Paul Philippe Cret and Louis I. Kahn: Architecture and Design

The building dedicated to Alfred Newton Richards in 1961 was the work of the first Paul P. Cret professor of architecture, Louis I. Kahn. Together, Cret and Kahn span the existence of instruction in architecture almost from its origins as a branch of engineering in the Towne Scientific School to its present-day status as the largest constituency in the Graduate School of Fine Arts. Both men were recipients of the gold medal of the American Institute of Architects and, as teachers of architecture, each marks a distinctive high point in the career of the school: as the premier Beaux-Arts institution of the twenties and, again, the spawning ground of notable architects at the time when Louis Kahn was coming into his own as America's most original architect.

Before he designed the University's new buildings on the campus in West Philadelphia, Thomas W. Richards had given instruction in drawing there—an accomplishment recommended immediately after the ability "to write a fair Hand and swift" by none other than Franklin. Not only had the founder considered drawing "a kind of Universal Language understood by all Nations," but he saw it as a skill "no less useful to a Mechanic than to a Gentleman." In 1874, Richards' title was changed to professor of drawing and architecture. Since, in classical times, architecture had been considered an indispensable branch of education, Richards was eager to see this most ancient of the arts restored to its former eminence through recognition by the University. His hopes were fulfilled in 1890 when the school of architecture opened with stimulation from the Philadelphia chapter of the American Institute of Architects, whose president, Theophilus Parsons Chandler, became its first dean. When the school was permanently organized at the end of the academic year, he was succeeded by Warren Powers Laird, whose greatest accomplishment for the school was to bring over Paul P. Cret, diplomé of the Ecole des Beaux-Arts and already a winner of several of the most coveted prizes of the French school.

After taking up residence at the University of Pennsylvania in 1903, Cret returned to France almost immediately to marry a French wife. A decade later, he left the United States again, this time to join the French
Paul Philippe Cret (1876–1945)
Assistant professor and then professor of design at the University of Pennsylvania (1903–1916, 1918–1924, 1929–1937). Born in Lyons, he studied at the École des Beaux-Arts in Lyons and Paris and designed the prize-winning Pan American Union in Washington soon after arriving in the States. In addition to buildings, he designed war memorials and the Valley Forge Arch; also several major bridges in the Philadelphia area where, with Jacques Greber, he laid out the Parkway. One of the most influential of the French teachers who brought the Beaux-Arts tradition to America, he inspired a generation of architects and made the department of architecture at the University of Pennsylvania the most important school in America of the time. He received an honorary Sc.D. (1913), was appointed architect to the University (1930), and, upon his retirement, was named associate trustee. Received the gold medal of the American Institute of Architects (1938).

In the beginning of any work of composition, the finding of the scheme may seem a sort of chance game in which some are army in which he served as a cartographer. He had been awarded an honorary degree of Doctor of Science at the University just before the war broke out, and he was described in the press as “Penn’s fighting professor.” In 1916, the papers printed his obituary, accompanied by a statement that Provost Edgar Fahs Smith refused to believe the report that he had died in action. The provost’s optimism proved well founded, and in 1919 Cret duly returned as an officer of the Légion d’Honneur. There was a reunion at the T-Square Club of Philadelphia to which he had also given his time in prewar days and where he was now “enthroned as a ‘King’ in the presence of hundreds of loyal and affectionate former students.” Cret had been wounded at Arras and remained partially deaf from the noise of bursting shells. He described the war as a terrific waste: “waste of time, energy and young men, waste of architecture and homes.” Having designed the Washington Memorial Arch in Valley Forge before the war, he was now appointed consulting architect to the American Battle Monuments Commission. Cret designed a chapel at Waregem in Belgium and memorials in Gibraltar as well as at Fismes, Varennes, Bellicourt, and Château Thierry in France and, at home, the Frankford War Memorial and the Gettysburg Memorial.

