

f body, mind and spirit

by Rafel H. Aziz

Cet essai se propose d'examiner les diverses manières par lesquelles l'architecture aborda le corps humain à travers l'histoire. Il émettra des arguments en faveur d'un rapport réciproque entre celle-ci et l'existence en général. L'auteur espère ainsi établir des nouveaux critères de base selon lesquels l'on pourra créer et juger l'architecture.

"Primitive man has brought his chariot to a stop, he decides that here shall be his native soil [on which to construct a hut and temple]... by imposing the order of his foot or his arm, he has created a unit which regulates the whole work; and this work is on his own scale, to his own proportion, comfortable for him, to his measure... But in deciding the form of the enclosure, the form of the hut, the situation of the altar and its accessories, he has had by instinct recourse to right angles, axes, the square, the circle... [which] are geometrical truths, and give results that our eye can measure and recognize... [Furthermore] the door of his hut is on the axis of the enclosure -- and the door of the enclosure faces exactly the door of the hut [that is also on axis with both the altar and the door of the sanctuary which forms a shelter for a god]."

In creating a home for themselves and a temple for their god, humans turned to their own bodies for a basis from which to manifest architecture. The first inhabitants, Le Corbusier postulates, achieved this by performing three fundamental acts, all of which were derived from a desire to represent their existence. Ironically, Le Corbusier returned to the maiden steps of primitive man in an attempt to formulate a vision for a new architecture. This, however, is not surprising considering the belief that the presence of human beings' essentiality in any creative act goes back to the beginning of time. This association is even present in the Judeo-Christian tradition: "The carpenter stretcheth out his rule; he marketh it out with the compass, and maketh it after the figure of a man, according to the beauty of a man; that it may remain in the house." (Isaiah 44:13). By building according to the proportions of their own bodies, humans were convinced they were doing so of and from their own nature. Later, Christ would make an analogy between the temple and himself (John 2:21), thereby placing the body in a divine realm.

Within our nature lie three notions to which Le Corbusier has clearly alluded: the physical, intellectual, and emotional. As architecture must satisfy every part of us, every sense, every want -- basically the whole of human nature -- it must do so by transforming these notions into principles for its own manifestation. The intention here will be to achieve this transformation

by initially examining the human body through its colorful interpretations in history and later, from this, to derive principles of architecture. Thus, this discussion will argue for a reciprocal relationship between architecture and holistic being in an attempt to establish principles upon which the former may be based, created and judged, in essence, to realize an architecture of body, mind and spirit.

A comprehensive discourse of architecture vis-à-vis the human body rightfully deserves a treatise, one yet to be undertaken. As it is not possible to do so within the limits of these pages, it will suffice to provide an overview of numerous interpretations of the human body through a series of historical periods from antiquity to the present. While each period viewed the body differently -- whether figuratively, metaphorically, symbolically, or phenomenologically -- all shared a common belief of representing its eternal existence in an architecture that would, in turn, be equally timeless.

To begin, ancient Egyptians have left very little in the way of actual writing on the subject at hand; we are left to archaeological findings to interpret their intentions. One such finding was made by C.R. Lepsius who, in an unfinished tomb, discovered the first of hundreds of figures overlaid by a square grid.² (Fig.1) Each figure included a centre line denoting a vertical axis which was, in turn, divided by six horizontal lines

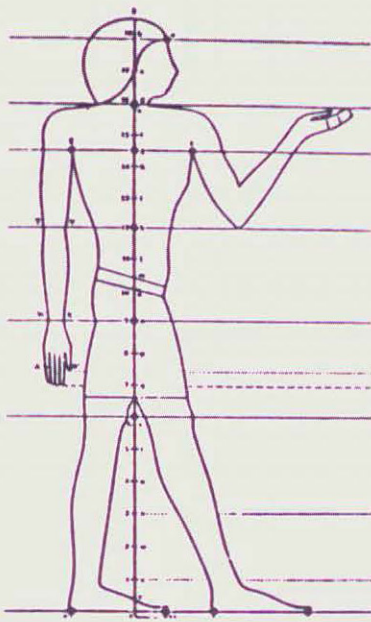


Fig. 1
Lepsius'
Canon
(Geometry in
Egyptian Art,
p. 17)

marking significant points on the human body. In addition, two red dots established the feet. Lepsius concluded that the length of the foot was the basic unit which also determined both the dimension of the network of squares as well as the members of the body. Interestingly enough, the overall height of the figure was six foot units; a ratio to later concur with Vitruvius' canon. An alternate interpretation, based on other grids, is given by Erik Iverson who claimed the module to be either a cubit (i.e. the length from elbow to finger tip) or a derivation thereof (i.e. the fist or hand). Sigfried Giedion agrees with both Lepsius and Iverson, contending that, "Egyptian architecture is a projection of the human body and limbs transposed into a larger -- but still human -- scale. This is especially true of the great temples. Man and man's artifact were closely interlocked."³

