been less than positively received by the architects.[63] To his considerable credit, Halprin realized that there would be no accord in the offing. He greatly respected Kahn's work and understood their differences, and in a letter of 2 December 1966, sent to both Salk and Kahn, he suggested that it would best for him to withdraw from the project: "As you know I think the architecture is sheer poetry. Louis feels very strongly about the direction

Figure 21 Entry through the orange grove into the courtyard

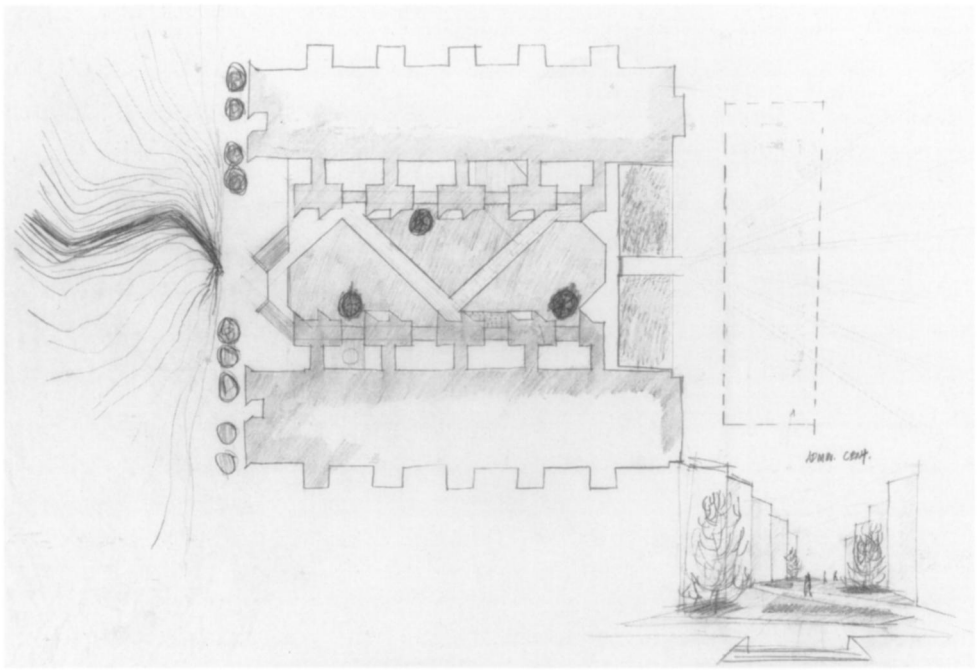
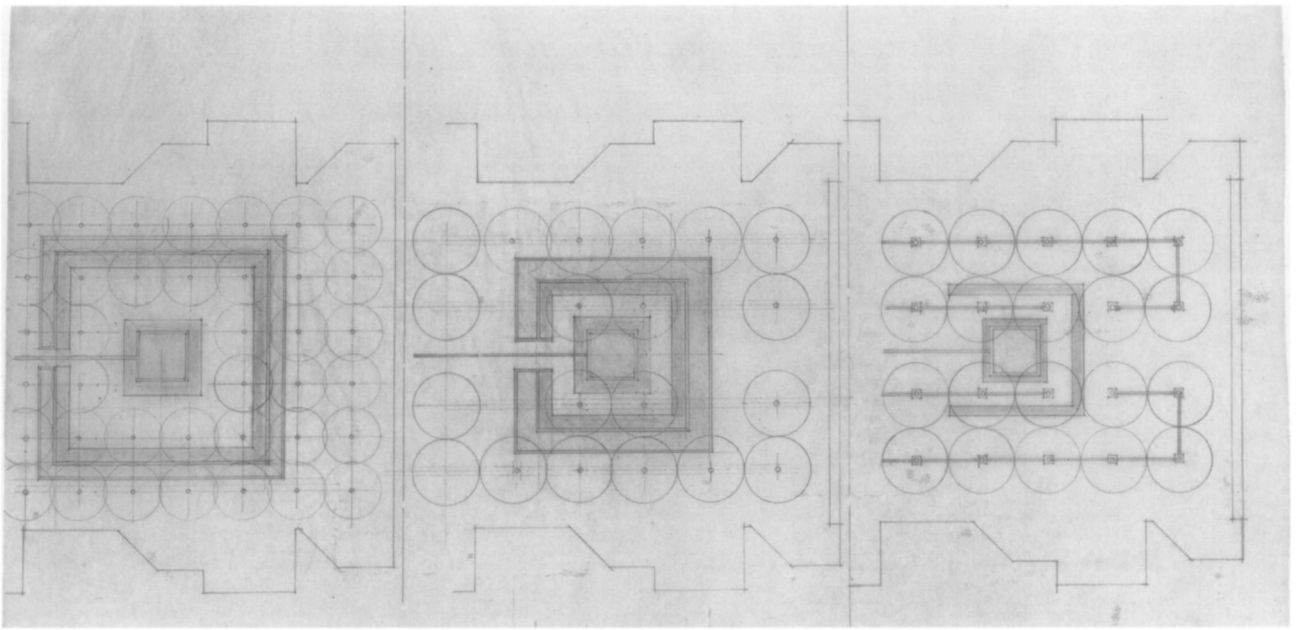


Figure 22 Halprin office, undated study for the court developed from the canted walls of the scientists' offices