After settling in the United States Cret seems to have found no difficulty in reconciling his own training in the most respected architectural tradition of the time with a sympathetic awareness of the diverse requirements of this continent and the need to develop a system of teaching based on American educational methods. Cret’s great influence as a teacher and practitioner during his years at the University of Pennsylvania carried over into papers discussing instruction in architecture, which he always viewed against a larger canvas of the philosophy of education and general culture. Perhaps in part because of his deafness, Cret developed the art of communicating eloquently as a design critic by means of a few strokes of his pencil. A similar skill permitted him to pass swiftly to the essentials in arguments on the nature of the architect and the best method of training.

Cret opposed the notion of importing the French system, which involved a longer, more specialized training for architects, because, as he pointed out, it overlooked the different situations and needs of the American student. Nonetheless, he remained faithful to many of the tenets of the Beaux-Arts tradition of instruction. Cret believed in the efficacy of a preliminary sketch or esquisse by students, “done within a specified limit of time without reference to documents or criticism by an instructor.” The main features had to be maintained throughout the solution of the assigned problem. By this means, Cret aimed at showing that there was no such thing as one ideal solution, but only a number of different ways, of varying merit, of approaching any architectural problem.
luckier than others. . . . There is, however, a corrective to the chance which seems to treat indifferently good or bad designers. If the bad designer starts with a poor idea, he is unable to better it. . . . A good designer, on the other hand, if he does not find the best solution of a problem at first, has enough training to find many approximate solutions, seeing immediately the possibility of retaining some parts of them, and by the end, and after a good deal of work, if he has not produced a masterpiece, he will certainly have at least designed a building fitting the conditions of the programme, well studied and of good proportions. . . . We see at once that superiority in design is mostly knowing how to study, that is to say, to give form to an idea to make it constructible, and to improve it by good proportions.9

Similarly, architects trained at the Ecole started out with an abstraction, called the parti, which involved making “an initial, philosophical decision as to what the building should be.”10 This was given progressive architectural form by the marche of the composition consisting of a series of consecutive sections. Cret’s own method reflected his training in design, and he is described as visualizing his buildings as though he were able to see through the walls.11

In his emphasis on the need for “study,” Cret lucidly detracted from the popular myth “that designers are born, not made.” For the same reason, when the pendulum of taste in architecture, of which he often spoke, was swinging far away from classical to modern values—values whose revolutionary tenets, as he pointed out, nonetheless all had a historical precedent—Cret noted at what sacrifice of sound educational principles the dubious spark of individual “originality” was nurtured. Proposals for educational reform are merely one consequence of the “old conflict” against tradition although, he suggests, “there is probably no more justification for it than for revising the teaching of piano scales when Debussy instead of Mozart is to be played.”12 On an earlier occasion, Cret drew an analogy with literature rather than music to illustrate the lack of foundation for fashionable—and recurrent—architectural prejudices which obscure the fundamentals of architectural knowledge:

The words of a modern language . . . are themselves transformations or deformations of radicals whose origin is lost in the darkness of philology. One does not cast away in a day the patrimony acquired by centuries of labor. . . . Architectural forms, which are like the words of our language, are transformed very slowly and without much regard for the rules which we should like to establish. But what remains in our power is to use these forms in giving expression to our own ideas and not to those of our fathers. The vocabulary of Stevenson or Carlyle is not very different from the one of Sterne or even Milton. Nobody, however, fails to recognize differences between these men.13
If the battle between the moderns and the traditionalists ended with the defeat of the latter, the revolution in style and taste which has taken place over the years is particularly marked with regard to Cret's own buildings. Cret had started his career in the United States, by winning in association with Albert Kelsey the competition for the International Bureau of American Republics. Chosen from among eighty-seven entries, the Pan American Union, as the prize-winning building came to be known, originally called for stucco to be used. So highly acclaimed was the building, however, that Andrew Carnegie gave an additional $500,000 permitting the use of marble for the 1907–8 construction. Even as late as 1948, according to the poll of architectural opinion taken that year by the American Institute of Architects, Cret's Folger Library in Washington was voted the most admired building of the time. In the sampling of their tastes taken in 1976, the views of architects were very different. Although Cret's student, Louis Kahn, was one of the few to have two buildings cited by six or more of the architects and critics who responded to the survey, not a single work by Cret himself was mentioned.

