

The Limits of Reason

by Joe Burton

The master work of architect Louis Kahn is often viewed solely as the technological expression of pure construction in the service of physical function. Indeed, Kahn's built projects of the 1950's which brought him international recognition, the Yale Art Gallery Addition, 1951-1953, with its concrete tetrahedral ceiling housing lighting and mechanical equipment, and the Richards Medical Laboratories at the University of Pennsylvania, 1957-1964, with its heroic service shafts and precast, prestressed concrete structure became icons of contemporary architecture created from functional and constructional concerns. Kahn's many theoretical statements about his art, however, affirm his conviction that architecture goes beyond the rational expression of utilitarian excellence. As in the most memorable monuments of the past, he pointedly stressed the necessity of belief—that which transcends sensible knowledge—for the creation of a work of architecture:

I really felt very religiously attached to this idea of belief because I realized that many things are done with only the reality of the means employed, with no belief behind it. The whole reality isn't there without the reality of belief. When men do large redevelopment projects, there's no belief behind them. The means are available, even the design devices that make them look beautiful, but there's nothing that you feel is somehow a light, a light which shines on the emergence of a new institution of man, which makes him feel a refreshed will to live. **This comes from meaning being answerable to a belief.** Such a feeling must be in back of it, not just to make something which is pleasant instead of something which is dull: that is no great achievement.²

By pushing architecture beyond the limits of Cartesian measurement, Kahn evidently hoped for a meaningful work satisfying the requirements of the human heart as well as those of the body.

Kahn's own belief was founded upon an intuition of an ideal and omnipresent ground behind all reality that he described as "a world within a world".³ This transcendent realm which he call-

ed 'Silence' was populated by eternal spiritual essences found within the human soul. He called these psychic essences 'Form'. In one of his notebooks, circa 1959, he professed his idealism and contemplated this unseen existence as a significant determinant in the making of an architectural image:

The beginning is the time of belief in Form. The realization of an existence without material, without shape or dimension. Design serves this belief into being, by placing the maker in harmony with order and being. When the work is completed, the beginning must be felt.

The beginning is the belief in form. It is feeling as religion as dream and thought as philosophy. Its existence is without material, without shape and dimension. Design is the maker of harmony with order and being. A work inspired by form reflects belief. The aura of transcendence, the aura of commonness. One feels renewal in the work of another in transcendence.

The Beginning is the belief in Form, Feeling as Religion. Thought as Philosophy is the milieu of Form. Beyond the personal limits of feeling and thought removed from self.⁴

Kahn saw the world as a meaningful pre-existent 'Order' founded upon his vision of Form. He summarized his world view, reminiscent of the Greek concept of *kosmos*, as "Order is."⁵ For him, Order encompassed the essential human experiences of the psyche as well as the physical world:

An architect ("a man who feels Architecture as a spirit") can build a house and build a city in the same breath only if he thinks about both as part of a marvelous, expressive, and inspired realm. From the first feelings of beauty, or the first sense of it, and wonder that follows comes realization. Realization stems from the way we were made because we had to employ all the laws of the universe in order to be. We hold within us the record of the decisions that make us particularly human. There is the **psychic record**, and there is the **physical record**, together with the

choices we made to satisfy this desire to be, which in turn directed itself to what we are now.⁶

In a figure published in 1973⁷, he diagrammed the subtle psychic nature of Order conjoined with its tangible, physical character that he endeavored to incorporate within his architectural imagery.

To express the inner world of the human soul, Kahn suggested the use of symbolic images. Through such imagery a work of art intimates psychic meaning which goes beyond the depiction of physical reality:

An architect...is an artist in addition to being a professional man. But first let me explain what an artist is...Giotto was a great artist because he understood the realm of his art. He wasn't afraid to paint black skies in the daytime, people bigger than a building, birds that couldn't fly and dogs that couldn't run. His people weren't even people...but they are in their proper relation for the allegory.... They are related story-wise.... In the same way, a successful architect must understand his art, must command his medium.⁸

He also explained that symbolic architectural images were intrinsically more subtle and disciplined than images in the other arts because of the complex, pragmatic nature of architecture:

Another aspect (of architecture) is training a man (the architect) to **express himself**. This is his own prerogative. He must be given the meaning of belief, the meaning of faith. He must know the other arts. I use examples which I maybe have used too many times, but the architect must realize his prerogative. He must know that a painter can turn people upside down, if he wants to, because a painter does not have to answer to the laws of gravity. The painter can make doorways smaller than people. He can make skies black in the daytime. He can make birds that can't fly. He can make dogs that can't run, because he is a painter. He can paint red where he sees blue. The sculptor can place square wheels on a cannon to ex-

press the futility of war. An architect must use round wheels ("if he wants to bring his stone from place to place"), and he must make his doorways bigger than people. But architects must learn that they have other rights...their own rights. To learn this, to understand this, is giving man the tools for making the incredible, that which nature cannot make. The tools make a **psychological validity**, not just a physical validity, because man, unlike nature, has choice.⁹

The architect, according to Kahn, must integrate the symbolic, 'psychological' ideas of a work within its structural and functional constraints. August Komendant, the brilliant structural engineer who served as a consultant on many of Kahn's projects, apparently describes his collaborator's attempts to match physical order with spiritual order in his designs. He says that Kahn would request many structural schemes for a particular project. He then selected the one whose image he preferred, often against Komendant's recommendation.¹⁰ In *Eighteen Years with Architect Louis I. Kahn*, Komendant writes:

In Kahn's mind 'image' (what) was the only creative act; to create image does not require intellectual analysis, only intuition, which artists and also poets consider the true source of knowing and truth. On the contrary, the design (how) requires intellectual analysis, which merely explains, even hinders knowing. Thus it is not a creative process, it only involves quantifying of materials and method of construction, and when engineering is ended the spirit of image and its values take over.

...for Kahn, Architecture was Art. He strongly objected to the generally accepted notion that architecture is part art and part engineering. Engineering in Kahn's mind, was servant to the architecture.¹¹



It is most likely the hidden program of psychic allegory behind Kahn's choice of a structural image which leads to Komendant's professional dissatisfaction with some of his work, for example, the capitol complex at Dacca.¹²

Kahn's desire to create an architecture expressive of the human heart led him to study the psychic allegory found in primitive pictorial language, the hieroglyphics and iconography of Egypt. The justification for a study of the inventions of such an early culture, he explained in the following manner:

...(the) primitive case is more of an

indication of value than the more sophisticated case. To accept something at the very, very beginning, without precedent, is an infinitely stronger statement than how it is extended in later years.¹³

...if man's nature would not approve, a beginning would be impossible. So beginning is a revelation which reveals what is natural to man—it never would have happened. What the human approves—human as a larger term for man, instead of man simply as the species—is natural to all humans. I would say the beginning, then is natural to all humans. The beginning reveals the nature of the human....¹⁴

One of Kahn's books of Egyptology, I.E.S. Edwards's *The Pyramids of Egypt*, presents two primitive prototypes of the kind of psychic allegory found in his architecture.¹⁵ In his book, Edwards said that the Egyptian name for the pyramidal tomb, denoted by , meant literally 'castle of eternity', while , the hieroglyphic for the older stepped pyramid, probably meant 'the place of ascension'.

The castle of eternity was designed to protect and preserve the body of the pharaoh through the ages, thus insuring the survival of his soul. Edwards commented that such primitive logic produced many greatly admired masterpieces which never would have been realized without a belief in their practical spiritual value.¹⁶ The iconographic content of the pure pyramid, he said, was associated with the sun-god Rê in Egypt from the earliest times and he suggested an explanation for its relevance:

But what did the *benben* (the primitive stone fetish of pyramidal shape) and its architectural derivative, the true pyramid, represent? Only one answer suggests itself: the rays of the sun shining down on earth. A remarkable spectacle may sometimes be seen in the late afternoon of a cloudy winter day at Giza. When standing on the road to Saqqara and gazing westward at the Pyramid plateau, it is possible to see the sun's rays striking downward through a gap in the clouds at about the same angle as the slope of the Great Pyramid. The impression made on the mind by the scene is that the immaterial prototype and the material replica are here ranged side by side.¹⁷

According to Edwards, the choosing of this architectural allegory for a tomb rests upon its metaphysical content associated with the sun and the soul's resurrection. He described this

theological notion which was similar to that of the Osirian cult:


The sun-cult and the cult of Osiris were certainly not connected either in origin or in their main theological conception. Rê was primarily a god of the living, with whom certain privileged persons might be associated with after death, while Osiris was essentially the god of the blessed dead and of the region of the dead. Both gods, however, shared one most important feature in common: they provided a divine example of survival after death. Osiris, though murdered by Seth, had been restored to life by the magic of Isis, and Rê, whose daily disappearance beneath the western horizon was considered as his death, was reborn each morning at sunrise. In the experience of these gods, the ancient Egyptian found reason to hope for his own survival.¹⁸

Edwards further explained that the form of the castle of eternity had a practical magic purpose. It served as a solar ladder to the bright god above. Quoting ancient magic spells, he writes:

The Pyramid texts often describe the king as mounting to heaven on the rays of the sun. Spell 508 of these texts, for instance, reads: 'I have trodden those thy rays as a ramp under my feet whereon I mount up to that my mother, the living Uraeus on the brow of Rê.' The temptation to regard the true Pyramid as a material representation of the Sun's rays and consequently as a means whereby the dead king could ascend to heaven seems irresistible.¹⁹


His reading of the solar stair is most likely influenced by his interpretation of the earlier stepped pyramid as 'the place of ascension'. The stepped form associated with astral cults, he suggested was similar to the ziggurats of ancient Mesopotamia and the historical Tower of Babel which were viewed as links between heaven and earth.

Psychic Allegory In The Work of Louis Kahn

The ancient symbol of light, the pure pyramid and its two dimensional hieroglyphic, , expressed perfectly Kahn's sense of 'Order'—that the supersensible, psychic realm of Form, Silence, manifests into the sensible, physical realm as light and matter. He used the pyramidal shape and the triangle in his 'Silence to Light' diagrams, circa 1969, to inscribe in hieroglyphics this metaphysical allegory. Of this timeless image, he said:

The pyramids seem to want to tell us of its motivations and its meetings with nature in order to be. I sense Silence as the aura of the 'desire to be to express' Light as the aura 'to be to be' material as 'spent light'. (The mountains the streams the atmosphere and we are of spent light.)²⁰

One can find the allegorical image of the pyramid throughout Kahn's mature work. For example, it is presented early, clearly and insistently in the ceiling of the Yale Art Gallery Addition. Although the design of the Gallery ceiling was inspired by a space frame, structurally it acts as a series of concrete beams ornamented by an infill of concrete tetrahedrons.²¹ Similar to Komendant's complaint of Kahn's work at Dacca, imagery overrules structural reason in the Yale Art Gallery Addition. Kahn recognized this inconsistency and tried to rethink the structural logic of the completed building in a later study. After Yale, the primitive solar symbolism of the pyramid was brilliantly integrated within the triangulated structure of his City Tower Project of 1957.

Kahn's interest in architectural allegory is also seen in his use of the stepped pyramid pictograph, , 'the place of ascension', which Edwards had described. In his unbuilt projects for the Washington University Library of 1956, and the Theological Library at Berkeley, 1973-1974, this hieroglyphic quote is expressed three dimensionally in cruciform plan and in a 'wedding cake' composition, respectively. These two educational buildings were truly to be 'places of ascension' of the human mind and its aspiring spirit, an idea especially apt in the context of a theologians' library. The imagery of this pictograph, however, was more subtly realized in the stepped soffits of the cantilevered concrete beams of the Richards Medical Laboratories at the University of Pennsylvania, 1957-1964. This stepped form which originally was also found in the vent shafts is more evident in Kahn's earlier studies for the design. The elegant shape of the beams simultaneously reflect the physical determinants of their design to handle moment loading. With this integration of symbol and structure, the Richards Medical Laboratories provide a clear cut example of Kahn's desire to speak allegorically within the physical limits of the art of architecture. He may have been thinking of this work and its psychological meaning when he wrote in his 1959 notebook:

Form is the religion of Beginning, Design is the inspired writing of its Scriptures in the layers of order. It is the containing text that binds

thought and feeling prophecy and religion and aspiration. Reading it one experiences renewal of form as immanent, ever beginning. And when we celebrate a work which achieves this kind of sacred realization, we partake in man's worshipful-likeness to perpetuate the transcendence of form by that of himself.²²