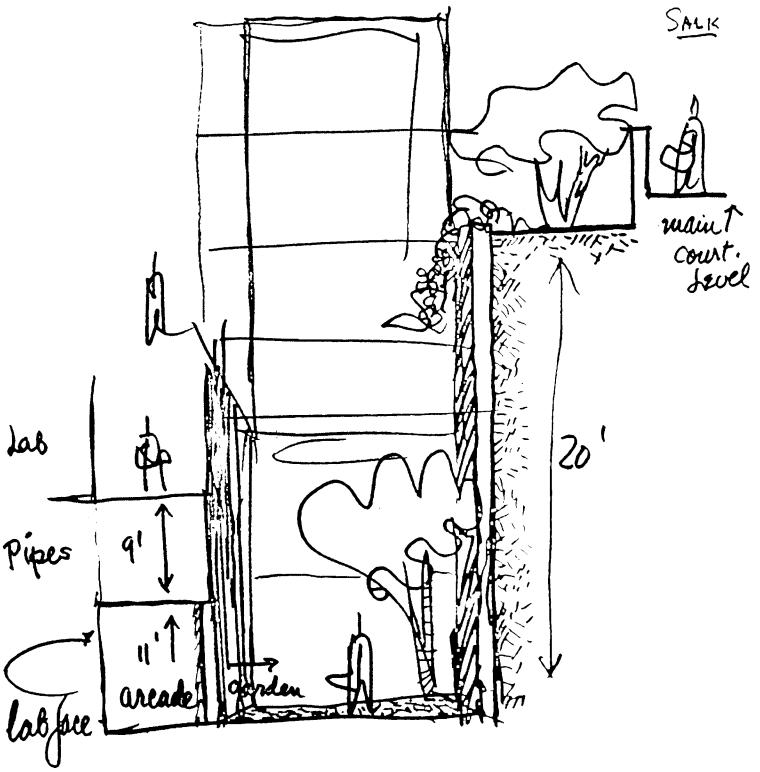


Figure 23 Halprin office, three studies for a fountain, 1 Feb. 1967, which investigate tree planting at various spacings for a scheme based on a network of rills used for irrigation

Figure 24 Halprin sketchbooks, section study of the lower courts, late 1966(?)

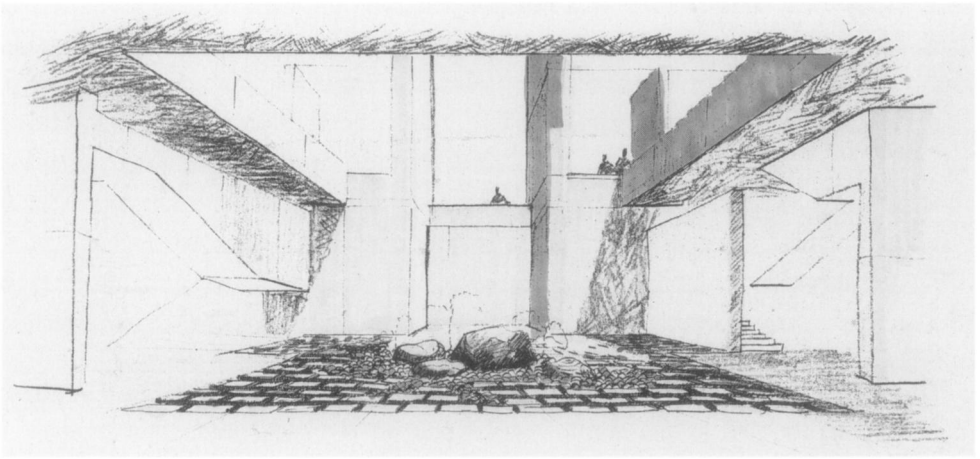


Figure 25 Halprin office, study sketch for a lower court, late 1966. As in so many other aspects of his proposals, Halprin was essentially trying to naturalize the formality of the Kahn scheme.

that the courtyards should take and he has lived with this a long time. I suggest, therefore, that he simply go ahead and do what he feels is right. My own calligraphy would be *very* different than what he is proposing. I think it would be wrong to try to blend the two—we might well end up with both our weaknesses instead of both our strengths. As to the future—if you wish, George McLaughlin from my office will help in any way he can in the selection of plant material and assist in getting the planting accomplished."[64]

Kahn replied immediately, matching in graciousness Halprin's letter of assessment and recusal:

> I appreciate your letter and especially thank you for the simple yet full way you expressed what I myself hope to always attain in my architecture.
>
> It is difficult, as you recognize, to blend as you say tendencies in points of view. A man is always greater than his works and what remains unexpressed is protected, though not yet made.

He welcomed Halprin's participation "to help this thing through," in particular concerning advice on "surfacing, the use of water, and the plant ideas."[65]