Clearly a physical relationship was established by the first Egyptians between architecture and the human body. This is quite understandable, being the first and simplest of the three notions to perform. What more appropriate unit of measure could they find than one based on a member of their own body? A Pharaoh would have been honored if his temple or tomb were established on his "royal" cubit, hand or foot.

Classical Greeks, in contrast, were more interested in an intellectual association between artifact and being, an appropriate next step in the evolution of civilization. They sought to understand the har-

monic essence of creation by establishing its nature in their minds. The Pythagorean motto "All is number" is well known. Simple numbers and their interrelations, closely linked to musical consonances, were believed to represent both the macrocosm and microcosm of nature, the universe, and the encompassing. To the Greeks, simple ratios of 1:2, 2:3, 3:4 or other derivations produced by musical strings, provided the ears and eyes with the same satisfaction; thus, their expression was to be realized in all creations.

Plato expanded upon this Pythagorean insight to formulate a cosmological order which would influence thinking for some two thousand years, being most firmly instilled in Renaissance doctrine. He maintained that the beauty of creation relied on it being good, ordered, perfect, and whole. Plato first established the "Number of World-Soul". Beginning with the progressions 1,2,4,8 and 1,3,9,27, he created two rhythmic sequences to embrace universal harmony. Plato went on to define the four elements: earth, water, air, and fire, together with the universal geometrical figures, namely, the five Platonic solids. Through relations of numbers and figures, Plato was satisfied he had re-established what he called "the spirit of friendship" that God had originally intended.

These relations proved significant in classical aesthetics, which according to Erwin Panofsky, "identified the principle of beauty with the consonance of the parts with each other and the whole".⁴ While Plato and his Pythagorean predecessors had

sought to satisfy the objective mind, Panofsky has realized a desire by ancient Greeks to also satisfy the subjective sight; both needs are equally relevant within the context of the intellectual relationship between creator and creation. Although Panofsky found optical refinements in sculpture, others such as John Pennethorne and Bannister Fletcher have revealed them in architecture. Their purpose, in all cases, was to account and adjust for any distortions due to such factors as: perspective, angle of sight, column thickness, heights of elements, and backgrounds. These refinements seem to suggest that, to the Greeks, visually-pleasing compositions were as much associated with a sense of perfection as were harmonic numbers.

The discussion thus far has relied on interpretations of either archaeological findings or indirect literary sources. However, a complete treatise on architecture has survived from antiquity, specifically, Vitruvius' ten books *De architectura*. In this work he deliberated at length upon the connection between buildings and the human body. Others before him had written about the latter, but made no correlation with the former; Plato, in contemplating the constituents of the human body had declared the head to be "the seat of our divinity and holiest part... which serves all the rest,"⁵ while Polyclitus, in formulating classical Greek anthropometry, held that the body's beauty was based on the relation of its members to each other and the whole.

Vitruvius, on the other hand, developed a more comprehensive aesthetic theory centred on an analogy between the design of a temple and a well shaped man. "Since nature has designed the human body so that its members are duly proportioned to the frame as a whole", claimed Vitruvius, "in perfect buildings the different members must be exact relations to the whole general scheme".⁶ He was convinced of perfection in the human figure following several brilliant insights. On a symbolic level, Vitruvius realized that the body, with arms and legs extended and with navel as centre, produces a circular outline. At the same time, a square is derived as a result of equality in measurement between the height of a man and the span of his outstretched arms (Fig. 2). Furthermore, Vitruvius advised that the Doric column corresponds to the strength of a man and the Ionic column to the slenderness of a woman, a concept already utilized in the caryatid porch of the Erechtheion in Athens (Fig. 3). On a practical level, he developed several proportional relations specific to

the members of the human figure, thereby recalling the canon of Polyclitus with substance. Having deduced these notions and ratios from nature's most perfect creation, Vitruvius proceeded to apply the principles to temple designs so as to realize his original analogous conception.