The training of the Ecole centered on the principle of competition, and Paul Cret, nurtured in this tradition, won first place in seven such competitions and saw all his winning designs become a reality. He left his mark on the Philadelphia area with his designs for Rittenhouse Square, as well as the Benjamin Franklin Parkway, started by Cret and finished by Jacques Greber, with whom he also collaborated on the Rodin Museum. Another important local commission was a private residence in Merion designed to house the collection now known as the Barnes Foundation. On a much larger scale, the Benjamin Franklin Bridge—formerly the Delaware River Bridge—resulted from a collaboration with engineer Ralph Modjeski. This mighty structure in unmasked steel was followed by the construction of the Henry Avenue Bridge spanning the Wissahickon Drive and the University Avenue Bridge as well as the graceful Calvert Street Bridge over Washington's Rock Creek Park.
Quite atypical of his usual style is the chemistry building at the University. Designed in a gesture towards modernism and under the urging of his students, this late building was immediately denominated "Battle Ship Corner" by the residents of the wartime campus. In a more far-reaching contribution, the French architect also devoted considerable attention to the first major attempt at planning for the future growth of the University of Pennsylvania.

With the triumph of the modern movement, Cret’s buildings have suffered an eclipse shared by those of other architects whose work stemmed from the Beaux-Arts tradition or reflected the eclecticism of the last, and the early part of this, century. Renewed interest in the Ecole, however, resulted in a major exhibition at the Museum of Modern Art in New York at the end of 1975. It is increasingly recognized that "the theoretical basis of modern architecture is as much a collection of received opinions as were the doctrines it overthrew." Furthermore, "the majority of the architects who reached professional maturity by the end of the 1940s had received at least an American version of Beaux-Arts training."

One of the main reasons for its reputation was the highly sophisticated teaching method of the Paris Ecole. Now, in addition, the Ecole has come to receive credit for influencing imaginative American architects of recent times:

During the last few years there has taken place a reappraisal of the relative importance of certain American architectural schools after the arrival of the International Style. Gropius’ Harvard and Rudolph’s Yale have been challenged, in retrospect, by the University of Pennsylvania and Princeton. The reason for this reappraisal has been the quality of the work of certain men trained at the latter two institutions—Louis Kahn at the former, Robert Venturi, Charles Moore and Donlyn Lyndon at the latter—and because of the credit these men give to their teachers—Paul Philippe Cret at Pennsylvania and Jean Labatut at Princeton. Cret and Labatut were Frenchmen, products of the Ecole and faithful to their tradition.
Louis I. Kahn (1901–1974)
Professor of architecture at the University of Pennsylvania (1956–1974), Kahn received his degree at the University (B.Arch. 1924) and later the honorary D.F.A. (1971). He was chief of design for the Sesquicentennial Exposition in Philadelphia (1925–1926) and organized the Architectural Research Group of thirty unemployed architects during the Depression. Taught at Yale before returning to the University of Pennsylvania where he designed the Richards Medical Research Building, a commission which was followed by a great demand for his work both at home and abroad. Among many awards, he received the gold medal of the American Institute of Architects (1971) and of the Royal Institute of British Architects (1972).

Among the aspects of the Parisian ateliers which Cret did not import to the University was the attitude of the patron: “Where the Patron of an atelier in the Paris Ecole would arrive in the atelier in a swallowtail coat, complete with top hat, a stick, and gloves, and the students never knew when to expect him, Paul Cret would walk into the great drafting room at the University of Pennsylvania in his shirt sleeves promptly at two in the afternoon every week day and, toward the end of a problem, on Sundays.”20 The students, who did not arrive in Cret’s atelier until their senior year, would listen—and watch—attentively as he passed among them. The highest praise from Cret was his utterance of the terse gallicism: “It can go,” while the reverse was comprised in his most famous observation: “You do not know what you are doing,” or the equally devastating query: “‘Ave you a sponge?”21 In the twenties the alumni attributed the high reputation of the school of architecture almost entirely to the “master,” Paul Philippe Cret.22 Under his guidance students from the University of Pennsylvania won the Paris prize three years in a row. One of these, Harry Sternfeld, who was later a professor at the school, speaks movingly of the influence of Cret on himself and others:

... As one who personally had experienced the revelation and inspiration which emanated from that incomparable guiding tutelary of architectonic beauty and perfection—Paul Philippe Cret—it is my considered opinion that he was the brightest luminary among the other French masters (in the country). . . . My judgment, so personal, is equally shared by thousands of his other devoted students—from all over the world—whose perceptions and powers burgeoned and expanded through the magic and mystique of his ethereal potency.23

In The Book of the School put out in 1934 by the department of architecture there are illustrations of both the Pan American Union and the Folger Library designed by Cret. In the same book, Louis I. Kahn is listed as an alumnus of 1924 with nothing more beside his name than his current address. He had started his architectural studies at the University in 1920, the year the department of architecture became the principal unit of the newly created school of fine arts. A pamphlet on architecture, which the school brought out soon afterwards, includes a prize-winning “Esquisse for a monumental fountain” by Kahn. The stated purpose of the publication was to show that the “study of design is a vital element in architecture.”24 It is clear that the underlying academic theory of his education made a lasting impression on Kahn, particularly in its stress on a masonry architecture of palpable mass and weight with clearly defined spaces formed and characterized by the structural solids themselves.25 Long after the Beaux-Arts tradition had fallen into disfavor, Kahn remarked: “I don’t know it as a tradition. I know it as an introduction to the spirit of architecture which has very little to do with the realistic solving of problems.”26
As a student, Louis Kahn had initially been torn between architecture and music. In fact, faced with insufficient space in his room for a bed and a piano, he claims to have slept on the piano. He had been told by the director of the Philadelphia School of Industrial Art for drawing, carving and modeling, from which he graduated: “No music. Nothing but art” and he went on to win first prize in drawing in a city-wide competition sponsored by the Pennsylvania Academy of the Fine Arts in both his junior and senior years at Central High School. To support himself during his student days at the University of Pennsylvania, however, he earned money as relief pianist in two movie houses.

The parallel between the work of the architect and the world of music is a recurring theme of his poetic pronouncements on art and architecture. In 1955, he wrote:

Is the auditorium a Stradivarius
or is it an ear
Is the auditorium a creative instrument
keyed to Bach or Bartok
played by the conductor
or is it a convention hall.27

A decade and a half later, Kahn returned to the same image:

The auditorium wants to be a violin. Its lobby is the violin case. . . . Open before us is the architect’s plan. Next to it is a sheet of music. The architect fleetingly reads his composition as a structure of elements and spaces in their light. The musician reads, with the same overallness, his composition as a structure of inseparable elements and spaces in sound.28

The implicit synesthesia in this description appears again more forcefully in the statement: “To the musician a sheet of music is seeing from what he hears. A plan of a building should read like a harmony of spaces in light.”29

In 1966, Louis I. Kahn became the first Paul P. Cret professor of architecture at the University of Pennsylvania, to which he had returned as professor ten years before. Kahn once remarked: “A city is a place where a small boy, as he walks through it, may see what he wants to do his whole life.” Philadelphia was the city where he himself had walked and grown and in which he claimed to have been educated at the Free Library, the Museum, and the University of Pennsylvania.30 Kahn’s return in 1956 to the University at which he had studied coincided with the end of what, in view of his achievements after the age of fifty, appears something like a protracted apprenticeship in the theory—and philosophy—of architecture. His friend and client Jonas Salk wrote:

For five decades he prepared himself
and did in two
what others wish they could do in five.31
It was not merely the war and the depression but something in Kahn's own creative genius which held him in check and made the impact of his work, with its far-reaching intellectual and emotional content, all the greater when it came. Through the brilliance of Kahn, the University of Pennsylvania acquired "one of the greatest buildings of modern times." With its treatment of space, its structural techniques, and its solutions to the special problem of creating a functional laboratory complex, his design for the Alfred Newton Richards Medical Research Building and the Biology Building next to it marked a turning point in the career of its architect. His other work for the University of Pennsylvania was the renovation of the president's house on Spruce Street which he undertook fifteen years later. Because of Kahn's predilection for visible structure, the Richards Building "remains a record of how it is put together." In this, Kahn's
practice had much in common with the theory underlying his architectural training. It was perhaps a result of this natural bent, too, that Kahn found it difficult to adapt his own design to the fluidity and lightness of the so-called International Style. The form taken by the buildings of his maturity was one which aimed at revealing inherent problems of structure and function. In describing his conception of a skyscraper Kahn writes: "The tower is an experimental exercise in triangulation of structural members rising upward to form themselves into a vertical truss against the forces of the wind." The solutions he proposed are very different from those put forward by Mies van der Rohe in his Seagram Building, of which Kahn wrote: "Take the beautiful tower made of bronze that was erected in New York. It is a bronze lady, incomparable in beauty, but you know she has corsets for fifteen stories because the wind bracing is not seen."

For many years, Kahn's influence was mainly as a teacher and theoretician. Some of his projects, together with the poetic evocations of the problems to which he addressed himself, were published in Perspecta, the architectural journal founded in the fifties at Yale. He possessed the "magic ability to communicate with the young." In part this was a result of his striking use of recurrent images and pronouncements on the theory of architecture which have been compared to Zen koans: "Q: What does a brick like? A: An arch." Much of his theory takes on the rhythm of blank verse, with individual thoughts expressed in sentences not dissimilar to Japanese haiku. This is particularly true of his much-quoted statement, "Order and Design," in which he gives paradoxical expression to his deeply seated belief in the existence of something resembling the Platonic "form" in the mind or imagination, precedent to the tangible Form which belongs to the realm of design and action:

Order is
Design is form-making in order
Form emerges out of a system of construction
A Form emerges from the structural elements inherent in the form.
A dome is not conceived when questions arise how to build it.

One of his basic tenets is the "will to be" of the spaces themselves which his colleague and collaborator, engineer August E. Komendant, attributes to Schopenhauer. Kahn endows the disparate elements with animistic vitality: "A street wants to be a building." The building itself takes on life as an individual:

A building being built is not yet in servitude. It is so anxious to be that no grass can grow under its feet. ... When it is in service and finished, the building wants to say, "Look, I want to tell you about the way I was made." Nobody listens. Everybody is busy going from room to room. But when the building is a ruin and free of servitude, the spirit emerges telling of the marvel that a building was made.
For Kahn, “a column should be regarded as a great event in the making of space,” not a post or a prop; “a stair is a very important event in a building.” In distinction from mere decoration, “the joint is the beginning of ornament . . . Ornament is the adoration of the joint.”

Kahn’s philosophy of architecture comes together with his feelings as a teacher and his general view of knowledge when he discusses “what School wants to be.” His conception involves the nature of the place and its translation into space: “I think of school as an environment of spaces where it is good to learn. School began with a man under a tree who did not know he was a teacher discussing his realization with a few who did not know they were students.” This observation reflects the Socratic aspect of his own manner of instruction with its emphasis on dialogue, and this, in turn, was based on Kahn’s firm belief that a good question is greater than the most brilliant answer. This is the way he speaks of buildings which do not give the correct answer to the architectural questions: “The schools are good to look at but are shallow in architecture because they do not respect the spirit of the man under the tree.” One reason that Kahn built very little before the age of fifty appears to be his own struggle with the right question. His uncompromising attitude is revealed in the statement that “the right thing badly done is always greater than the wrong thing well done.”

Kahn was known and respected by other architects at the time of his return to the University of Pennsylvania; but he had relatively few buildings to his name, despite the fact that “his students generally felt with some uneasiness that he should have been, even might have been,” great. His most important design up until that time had been for the Yale University Art Gallery, the first contemporary building on the campus near where the new Yale Center for British Art, the last building designed by Kahn, was opened in 1977. The years of theorizing were necessary to Kahn, almost as though his unrealized projects were in themselves what he called “an offering to the spirit Architecture.” In the last years of the fifties, Kahn burst on the scene still dominated by the giants of earlier in the century—Gropius, Le Corbusier, Mies van der Rohe, Wright—with his Richards Medical Research Building. In ten years, he more than made up for any previous leaness in tangible constructions. In the late forties, he had drawn up a “Plan for mid-town Philadelphia” which was lovingly presented a few years later in Perspecta 2. Then, in the sixth decade of the century and of his life, Kahn received the commission to design the regional capital of Pakistan at Dacca, since become the capital of Bangladesh.