From that point on, the contribution of the Halprin office was advisory, although they did submit a revised landscape master plan for the site and the court development cited above. A long letter of terms from MacAllister to McLaughlin of 5 January 1967 clarified their respective roles and indicated that the Halprin office now served as consultants to the architects: "We will do all the drawings for the Plaza and Lower Gardens, but will appreciate your criticism of the overall scheme and your assistance in selecting plant materials and in developing the pools and the foundations." The more architectural spaces—courtyards—would be the province of the Kahn office. The assignment of the landscape design and drawings for the site as a whole was left with the Halprin office, pending Kahn's approval. MacAllister wrote: "We would like to review your proposals and would expect that all architectural details such as lighting, walks, curbs, etc., would be designed by us, even when included in your drawings." In commenting on the specifics of the master plan, MacAllister raised certain issues that ultimately pointed to the difference between more architectonic and more naturalistic manners of planting. In general the architects favored landscape spaces that were almost architectural in character, for example, on the lawn north of the north laboratory block: "We have indicated on the enclosed print a more extensive planting so as to make a 'room' in front of the building, formed by trees. We believe that this obviously formal 'room' made by walls of trees forms a transition from building to site. The surface detail of the building is better appreciated when viewed from this dimensioned space." Some areas of low planting were dismissed by the architects as contrary to the intended effect. Again referring to the North Lawn, MacAllister noted: "We believe that the brick walk parallel to the Laboratory should be made wider by deleting the existing border planting. This will invite the relationship of ground to building and will enhance the façade." For the parking area intended to link the laboratories with the proposed meeting house, the architects reverted to ideas captured in their early sketches: "We would like to suggest that the road to the future houses [*sic*] from the entrance to the parking area be flanked by trees which will bridge the road, making a green tunnel in scale with the undulating approach."[66]

Construction was nearing completion and decisions still needed to be made concerning the landscapes small and large. On 19 December 1966, Kahn had written to Salk bringing him up to date on the status of the "Center and Lower Gardens." This key document merits quoting at length:

We have previously considered five different approaches to the design of the Laboratory Plaza (Garden).

Our earliest design called for a rather formal arrangement of trees irrigated with collected rainwater supplied from the center canal.[67] Crosswalks were positioned between areas of low planting for circulation from one wing to another.[68]

It was Luis Barragán who made us realize that trees were inappropriate in this space and who encouraged us to develop it as a hard-surfaced Plaza. His realization has left a profound inspiration on all who were present at that time and the design which he inspired was a totally paved space with the possibility of its being flooded from the center and side canals.

To those not present at the time of Barragán's realization, a totally paved Plaza seemed to be a harsh solution. It was then decided to get the opinion of another Landscape Architect and we agreed on Larry Halprin.

Halprin's first scheme placed orange trees near the porticoes and some specimen trees in the Plaza. His second and more sympathetic solution was to pave the Plaza but to plant grass in open joints between the stones as a way of softening Barragán's ideas. He also placed trees at the east end of the Plaza and in the Lower West Garden. The lower Gardens in both the later schemes attempted to soften and sympathize with the apprehensions about simple stone paving.

Kahn's office tried to develop Halprin's proposed planting between the pavers by using broad bands of grass rather than by planting the narrow gaps around each unit, but they discarded the idea in response to concerns about erosion caused by the irrigation systems. In summation, Kahn described the present state of the design:

The enclosed scheme expresses a re-evaluation of all previous schemes.

Present suggestion:

The Plaza is entirely paved with San Miguel stone which is laid tight without mortar joints. The center canal has constantly running water. The east planting encourages one to enter the Plaza from the arcades rather than to enter directly from the end. The system of narrow drainage slits tie into existing subsurface drains and ensure positive runoff of rainwater. A broad area adjacent to the pool is surrounded by low, solid stone benches, a place to stop and enjoy the pool and the Plaza. The lower West Garden is shaded by two canopies of trees adjacent to the Office Wings.[69]

Kahn also described the design of the lower terrace and how the basin on this level would receive the spill from the upper trough. Vines encouraged to climb on the retaining walls would soften the impact of their concrete surfaces; large planters filled with shrubs, and even small trees, would instill a more intimate sense of scale against the broad sweep of the shore. The tone of the description suggests that Kahn was satisfied with the current state of scheme; at one point he noted, "I believe the solution is good in bringing together the two Laboratory Wings, to encourage free circulation and to inspire use and activity within the Plaza. The sensitivity of the building and this space to the many moods of the sky and atmosphere will make the Plaza a place always changing, never static, full of the never ending anticipation of the rising and setting of the sun."[70]

Copies of this submittal were sent to Halprin for review, but no response is to be found among the Kahn or Halprin papers. A plan dated 16 May 1966—revised on 8 March 1967, 31 May 1967, and 7 June 1967 and ultimately "Issued for Construction 12 June 1967"—shows the court in all its final purity, with no plantings to interrupt the flow of water within the travertine "façade" that leads to the sea. The details are uniformly minimal and eloquent (Figure 26). Halprin, however, maintained his position for decades thereafter, asserting that planting the courtyard would have been a better solution in terms of human comfort. The experience for Halprin had not been a good one, and he never returned to the site to judge the results firsthand. "They tell me people find the courtyard not good because it's terribly glaring and not pleasant and the whole idea was that the courtyard was the common living room for the whole thing." While few would dispute that criticism, especially those sitting in the court in the summer midday sun, what has been gained may far surpass what might have been lost.[71] Need a commons always function as a giant armchair? Although Kahn offered the following thought in another context, he might just as well have used it to answer the question: "The court is the meeting place of the mind, as well as the physical meeting place. Even if you walk through it in the rain . . . you are associated with it in spirit."[72]

Experience

Had Halprin seen the completed Salk Institute he might have thought differently (Figure 27). Scores of people visiting the courtyard over the years have been struck by its strength, simplicity, elegance, and focus. On passing through the orange grove and entering the precinct, it is not uncommon for first-time visitors to stand fixed in place, unable or unwilling to continue without pause. No ambiguity hampers the view and direction of movement—both are channeled by the central runnel and the canted walls of the offices. Rarely, however, do groups of people, whether seated or standing, converse within the space. In rain, as in times of sun and heat, they take shelter in the arcades. Seen