With the fall of the Roman Empire and the rise of Christianity, emphasis shifted towards a religious symbolism of the human body on which the arts were to be realized. The concern was with the third notion, the spiritual relation. In Byzantine doctrine, which has survived through Cennino Cennini, the face, believed to be "the seat of spiritual expression", was taken as the most significant and beautiful unit of

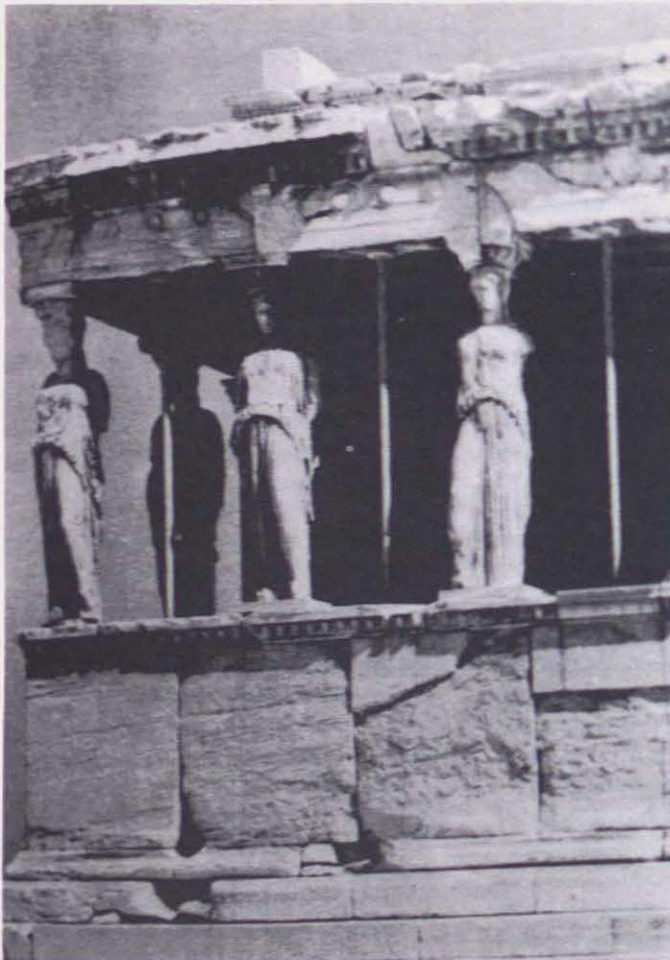


Fig. 2
Vitruvian
Figure
according to
Leonardo da
Vinci
(Architectural
Principles in
the Age of
Humanism,
pl. 2b)

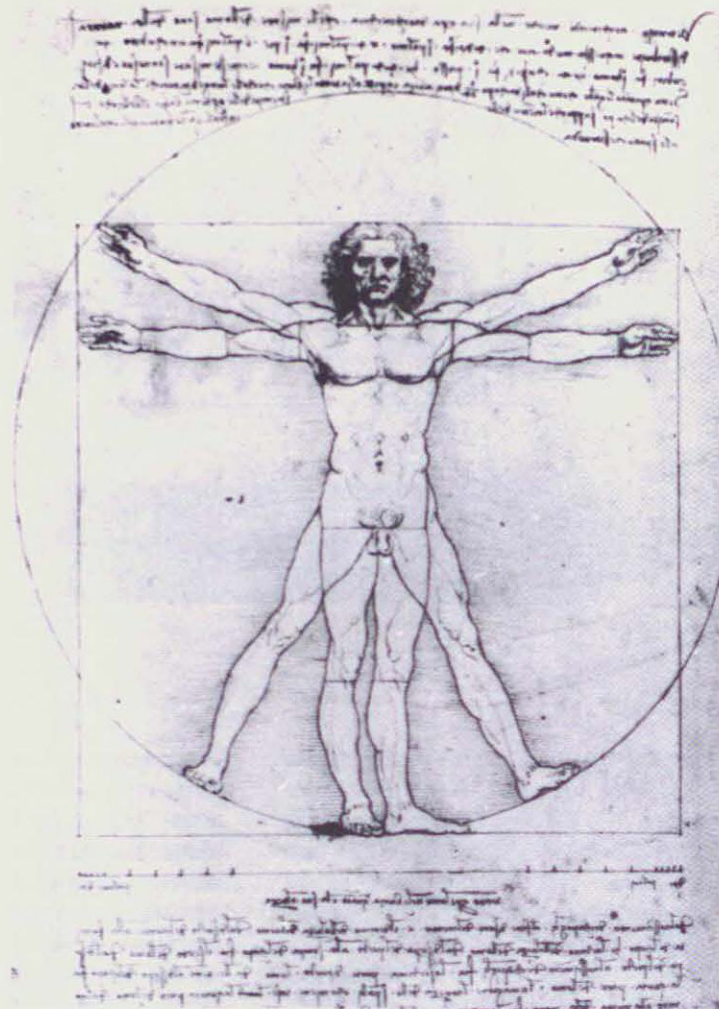


Fig. 4
The 'Three-
Circle
Scheme'
(Meaning in
the Visual
Arts, p. 79)

