AN EXAMINATION OF UNITY AS A GUIDING PRINCIPLE IN ARCHITECTURAL COMPOSITION WITH SPECIAL REFERENCE TO CONTEMPORARY SRI LANKAN ARCHITECTURE.

A Dissertation
presented to the Department of Architecture of the
University of Moratuwa in partial fulfillment of the
requirements for the degree of Master of Science
in
Architecture.

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Declaration

I declare that this dissertation represents my own work, except where due acknowledgements are made, and that it has not been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma or other qualification.

UOM Verified Signature

Signed.....

S.D.Attanayaka.

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ABSTRACT

Architecture is primary an art. In the simplest sense it is the art of articulation of space in a meaningful way. According to Antoniades (1980),

" ***Architecture is a discipline aimed at synthesizing, organizing, and creating order out of nothingness or unrelated parts.***" Hence, while being as a spatial entity it is a discipline. Thus architecture deals with composing order out of unrelated elements to create an intended expression, just as a written document cannot convey a certain idea with understanding unless it is ordered in a certain manner, a work of art or architecture too, cannot fulfill its function and transmit its message unless it is expressed in an ordered manner. To achieve a well composed order, architecture governed by a set of identified principles. From all those principles unity is most fundamental and indispensable principle in work of art. As Le Corbusier (1931) points out , 'architecture is a matter of harmonies '. A good work of architecture is thus, one which harmonizes or integrates many things into one, in forming a single entity; the creation. Thus "*the relations of parts to parts, of parts to wholes, of buildings to places, the perception of complete units,.....*"

(Abercombie, 1984).

Hence, unity is the most Para mounting and vital single design discipline in work of art.

NOTHING IS QUITE BEAUTIFUL ALONE;
NOTHING BUT IS BEAUTIFUL IN THE WHOLE.
A SINGLE OBJECT IS ONLY SO FAR BEAUTIFUL AS
IT SUGGESTS THIS UNIVERSAL GRACE.
THE POET, THE MUCISION, THE ARCHITECT
SEEK TO CONCENTRATE
THIS RADIANCE OF THE WORLD INTO ONE POINT.

Ralph Waldo Emerson as quoted in Anthony Lawler,
The temple in the house.

- INTRODUCTION -

INTRODUCTION

0.1 Topic explanation

Architecture is an art and it is undoubtedly the most sublime and the most profound of all art forms. According to Pierre von Meiss (1990:101), "architecture is the art of hollow....."[1] Thus a work of architecture is primarily an articulation of space in a meaningful way, which attempts to elevate the beholder on to a higher realm of contemplation. In this process, architecture deals with composing a set of elements or spaces in a particular manner to create an intended expression. Hence, this act of composing spaces or elements governed by a set of identified principles. As Guadet (1909:98) states, "Science has its axioms, art has its principles. Of all arts, architecture has the most rigorous principles..... But the principles do not manifest themselves in the same way as the axioms..."[2]

The perfection of these principles, however well this technique is mastered, does not or itself produces a great work of architecture. It is also needed an examination of the characteristics of a unified composition. Because, it is considered as an important and fundamental necessity of all artistic creations.

In the same manner the nature is the best example that shows its well composed, unified creations such as animals, trees, human beings, rocks, rivers, plants or insects which allow their structure to be observed. But taken together, they represent a composed order which, at the visual level with which we are concerned, becomes immeasurable. This reveals all the natural creations encompass the unified compositions and the nature cannot violate the principle of unity. As Vikas Malkani (1998) sees this concept of unity in a poetic way,

How do two waves

Join each other?

They merge, they dissolve, and in their merging is their death,

They die individually, to become one in each other,

Then can you ever separate them again???

Similarly, Architecture cannot violate the principle of unity. Because, from all those wider spectrum of architectural principles unity is the most fundamental to its creation. In the simplest sense what is meant by unity is the quality of 'oneness' in a composition which is created when the proper relationship between elements of a building or in a building composition as a whole is achieved. Hence, various scholars interpreted the concept of unity using different words.