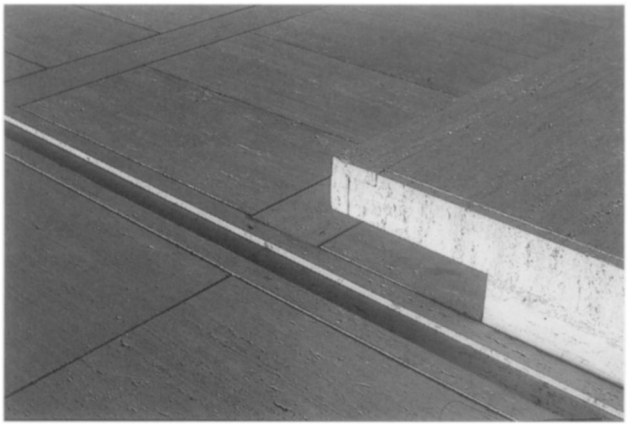


Figure 26 The travertine in the central court, drainage rills, and bench

Figure 27 West façade, viewed from the south mesa

socially, the court inspires the individual somewhat at the expense of the community first envisioned by the client and the designer. The situation changes in more temperate weather, however, or late in the day, when the buildings cast cool planes of shade and so sitting on the travertine benches is a pleasurable experience. In addition, over the years the nature of creative exchange has itself changed, and the intercourse between researchers is today hampered by the lack of external electrical power and computer technology, for example, in the seating area at the western edge of the upper level intended for group discussion.[73] Throughout the day, however, there is considerable life on the lower level facing the ocean (see Figure 13). In addition to the adjacent cafeteria, the terrace's movable seating and umbrellas provide an environment more attuned to occupancy than the more rarefied courtyard above. In several ways the two zones may be read as complementary: the upper court, the sacred; the lower court, the profane; the upper, the individual and the mind; the lower, the collective and the body. Linking them is that trickle of water that somehow tumbles noisily into the lower basin that receives it—that and the ever-present sight of the sea.

The central courtyard is normally a quiet place; only an occasional human voice or movement across its breadth interrupts its tranquility. People normally talk of its "silence," although one suspects it is not acoustical silence to which they refer. Instead it is the silence that derives from the equilibrium and dignity of its architecture. Several of Kahn's designs—like the Salk Institute—play on the relationship of horizontal blocks to stubby towers, whose reading shifts as the viewer approaches.[74] Entering the courtyard, one notices remarkably little detail, at least at first: the angled walls and ground surface seem almost barren. Rather than tracing a full gradient of large-, middle-, and small-scale elements, the eye jumps from the whole to the intimate, from a grasp of the void to the detail of the wall surfaces or the careful crafting and joints of the travertine benches and paving. In cloudy weather, the gray of the concrete melds with the gray of the skies and the effect is one of unity. Sunlight, however, dramatically articulates the walls of concrete and floor of travertine; during the day, pools of shade ebb and flow with the movement of the sun, further enriching the perceptions of the place. "A great American poet," wrote Kahn, "once asked the architect, 'What slice of the sun does your building have? What light enters your room?'—as if to say the sun never knew how great it was until it struck the side of a building."[75] Or the travertine floor of a courtyard. Throughout these conditions—and even at night—one senses the space as a whole and the presence of the ocean just beyond its far edge (Figure 28).

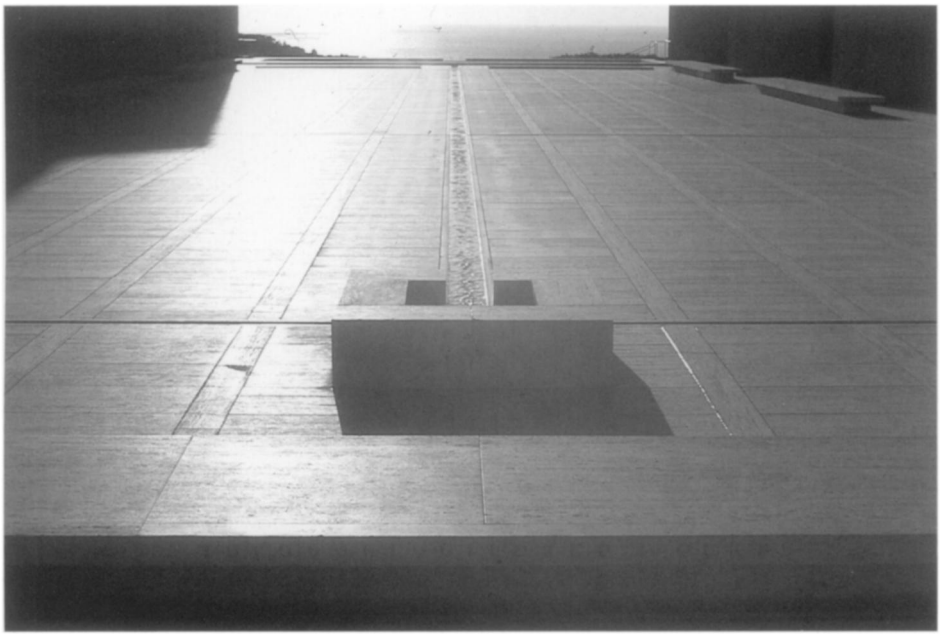


Figure 28 Courtyard, view toward the ocean in late afternoon

Thereafter

Of the projected scheme for the greater Salk Institute, only the two laboratory/administrative/office blocks were to be constructed as the first phase. In the institute's early years, the south building remained unoccupied, due to a lack of both funds and need. But over time, the space requirements grew considerably, necessitating additional facilities for meetings and research. In 1995, on the eastern sector between the parking lot and the orange grove, the San Francisco–based firm Anshen and Allen designed a new structure—the one-hundred-thousand-square-foot East Building—set laterally to the original laboratories. It is sensitive in style and deferential to its illustrious predecessor in its massing, but lacks the poetry of Kahn's design.[76] Some eucalyptus were lost in the building process but the grove of orange trees, replanted around 1997, survives in nearly original form.