Fig. 3
The Erechtheion - Caryatid Porch
(A History of Architecture, p. 233)

measurement. The number three was then assigned equal importance, undoubtedly a reference to the trinity. In modules of three or fractions of thirds, the whole human body was made accountable; for instance, the total height was nine face-lengths. Of particular interest is the Byzantine "three-circle scheme." (Fig. 4) In this case, the face was expressed in terms of three concentric circles with a common centre at the root of the nose. The first circle, with radius

of 1 nose-length, outlined the brow and cheeks; the second, with radius of 2 nose-lengths, determined the exterior limits of the head and lower limit of the face; and the third, with radius of 3 nose-lengths, passed through the throat and formed a halo.

Spiritual symbolism continued through the middle ages and combined with a love of geometry to typify the Gothic mind. The sketch-book of Villard de Hon-

nocourt, from 1235, for example, clearly reveals an obsession with geometry (Fig. 5). Everything from people to animals to buildings were expressed in terms of triangles, squares, circles and stars; the most prominent shape was the triangle, again in reference to the religious importance of the trinity. A notable illustration denotes a figure of Christ set within the 'vesica piscis' (a shape formed by developing arcs from two adjoining equilateral triangles) sug-



Fig. 5
Villard de
Honnecourt,
Page from
Sketchbook
(Architectural
Principles in the
Age of Human-
ism, p. 41b)

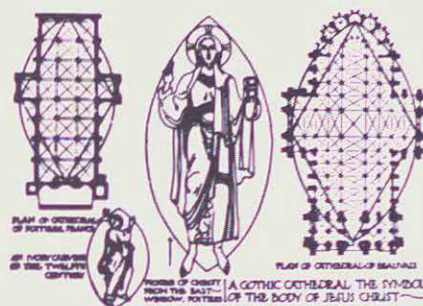


Fig. 6
The 'Vesica Piscis'
(The Beautiful Necessity,
p. 69)

gesting the shape had divine importance (Fig. 6). By then applying the 'vesica piscis' to cathedral plans, the human figure was symbolically represented. Besides its presence in arches, gables, traceries and vaults, the triangle also played a major role in the vertical dimension of the cathedral as was evident in a conference of 1392, held to deliberate over the design of Milan Cathedral. The discussion centred on whether to build the cathedral in section according to the square, 'ad quadratum', or the equilateral triangle, 'ad triangulum'. Given the religious fervour of the time, the latter was chosen. As a result, one can experience and share with the cathedral its aspiration towards the heavens. In totality, this house of God embodied the three notions stated at the outset: the human body was physically represented in plan, the Gothic mind was satisfied with geometrical beauty, and the spirit was in awe over the ambience of symbolic meaning.

by divine will and therefore contained the innermost secrets of nature. As such, its essence was to be embraced and expressed in all that was to be created so as to echo universal harmony.

Once the purpose was envisioned, Renaissance artists turned to a wealth of precedent to discover and develop principles upon which to mould their conceptions. By reconciling Pythagorean-Platonic, Vitruvian, and Christian doctrines, this age of blossoming creative spirit realized their ideal of co-existence and co-creation within an all-pervading cosmic order. They learned from these doctrines, respectively, of the need to satisfy the mind through numerical and geometrical order, the body through an association of its members and measure to a building, and the spirit through a metaphysical interpretation of the microcosm and macrocosm of human existence.

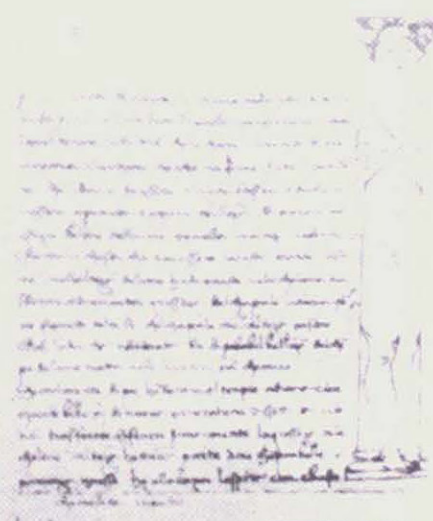
So clear were Renaissance convictions⁸ that these notions, focused upon the architecture-being reciprocal relation, permeated all artistic endeavors. While describing a facade, for instance, George Hersey makes repeated reference to its personification: "a multistory columnar facade is a scala of slaves or servants, men, matrons, virgins, and divinities. Such a facade is a population table, a racial history, and a genealogy."⁹ (Fig. 7) Indeed, the

'age of humanism' has bestowed upon civilization the beauty, elegance and magnificence of the arts.