At the time of its construction, the Alfred Newton Richards Medical Research Building was the subject of an exhibition at the Museum of Modern Art in New York. In the bulletin accompanying this display devoted to a single work of architecture, the Richards Building is described
as "probably the single most consequential building constructed in the United States since the war." It is, the account goes on, "simultaneously a building and a manifesto. Its impact is derived from its inventive and rigorous integration of form, function, space and structural technique. More than any other building recently constructed in America it is principled, vigorous, fundamental and exhilarating; it states, teaches, and questions."  

Newton Richards, the scientist, believed in asking the quintessential question and designing an experiment which might answer it. The building which was dedicated to him in his last years was designed by an architect...
whose stated concern was also with asking "good questions" architecturally and functionally. Kahn describes some of the answers he devised to those posed by the medical research laboratories:

The laboratories may be characterized as the architecture of air cleanliness and area adjustability. . . . The Medical Research Building at the University of Pennsylvania is conceived in recognition of the realizations that science laboratories are studios and that the air to breathe should be away from the air to throw away. . . . I designed three studio towers for the University where a man may work in his bailiwick and each studio has its own escape sub tower and exhaust sub tower for isotope air, germ-infected air and noxious gas.  

As usual, "Kahn explains the structural interaction in the anthropomorphic terms he favors. For him, buildings feel, think and act."

Responses to the building are described as suggesting "old-fashioned terms of morality: honesty, integrity, truth, a dedicated search for the best artistic means of expression to the best functional end." In some cases, the answers at which Kahn arrived in this his first major project may not have been altogether satisfactory. With his view of knowledge in terms of dialogue and an overarching humanism, he overlooked such elemental considerations as the scientist's need for a controlled environment. But if the "scientist occupants" have set up divisions felt as "visually confusing" in terms of the architect's conception of inner spaces, the soaring towers with their ingenious solution to the relation of served to service spaces, and the engineering feat which permits of a great cantilevered porch, "one of the most heraldic entrances in modern architecture," have set a landmark on the campus which is also a milestone in contemporary architecture in America.

Kahn describes Jonas Salk's reaction to the Richards Building before he gave the architect the commission to design the Salk Institute in La Jolla: "How nice, a beautiful building. I didn't know a building that went up in the air could be so nice." The question of size was the first consideration; but Salk soon expressed another objective:

He said: "There is one thing which I would like to be able to accomplish. I would like to invite Picasso to the Laboratory!"

In Kahn's haiku-like extrapolation:

Science finds what is already there,  
but the artist makes that which is not there.

He goes on to say: "This consideration changed the Salk Institute from a plain building like the one at the University of Pennsylvania." The measured lines of print interpret the cadences of Kahn's utterance made on this occasion before an audience of architecture students at Rice.
University. In the accompanying photographs, his listeners are sitting outside on the grass with Kahn in their midst—the man under the tree.

Even after commissions crowded in on him in larger numbers than he could handle, Kahn continued to teach the students who loved to hear him. "Teaching is essential to me," he said. "I think it is my chapel." It was on his way to teach a class at the University of Pennsylvania, traveling home from Ahmedabad where he had designed the Indian Institute of Management, that he died in March, 1974. Only a few weeks before, the president of the University had persuaded him to serve as an advisor on the physical development of the campus and its surroundings. In his tribute to Kahn, Jonas Salk expressed the regret: "It will never be known how much, nor what more, would have been expressed had life lingered until the capacity to create began to ebb." Years before, Kahn had given his own poetic expression to the consolation which belongs in so unique a way to the creative artist: "It's what a man makes, what he writes, his painting, his music, that remains indestructible. The circumstances of their making is but the mould for casting... Whatever happens in the circumstantial course of man's life, he leaves as the most valuable, a golden dust which is the essence of nature." Louis Kahn left such a legacy in the students he taught, in the ideas he expressed, and in the buildings he designed.