Over the four decades since the completion of the original Salk Institute, Southland Suburbia has intruded on its sanctity: stucco apartments—some built in what Barragán once derisively termed the "California Colonial" style—sprawl right up to the Salk's southern boundary.[77] The northern edge has been more fortunate: a municipal glider launch area has kept the land free of construction. Sadly, "temporary" construction by the institute itself mars the beauty of the western areas with shanty development that is both a shame and scandalous—especially when one recalls the moving scheme envisioned by Salk and Kahn for the other buildings supporting the scientific community. Fortunately, due to the relation of the court to the land, these are not visible until one reaches the western limit of the court. Under certain lighting conditions, they are visually prominent nonetheless.

The Salk Institute courtyard—this space lined with magnificently formed, poured, and finished concrete, and its complementary "fifth façade" in travertine—endures. As one of the landmark spaces of the twentieth century, it is regarded as a monument of both architecture and landscape architecture.[78] Like the institution and its architecture, the exterior spaces of the court were meant to inspire human communication, creativity, and achievement. And they do, with a power that testifies to the capabilities of Salk and Kahn and his staff, and those few days and thoughts shared with Barragán, discussing the best way to achieve community and, perhaps, how best to conclude a continent.

Notes

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1. The aesthetics of the tea ceremony regarded ordinary materials such as bamboo, low-fire ceramics, and even earth as possessing great beauty if used in an elegant matter. While seeming to some degree an oxymoron, one of the revered characteristics of tea implements, tea house, and garden was

the notion of "refined poverty": common materials elevated to the status of art object through erudition.

2. Architects Robert Venturi and Denise Scott Brown see the Salk Institute as a culmination of all things American: "This eloquent, non-hierarchical complex with nothing in its central axis, suggests, in its sophistication, the American democratic ideal. Its common space posed between a vast continent—symbolized by the bosque of trees—and a vast ocean—defined by an infinite horizon—is perceptually, physically, poignantly American. . . . The Pacific Ocean and the American continent, a nation and the world, are poised at the Pacific rim in a global culture whose science, practiced within the architecture, becomes complex and universal, as it heads ever toward its own frontiers." Robert Venturi and Denise Scott Brown, "Comments Concerning the Salk Center," in *Two Responses to Some Immediate Issues* (Philadelphia, 1993), 10. Some might find this statement bombastic, and others have seen the "democratic" aspect in a rather different light, commenting on the complex's monumentality and on the difficulty in locating the "entrance" to the complex, a problem solved to some degree by the construction in 1995 of the East Building. Almost all agree on the power and beauty of the space, however.

3. Jonas Salk, interview, *http://www.achievement.org/autodoc/page/sal0bio-1*, 12 May 2003. Salk died in 1995 at age eighty.

4. Ibid.

5. David Brownlee and David G. De Long, eds., *Louis I. Kahn: In the Realm of Architecture* (New York, 2001), 95.

6. Louis Kahn, *Louis I. Kahn: Talks with Students*, Architecture at Rice 26 (Houston, 1969), 12. Salk later married Françoise Gilot, who had lived with Picasso for several years.

7. Salk, interview.

8. Project architect Jack MacAllister does not recall Kahn's ever having mentioned Assisi during the course of design. Jack MacAllister, interview with the author, 5 July 2005, Belvedere, Calif.

9. Kahn, *Louis Kahn Talks to Students*, 13. He continued: "This consideration changed the Salk Institute from a plain building like the one at the University of Pennsylvania to one which demanded a place of meeting which was in every bit as big as a laboratory."

10. Ibid., 27.

11. The Torrey pine, indigenous only to San Diego County, is a slow-growing tree that under ideal conditions can achieve a height of nearly sixty feet. Given its limited native habitat it is one of the pine family's rarest species; historically its primary use was the piñon nuts found within its cones.

12. After a reconsideration of the financial burden of construction, design work on the meeting house and residences was officially stopped on 29 August 1963 by an amendment to the contract. Kahn Collection, Architectural Archives, University of Pennsylvania, Philadelphia (hereafter AAUP).

13. Roland Hoyt (1890–1968) was a prominent figure in the field of landscape architecture in San Diego and an influential author, having published *Planting Lists for Southern California* (1933) and *Checklists for Ornamental Plants for Subtropical Regions* (1938). His name appears on the title blocks of several Salk site plans but the exact nature of his work on the landscape design is not known. It seems most of his contributions were made in the selection of plants during design and the execution and maintenance of the landscape after occupancy in 1966. Carol Greentree credits Hoyt with designing "the campus surrounding Louis Kahn's striking science complex with an arboretum of uncommon eucalyptus varieties," but these species appear in Halprin's studies as well, and it is unclear who made the first proposal, or even whether the first suggestions were accepted. Carol Greentree, "Hoyt, Roland S.," in Charles Birnbaum and Robin Karson, eds., *Pioneers of American Landscape Design* (New York, 2000), 177. Presumably San Diego's mayor, Charles Dail, knew and respected Hoyt as the landscape architect for the recently completed San Diego City Hall. Vonn Marie May, "Salk Institute for Biological Studies," National Register of Historic Places nomination report, 2005. I thank Ms. May for providing me with a copy of this report and sharing her findings with me.