The two centuries following the Renaissance saw an onslaught of criticism of that period. The 'new age of empiricism and emotionalism', as coined by Rudolf Wittkower, discounted the body-building analogy, objective perception, and the symbolic essence of existence. Collective intentions were gradually replaced by individual infatuations, leaving no coherent theory to speak of by the nineteenth century. Feeling somewhat at a loss, several theoreticians of the day sought to re-establish lost notions of being. Views were understandably fragmented, given the division between attitudes reflecting romantic individualism evident in the literary movement of the period and the scientific trends of the century.

However divergent the views, there remained the common thread of the human body and its derivations. D.R. Hay, in the mid-nineteenth century, returned to the Vitruvian analogy of the human figure as the "most truly beautiful work of creation," from which he proceeded to reveal the numerable relations within this "species of harmony". Viollet-le-Duc shifted from this physical interpretation of the body and concentrated instead on the intellectual notion. His contention was that since

Fig. 7
Francesco di Giorgio,
Human Figure and
Architecture
(Architectural Prin-
ciples in the Age of
Humanism, pl. 1a)



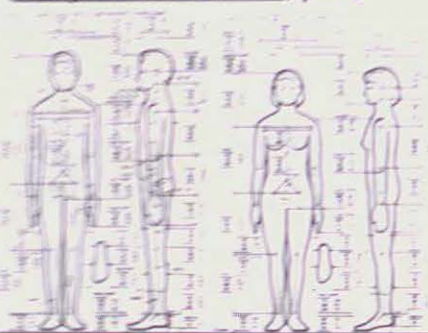
the eye was capable of recognizing laws of ratios a building must appear completely stable, a view also put forth by contemporaries like Joseph Gwilt and Edward Cressy Watkin. De la Roche argued that "sight is a sense, like hearing, which can never suffer a dissonance without being offended."¹¹ This implied that a building must initially impart an intellectual satisfaction to a viewer as a prerequisite to further experiential pleasures. Cesar Daly, an architect at the Paris Academy, would complete the trait of the subject at hand and round off the diverse views of the century. In the course of the spiritual need of human nature he asked, "Is art itself anything other than the expression of human sentiment by means of symbols?"¹² Daly believed that a moving of the self through satisfaction of the spirit or soul was of prime significance to an aesthetic experience.

During this century the views have been equally variant. Two concerns however, have characterized the period: the scale of the human body and an obsession with the golden section. Le Corbusier combined both in order to establish a measuring tool upon which a whole work could be regulated. His 'Modulor' provided a wide range with which to determine both the "containers" and "extensions of man." (Fig. 8) Witkower correctly argues that "by taking man in his environment, instead of universals, as his starting point, Le Corbusier has shifted from absolute to relative standards. His Modulor lacks the metaphysical connotations..."¹² This is clearly evident in the fact that Le Corbusier later changed his model from a French to an English policeman, not to mention the

various dimensional conflicts which occur when adhering to the specificity of the scale. This was undoubtedly the outcome of strenuous attempts to justify the golden section in the human figure instead of deriving a universally 'perceptible' figure from it as Vitruvius had done.

In addition, the human figure could not escape the realm of tested facts, in the light of our emphasis on science and technology. What had been considered as an

Fig. 9
Anthropometric Figure
(Graphic Standards, p. 2)



aesthetic ideal (both in the abstract and symbolic sense) for centuries, the human body, began to be considered in terms of practical measurements and function in the twentieth century. Anthropometry was hence developed to relate the body to its functional capacities (Fig. 9). In attempting to achieve a 'physical fit' and consequently turning the body into a semi-robot, most modern buildings have failed to provide any intellectual or emotional satisfaction.