In his attempt to extend the boundaries of late modern architecture into the realm of the human soul, Kahn joined the front ranks of western philosophers and artists who have challenged a solely materialistic conception of the world, a conception formulated during the Enlightenment. The Enlightenment inherited René Descartes's neat division of psyche and matter which encouraged a methodical exploration of all that is physically quantifiable. Immanuel Kant's *Critique of Pure Reason* of 1781 questioned this limited view and contributed philosophically to a Romantic rebellion against the Enlightenment in the nineteenth century. The work and thought of Louis Kahn ultimately descends from such attempts to re-establish conceptual links between the psyche and matter. His work must be seen as a form of *architecture parlante*, speaking architecture—a notion found within the Beaux-Arts traditions of his architectural education. In the late 1840's, Léon Vaudoyer, a French Romantic architect, coined the term to describe the emblematic architecture of Claude-Nicolas Ledoux.²³ By suavely speaking through 'the layers of order', Kahn never intended to dismiss the rational, physical aspects of a building. He merely hoped to elevate it into the immeasurable realm of architecture.

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Notes

1. This writing is partially taken from a lecture, "The Architectural Hieroglyphics of Louis I. Kahn", given at the Department of Architecture, McGill University in April 1982. It is based upon research in the Louis I. Kahn Collection at the University of Pennsylvania and work in Kahn's personal library at the Philadelphia home of his widow, Mrs. Esther I. Kahn. The research was undertaken while a Ph.D. candidate in architecture at the University of Pennsylvania, 1977-82.
2. Ronner, H.; Jhaveri, S.; and Vasella, A.; *Louis I. Kahn Complete Works 1935-74*, Westview Press, Boulder, Colorado, 1977, p.330, my emphasis.
3. "Louis I. Kahn Talks With Students", *Architecture at Rice*, 26, Rice University, Houston, Texas, 1969, p.24.
4. Kahn, Louis I., personal notebook, K12/22/c. 1959, Louis I. Kahn Collec-

- tion, University of Pennsylvania.
5. *Architectural Forum*, Vol. 137, No. 1, July/August 1972, p.46. "I came to a statement that 'order is' because I could never write what it is...I made a long list of what I *thought* it was. And when I threw the list away, 'order is' remained. It sort of included everything by not trying to say what it is. The word 'is' has a tremendous sense of presence."
6. Kahn, Louis I., "I Love Beginnings", *Complete Particulars/Louis I. Kahn Memorial Issue, Architecture and Urbanism*, 1974, pp.280-281, my emphasis.
7. "Louis Kahn—Silence to Light", *Architecture and Urbanism*, 73:01, p.47.
8. Kleckner, Carol E. "Louis Kahn Explains Esthetic Theories", *The Philadelphia Inquirer*, August 30, 1959, p.6D.
9. "Louis Kahn Talks With Students", p.18, my emphasis.
10. Komendant, August E., *Eighteen Years With Architect Louis I. Kahn*, Aloray Publishers, Englewood, New Jersey, 1975, pp.36-37.
11. Komendant, pp.23-24.
12. Komendant, pp.84-89.
13. Wemischer, Robert, "An Architect's Music of the Spheres", *34th Street Magazine*, University of Pennsylvania, April 22, 1971, p.3.
14. McLaughlin, Patricia, "How'm I Doing, Corbusier?", *The Pennsylvania Gazette*, Vol. 71, No.3, December 1972, p.20.
15. Edwards, I.E.S., *The Pyramids of Egypt*, Penguin Books, New York, 1952. Edwards book was a gift to Kahn from his daughter, Sue, his wife remembered, soon after his return from Egypt in the early 1950's. The copyright date of Kahn's edition is 1952.
16. Edwards, p.52.
17. Edwards, pp. 289-290.
18. Edwards, pp. 29-30.
19. Edwards, p.291.
20. Wurman, Richard Saul; and Feldman, Eugenie, editors, *The Notebooks and Drawings of Louis I. Kahn*, Falcon Press, Philadelphia. Besides light, the 'castle of eternity' seems to also imply Kahn's view of Being and the creative urge behind all Existence: "The inspirations come from the walk through life and through the making of a man, the inspiration to live gives a life to all... those manifestations of man that come from the inspiration to live forever." and "...The sense of physical well-being comes from the desire to live forever: to express." See Ronner, Jhaveri and Vasella, pp. 325 and 449.
21. Ronner, Jhaveri and Vasella, p.66.
22. Louis I. Kahn, personal notebook, K12/22/c.1959, my emphasis.
23. Drexler, Arthur, editor, *The Architecture of the Ecole des Beaux-Arts*, The Museum of Modern Art, New York, 1977, p.405.