14. Elizabeth Mock (née Bauer, ultimately Kassler) was the sister of noted planner and housing specialist Catherine Bauer (later Catherine Bauer Wurster). Mock was a curator in the architecture and design department of the Museum of Modern Art in the late 1930s and early 1940s. Perhaps her most noteworthy exhibition was *Built in USA—Since 1932*, mounted in 1945. The information concerning *Modern Gardens and the Landscape* derives from the author's interview with Elizabeth Mock Kassler, 14 May 1994, in Lexington, Mass.

Brownlee and De Long, and James Steele (*Salk Institute: Louis Kahn* [London, 1993]), and several other authors cite an exhibition of Luis Barragán's work at the Museum of Modern Art in New York as the instigator of Kahn's interest in the Mexican architect's ideas, but in fact no Barragán exhibition was presented at the museum until 1976, curated by Emilio Ambasz. See the accompanying catalogue, Emilio Ambasz, *The Architecture of Luis Barragán* (New York, 1976). Until then Barragán was relatively unknown in the United States, except perhaps to a slightly older generation that might have seen projects such as El Pedregal in the West Coast magazine *Arts and Architecture* or other publications of the period.

15. As early as 1946, landscape architect Garrett Eckbo had proposed a book on landscape architecture to the museum's director, Monroe Wheeler. Garrett Eckbo to Monroe Wheeler, 24 June 1946, René d'Harnoncourt Papers, Archives, Museum of Modern Art, New York. Wheeler requested further development of the proposal. Wheeler to Eckbo, 11 July 1946, René d'Harnoncourt Papers, Archives, Museum of Modern Art. Wheeler responded affirmatively, asking Eckbo to develop an outline for the publication, but there the correspondence ends. No book issued from this exchange, although in it one can see the seeds for Eckbo's important manifesto *Landscape for Living* (New York, 1950). I am grateful to Mirka Beneš for providing me with copies of these letters.

16. Christopher Tunnard, *Gardens in the Modern Landscape* (London, 1938).

17. The Riverside Park playground developed in some respects from a proposal for a playground at the United Nations in New York that Isamu Noguchi and Louis Kahn developed in 1952–53. "The continuity of enthusiasm by Kahn and our conceding to every demand for change by the Parks Department ended in the project's being killed by the new administration." Isamu Noguchi, *The Isamu Noguchi Garden Museum* (New York, 1987), 172. For complete documentation on the project, see Shizuko Watari, *Play Mountain: Isamu Noguchi and Louis Kahn* (Tokyo, 1996).

18. Louis Kahn to Luis Barragán, 20 Jan. 1965, Barragan Foundation, Birsfelden.

19. Vincent Scully, *Louis I. Kahn* (New York, 1962).

20. Luis Barragán to Louis Kahn, 9 Feb. 1965, Kahn Collection, AAUP. The artist Matthias Goeritz (1915–1990) was born in Danzig, Germany, and emigrated to Mexico around 1949. His talents spanned painting, sculpture, design, architecture, art, and architectural education. Goeritz collaborated with Barragán on several projects, for example, his lizard-like sculpture in El Pedregal in the late '40s, and the shimmering golden altar panel for the Capuchin Chapel in Tlalpan in 1960. The question of the principal source—whether Goeritz or Barragán—of the design of the Satellite Towers (1958) on the fringes of Mexico City has generated considerable debate and remains with proponents on either side. For a complete review of Goeritz's achievements, see the two-volume catalogue: *Los ecos de Mathias Goeritz* (Mexico City, 1997).