Recently, some hopeful signs have begun to surface regarding the relevance of

the body. The foremost proponent of this has been Rob Krier who unequivocally insists on its recognition in both architecture and urban design. He passionately argues for a scale "adjusted to the size of the human body and its patterns of behaviour, perception and sensitivity."¹³

Having dwelt upon numerous historical interpretations of the architecture-being analogy, it is now possible to derive principles in association with the notions put forth at the outset. To repeat, the premise has been that there is a definite reciprocal relationship between architecture and holistic being. The three notions, both inherent within human nature and longing to be fulfilled, are the physical, intellectual and emotional. These may be considered, respectively, in terms of the body, mind and spirit. Successful architecture must satisfy these notions and must itself be satisfied by their equivalent principles. The body must correspond, the mind must comprehend and the spirit must celebrate the complete experience or intimate relationship with the architecture. The three principles are simply: correspondence, comprehension and celebration.

Correspondence is achieved through the representational or figurative presence of the body and/or interpretations of its members and measures in a building. Comprehension relies on order, symmetry, proportion, and numerical as well as geometrical harmonies. Finally, celebration is that which uplifts the spirit through the symbolic and metaphysical meaning of human existence. In concert, these principles take architecture to heights of beauty, grace and nobility.

The value of any theory, of course, lies in its practical application. Suffice it to say the historical periods already discussed have clearly demonstrated the theory's validity. Three further examples will illustrate this more specifically. These will extend to the monumental (Villa Rotonda), the vernacular (a house facade in the small Spanish town of Abrantes), and the cultural (the Japanese house). Although by no means exhaustive, these analyses will also serve to reinforce the idea of these principles.

In examining Palladio's Villa Rotonda, one witnesses the ideals of architecture as conceived and realized by a master in full command of his art. Thus, to reveal the principles under discussion within this majestic edifice is imperative. First, the exterior. Correspondence on the facade is

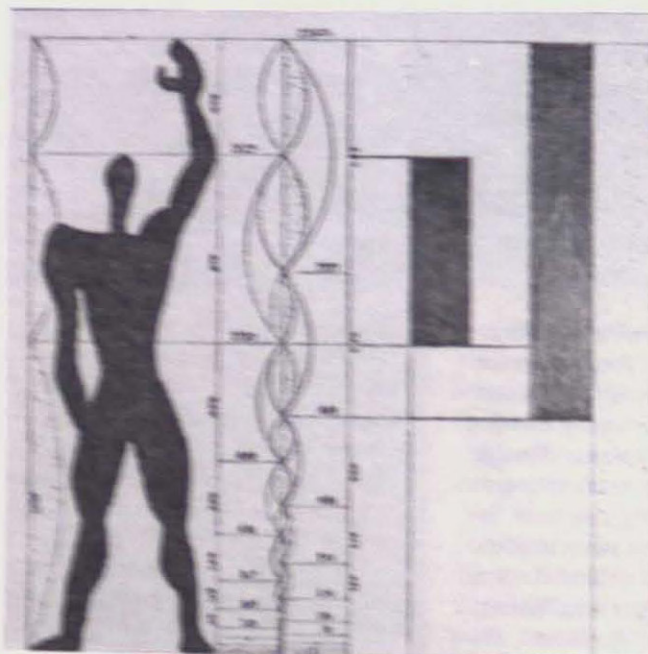


Fig. 8
The Modulor
(Architecture:
Form, Space &
Order, p. 317)

evident through a relative scale, on the one hand, between the body and elements such as doors, windows, niches, stairs, columns, pediments, statues, etc., and, on the other hand, between the body and the division of the whole artifact as is apparent in the clearly articulated tripartite division of base, middle and top. Comprehension is evident within the definite relationship of the parts to each other and to the whole through an underlying order, symmetry and hierarchy, so that everything has its "proper" place. Celebration is achieved

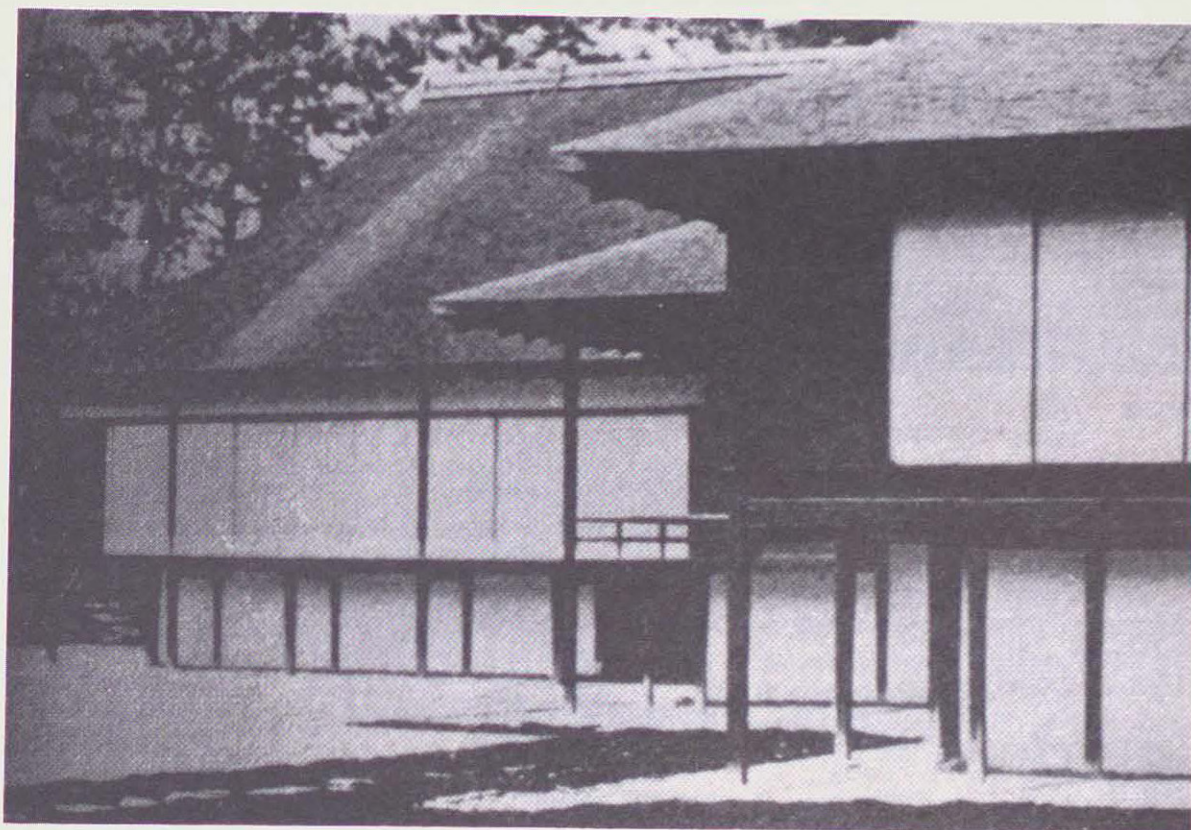
transition from large to mid-size to small rooms. Lastly, celebration is visible in the domed central hall which acts as the climax of the interior. Furthermore, wall and ceiling paintings depict the symbolic interpretations of human existence of the day. In short, this edifice of beauty, grace and nobility is truly an "entire and complete" work as intended by the Renaissance master.

Turning to the vernacular example, the following description is typical of a

architect but rather human instinct, which always strives to fully satisfy the self.

When considering the Japanese house, the cultural belief of respect for and proximity to nature plays a vital role between being and building. As the house is in concert with nature, so too is the body in correspondence with the house. On the exterior, the tripartite division of a raised platform, living quarters, and steep overhung roof help to relate the house to the body's proportions (Fig. 10). Moreover,

Fig. 12
Katsura
Palace,
Kyoto,
Japan
(Evolution of
the House,
p. 139)



with, once again, the tripartite divisions, the elements, and the grandeur of the temple fronted central block which acts as the focus of the composition. Next, the interior: here, correspondence is realized through a relationship between the body and the spaces. A notion of verticality is present in the corridors, the central hall and the lower rooms suggesting a correspondence to a standing or sitting figure. In contrast, the horizontality of the upper rooms suggests an association with a lying position. Spaces are also relevant for the principle of comprehension as their width to length to height is based either on a numerical or geometrical relationship as specified by Palladio in his seven ideal shapes. There is also a definite hierarchical

house facade in the small Spanish town of Abrantes. A single-story house, it has at its centre a doorway with a flanking window at each side located at the quarter points of the facade. Both windows and door are framed with either painted wood trim or simply a painted border; the same frame continues along the facade's bottom, ends, and top. A shallow roof crowns the whole. Now for the principles: the physical body and house are related via a corresponding measure and scale. Next, the observer is comforted by the overall balance, order and symmetry of the facade, satisfying the principle of comprehension. Lastly, the individually coloured frames celebrate an added dimension to this facade. The author of these serene houses was unlikely the capital 'A'

modular division derived from the Tatami mat used inside further reduces the external walls to a human scale. These three foot by six foot mats also find significance elsewhere. Their number and arrangement not only determine the size and shape of individual rooms but also the configuration of the whole house; hence, fulfilling the need for comprehension. The interior, likewise, reveals the intentional correspondence between the human body and space as is evident by the use of low ceilings which are, in turn, an outcome of a culture's desire to be in a seated or reclined position. As for celebration, this principle is obvious in the full and natural expression of both the identity and value of each material and element. Furthermore, the symbolism of

self to nature pervades throughout, resulting in a simple and natural house at peace with its context and in contemplation with its inhabitants.