21. Kahn visited Barragán in Mexico City in December 1965.

22. Louis Kahn, "Silence," *VIA* (Philadelphia, 1968), 89. This citation reveals Kahn's sensitivity to the transcendent aspect of Barragán's landscapes, which may have added to his conviction that there was benefit in soliciting Barragán's ideas.
23. May, "Salk Institute," sect. 7, 10.
24. Although today suburban development almost chokes the site, at the time of construction it was essentially "disturbed rural" with little real construction in the immediate vicinity. An aerial photo taken during construction, however, shows that a subdivision to the institute's south had already been staked out, with roads paved and several houses built. Over the years, that development has come to fill the land adjacent to the Salk center.
25. This orientation would to a large measure preclude a southern exposure, which is normally more desirable for residences in California.
26. MacAllister, interview (see n. 8).
27. Louis Kahn, cited in Heinz Ronner, with Sharad Jhaveri and Alesandro Vasella, *Louis I. Kahn: Complete Works 1935–74* (Basel, 1987), 158.
28. MacAllister, interview.
29. Daniel S. Friedman, "Salk Institute for Biological Studies," in Brownlee and De Long, *Louis I. Kahn*, 331 (see n. 5).
30. Much has been written about these services; see Thomas Leslie, "Things in Their Best Order: Technical Aspects of the Salk Institute and Their Role in Its Design" (unpublished, undated). The new scheme forced the abandonment of the folded plate roofs that Kahn liked. He felt something would be lost, but in consultation with engineer August Kommandant he charged the structure to a series of full-story high Vierendeel trusses, which permitted a clear span and free modular servicing for the laboratories they served. I thank Thomas Leslie for providing a copy of this paper.
31. As noted, the meeting hall and residence were never realized; nor were the landscape links intended to join them, at least in their proposed density and form.
32. Louis Kahn, quoted in Mary Huntington Hall, "A Gift from the Sea," *San Diego* (Feb. 1962), 44.
33. "This divided organization permitted him to create the functional individuation of space that had become a central theme in his work of the fifties, and the type of environment created by the studies—solitary retreats overlooking the gardens—was very like the monastic setting that had interested Salk and him from the start." Brownlee and De Long, "The Houses of the Inspirations: Designs for Study," in *Louis I. Kahn*, 96.
34. Jack MacAllister can't recall Kahn's ever having talked about vegetation within the courtyard, but it had appeared in all the studies. MacAllister, interview.
35. Louis Kahn, in John Lobell, *Between Silence and Light: Spirit in the Architecture of Louis I. Kahn* (Boulder, 1979), 38.
36. The precise date is lost, but MacAllister believes it to have been summer 1965—that is, before the meeting with Barragán. MacAllister, interview.
37. One or both of the patios appear in most books on Islamic gardens, for example, Jonas Lehrman, *Earthly Paradise: Garden and Courtyard in Islam* (Berkeley, 1980), and John Brookes, *Garden of Paradise: The History and Design of Great Islamic Gardens* (New York, 1987). Landscape purists usually regard the palm trees in the Cordovan courtyard as intrusions into the perfection of the grid of orange trees.
38. The meager width of the watercourse has created a continuous safety problem, as in certain light it is barely distinguishable from the surrounding travertine paving, thus posing a significant risk to those crossing the space. In the early years, the rill was often dry and marked by potted plants trimmed as little balls, a particularly inappropriate solution. Richard Meier employed a similar detail at the Getty Center in Los Angeles, to lead water from the upper terrace to the central garden. As at the Salk, the rill was problematic, causing, one imagines, sufficient problems to result in its demise. The problem at the Getty was solved by elevating the rill on a travertine base about two feet high. This reduced the poetry of the watercourse but increased the safety for the crowds.
39. Hoyt was probably responsible for selecting, or possibly only confirming, the species used. There is no evidence that Patterson made contributions to the design and her name on the title block may have been a formality.
40. At Hoyt's suggestion the runoff was collected in large cisterns beneath the lower, west terrace. Because of the high salinity of the groundwater, cisterns were constructed to collect rainwater from the plaza and roofs of the buildings and to store it for irrigation. Apparently, algae growth in this stagnant water made it useless. MacAllister, interview.
41. Gary van Gerpen and Bob Lizarraga, interview with the author, 25 Mar. 2002, Salk Institute, La Jolla.
42. Louis Kahn, "Form and Design," *Architectural Design* (Apr. 1961), 151. Jack MacAllister recalls that Salk and Kahn were already on site by the time he arrived, having met Barragán at the San Diego airport. As he entered the space, Barragán murmured that "this is no garden, but a plaza—it's very much like a de Chirico," or something to that effect. MacAllister, interview. But in Barragán's account of the tale in 1986, he and Kahn had breakfast at the hotel in La Jolla before going to the site. He remembers that there were already some small orange trees being planted and that at this point he told Kahn that nothing botanical should occupy the center, that with a single plane he would unify the two façades into one cohesive whole. "Luis Barragán," in Richard Wurman, *What Shall Be Has Always Been* (New York, 1986), 269.
43. Barragán added: "I also suggested a channel—a memory of the water that falls in the plaza—which would end in a fountain. It was done that way, considering the pavement as if it were another façade. I did not intervene in the design of the fountains; these are Kahn's and besides, they are very good." Quoted in Figueroa Castrejon, *El arte de ver con inocencia* (Mexico City, 1989), trans. by Enrique Sanchez. The reliability of this recollection is open to question. As noted in the text, the rill had been a part of Kahn's schemes from the start and cannot be credited to Barragán.
44. The sketch is now at the Barragán Foundation.
45. Wurman, *What Shall Be*, 269.
46. Luis Barragán to Jack MacAllister, 10 Mar. 1966, Kahn Collection, AAUP.
47. Cited in Wurman, *What Shall Be*, 130.
48. "Man *is* nature. . . . It's not man *and* nature. It's not man *with* nature. Man *is* nature, just like the trees." Dan Kiley, "Lecture," in Warren Byrd and Reuben Rainey, eds., *The Work of Dan Kiley: A Dialogue on Design Theory* (Charlottesville, 1982), 8.
49. Luis Barragán to Louis Kahn, 6 Apr. 1966, Barragan Foundation.
50. Jack MacAllister to Luis Barragán, 22 Apr. 1966, Kahn Collection, AAUP. Their contact with potential stone suppliers was a Mexican architect working in the San Antonio office of O'Neill Ford, a friend of Kahn's. MacAllister, interview.
51. "Kahn had considered paving the central court with Mexican stone and then decided on Italian slate. But travertine proved considerably less expensive to import than the slate; his decision to use this less costly, light-colored material led him to discover the harmonious marriage of travertine and concrete, which he later stated gave the building its ancient, weathered cast." Louis Kahn, interview by Marshall D. Meyers, "The Wonder of the Natural Thing," interview with Kahn, 11 Aug. 1972, typewritten transcript 4-5, Kahn Collection, AAUP, cited in Friedman, "Salk Institute," 333, n. 35 (see n. 29). MacAllister reports that on visiting the potential quarry they found it somewhat derelict; the contractor wanted part of the money in advance, enough to cover the cost of a needed Caterpillar tractor. He and Kahn also

looked at the possibility of using a black Mexican volcanic stone, but economics dictated travertine as the final choice. MacAllister, interview.