Although regrettably brief, these three examples have been intended to illustrate the application of the being-building association, specifically, the principle of correspondence, comprehension and celebration. At the same time, a further argument has been implied. For any theory to enter the domain of truth, it must be substantiated regardless of architectural style, type and place. Basically, if a work of architecture is to be considered timeless, the principles upon which it is manifested must be universal. Perhaps an architecture of body, mind and spirit is a means to an end.

Rafel H. Aziz is a graduate of the School of Architecture at Carleton University.

NOTES

1. Le Corbusier, Towards a New Architecture, trans. Frederick Etchells (London: The Architectural Press, 1927), p. 65-68.
2. S. Giedion, The Beginning of Architecture (Princeton: Princeton University Press, 1981), p. 482.
3. *Ibid.*, p. 491.
4. Erwin Panofsky, "The History of the Theory of Human Proportion as a Reflection of The History of Styles", Meaning in the Visual Arts (New York: Doubleday & Co. Inc., 1955), p. 68.
5. Plato, Timaeus (Middlesex, England: Penguin Books Ltd., 1967), p. 60-61.
6. M. Vitruvius, The Ten Books of Architecture, trans. Hicky Morgan (New York: Dover Publications, Inc., 1960), Bk. III, Ch. 1, 4.
7. Panofsky, p. 78-83.
8. For a detailed discourse on the principles of the Renaissance see Rudolf Wittkower's Architectural Principles in the Age of Humanism and Peter Scholfield's The Theory of Proportion in Architecture.
9. G.L. Hersey, Pythagorean Palaces (Ithaca: Cornell University Press, 1976), p. 195.
10. Viollet-le-Duc, Discourse on Architecture (Boston: James R. Osgood

and Co., 1875), p. 413.

11. Cesar Daly, in Ann L. Van Zantan, "Form and Society: Cesar Daly and the Revue Generale de l'Architecture", Opposition #8 (Cambridge: The MIT Press, 1977), p. 140.
12. R. Wittkower, Idea and Image (London: Thames and Hudson, 1978), p. 122.
13. R. Krier, Rob Krier on Architecture (London: Academy Editions, 1982), p. 5.

BIBLIOGRAPHY

- Bragdon, Claud. The Beautiful Necessity, New York: Alfred A. Knopf, 2nd edition, 1922.
- Ching, Francis. Architecture: Form, Space & Order, New York: Van Nostrand Reinhold Co., 1979.
- Fletcher, Sir Bannister. A History of Architecture, 18th edition, New York: Charles Scribner's Sons, 1975.
- Gardiner, Stephen. Evolution of the House, G.B.: Cranada Publ. Ltd., 1976.
- Giedion, Sigfried. The Beginning of Architecture, Princeton: Princeton University Press, 1981.
- Hersey, George L. Pythagorean Palaces, Ithaca: Cornell University Press, 1976.
- Kielland, Else C. Geometry of Egyptian Art, London: Alec Tiranti Ltd., 1955.
- Krier, Rob. Rob Krier on Architecture, London: Academy Editions, 1982.
- Le Corbusier. Towards a New Architecture, trans. Frederick Etchells, London: The Architecture Press, 1927.
- Palladio, Andrea. The Four Books of Architecture, trans. Isaac Ware, New York: Dover Publications, Inc., 1965.
- Panofsky, Erwin. Meaning in the Visual Arts, New York: Doubleday & Co. Inc., 1982.
- Plato. Timaeus, trans. H.D.P. Lee, Middlesex: Penguin Books Ltd., 1967.
- Ramsley, George; Sleeper, Harold. Architectural Graphic Standards, 7th edition, New York: John Wiley & sons, 1981.
- Van Zantan, Ann L. Oppositions #8, Cambridge: The MIT Press, 1977.
- Viollet-le-Duc, Eugene E. Discourses on Architecture, trans. Hicky Morgan, New York: Dover Publications, Inc., 1960.
- Wittkower, Rudolf. Architectural Principles in the Age of Humanism, London: W.W. Norton & Co., 1971.
- Wittkower, Rudolf. Idea and Image, London: Thames and Hudson, 1978.