52. I have not been able to verify this part of the story. By all reports, Salk accepted the idea of the simplified courtyard, but some parties must have been troubled by the lack of vegetation. Did Salk himself have second thoughts? Did others with sufficient influence suggest commissioning an alternate scheme? No documents record the decision-making process.

53. Lynne Creighton Neall, ed., *Lawrence Halprin: Changing Places* (San Francisco, 1986), 132. The entry ends, "Salk and Kahn remain friends and colleagues as well as major influences in Halprin's life and career."

54. "Larry Halprin," in Wurman, *What Shall Be*, 279 (italics in original). This recollection dates from some twenty years after the events and may have been clouded by time. Who the "they" were and why they noted that Barragán's suggestions were "not working" remain unknown.

55. For information on Halprin, see Wurman, *What Shall Be*, and Ching-yu Chang, ed., *Lawrence Halprin, Process Architecture #4* (Tokyo, 1978).

56. Lawrence Halprin, *New York, New York* (New York, 1968).

57. The concrete work, for example, is legendary in its precision and finish. Molded in plywood forms with coated interiors, the resulting concrete—a special mix vibrated during the pours—was as dense and smooth as finely ground stone.

58. Lawrence Halprin sketchbooks, Lawrence Halprin Collection, AAUP.

59. Halprin's later books include *The RSVP Cycles: Creative Processes in the Human Environment* (New York, 1969) and, with Jim Burns, *Taking Part: A Workshop Approach to Collective Creativity* (Cambridge, Mass., 1974).

60. Lawrence Halprin sketchbooks, Lawrence Halprin Collection, AAUP.

61. George McLaughlin to Louis Kahn, 4 Nov. 1966, Lawrence Halprin Collection, AAUP.

62. See, for example, his designs for the Lovejoy and Keller fountains in Portland of 1966 and Freeway Park in Seattle some five years later.

63. George McLaughlin to Louis Kahn, 1 Nov. 1966, Kahn Collection, AAUP.

64. Lawrence Halprin to Jonas Salk and Louis Kahn, 2 Dec. 1966, Kahn Collection, AAUP.

65. Louis Kahn to Lawrence Halprin, 6 Dec. 1966, Lawrence Halprin Collection, AAUP. The extent of Roland Hoyt's participation during the period of Halprin's involvement is not known.

66. Jack MacAllister to George McLaughlin, 5 Jan. 1967, 1, 2, Lawrence Halprin Collection, AAUP.

67. San Diego receives an annual rainfall of about ten inches; as in most of California, it is concentrated in the late fall and winter.

68. The section of this design also recalls the Court of the Lions at the Alhambra, which is said originally to have had elevated walkways (or recessed planting beds), so that the flowers' tops would be experienced as a carpet.

69. Louis Kahn to Jonas Salk, 19 Dec. 1966, Kahn Collection, AAUP.

70. Ibid.

71. Wurman, *What Shall Be*, 279 (see n. 42).

72. Kahn, *Louis I. Kahn: Talks with Students*, 40 (see n. 6). In writing about the role of the courtyards in Kahn's work, Kathleen James noted: "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." Kathleen James, "Louis Kahn's Indian Institute of Management's Courtyard: Form versus Function," *Journal of Architectural Education* (Sept. 1995), 49.

73. Van Gerpen and Lizarraga, interview (see n. 41).

74. One example is the dormitories at Bryn Mawr College in Bryn Mawr, Penn. (1960).

75. Louis I. Kahn, in Nell E. Johnson, comp., *Light Is the Theme: Louis I. Kahn and the Kimbell Art Museum* (Fort Worth, 1975), 12.

76. Some critics have taken greater issue with the siting of the East Building, such as Robert Venturi and Denise Scott Brown, who responded before its construction. In their view, closing the void transformed the Kahn buildings into a baroque composition, seriously compromising what they believed to be "the greatest expression in our history of an American genius, set in the context of the whole of Western civilization—and it is a tragedy that it is being whimsically and imperiously transformed in our time into an ordinary Baroque bore. It's as simple as that." Venturi and Scott Brown, "Comments Concerning the Salk Center," 10 (see n. 2).

77. In describing the planning of El Pedregal, Barragán noted: "We made it clear that we did not understand the term 'modern' to include the so-called California Colonial style. . . . In Mexico we have received the unfortunate influence of the California Colonial style. This is even more absurd since the style came from Mexico in the first place and was taken [from] there to California. Los Angeles and Hollywood re-exported it to Mexico as the California Spanish Colonial style." Luis Barragán, "Secret Gardens" lecture, California Council of Architects and the Sierra Nevada Regional Conference, Coronado, Calif., 6 Oct. 1951, repr. in Raul Rispa, ed., *Barragán: The Complete Works* (New York, 1996), 33–34.

78. For a typical treatment of the Salk Institute within the context of landscape architecture, see Felice Frankel and Jory Johnson, *Modern Landscape Architecture: Redefining the Garden* (New York, 1991). The reader is cautioned, however, that the text is undermined by a number of errors in fact and interpretation.

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Figure 16. Barragan Foundation, Birsfelden, Switzerland/ProLitteris, Zürich, Switzerland

Figures 18–20, 22–25. Lawrence Halprin Collection, The Architectural Archives, University of Pennsylvania