According to Antoniades (1980) it is referred to the quality which suggests that all concepts operate within a balanced equilibrium holding the work together as a total whole.

Another point of view by P. Kulathilake (1994) is that unity reveals the balancing of opposites, like man rhymes with woman. It is the resultant of resolution of the contrary forces. It carries with itself a sense of 'holding together' and bound to each other and with the rest of the world, forming unified whole. In forming this unified whole, every single component find its rightful place and due identity.

Therefore if a building possesses elements of conflicting qualities which are unfit and disobedient to the total spirit of the composition, then we say that the building has no unity. Absence of unity disturbs to the aesthetic beauty of the work of art and forms crippled architectural composition. Apart from this burden it creates unpleasant, disoriented contradictory relations in composition of a built form. Therefore unity is most vital and indispensable, guiding principle in architectural composition. Thus unity of the spiritual life is a unity of the same kind as the unity we have already seen exemplified in the life of art. In that sense not only to the architecture but also it is essential for every facet of life.

As Antoniades (1980:18) states,

"Architecture is many things in one. Some things tangible, others intangible. Some things visible, others invisible. Where all things, tangible and intangible, visible and invisible, are in balanced harmony themselves and with the rest of the world, constituting a useful and mind elevating whole, then this whole is "architecture." [3]

This means, if the various qualities, disciplines that create physical entities harmonize within itself and with the rest of the world lead to a appealing and mind elevating way, they constitute architecture. Therefore architecture depends on the number of the 'many things' that were put together to make a unified whole.

0.2 Need for the study

The method of carrying out an ordinary architectural work has not always been the same. Due to the complexity and unfavorable conditions in present day situation, a lot of inappropriate work of architecture has emerged. Most buildings of contemporary world do not reflect the unity within itself or blend with the context. The total built form or its elements stands out alone and not woven with the rest of the world. Thus it is a world of multiplicity. Consequently this full of disordered, crippled built forms are lead to a chaotic built environment.

Unity is fundamental to all aspects of architecture. Therefore what happens or how critical if this oneness or wholeness is lost? The failure to resolve the two opposite balancing polarities will form disharmony in built environment. It will not end up with this disharmony but also it will leads to a disoriented solid void relationship, disturbing to aesthetic situation, and impose visual discomfort to the beholder. As Smith (1974) states, 'The mind requires aesthetic nourishment just as the body needs food and drink." Thus the outer world perceived through the five senses, have subjected the human beings to a constant inner chaos

According to Antoniades (1980:70),

"Unity is the last, yet most comprehensive, intellectual tool of designers. Unity and the concepts that precede it deal with physical issues or physical issues as related to man and to his visible dimensions. But the creations of man also have certain other dimensions; there are the invisible dimensions that rest in the hidden part of each creator's mind." [4]

Thus in the most of the contemporary architecture as explained in above, has not been successful in achieving unity. This may be due to the more diverse and challenging built environment, the nature of the design problems of today much more complex than that of early periods, the functional program, the obstacles presented by its context and due to less attention made by the contemporary architects / designers or not acknowledges or addresses the gap in knowledge. Hence, it is often found in under disciplined works of undisciplined artists. Therefore, there is a vital need to address this issue and examine the importance of principle of unity.

0.3 Intention of the study

The intention of this study is to examine the unity as a guiding principle in architectural composition with special reference to contemporary Sri Lankan architecture. Thus it is the intention of this study to see how architects can avoid such disorder, and achieve unity in architectural compositions.

0.4 Scope and limitations

As we know, any piece of architecture is always a three dimensional entity. Therefore the scope of this study is limited to examine the principle of unity in relation to built form of the architectural product with special reference to contemporary Sir Lankan architecture.

- There are a number of principles involved in architectural composition. Hence, it is impossible to discuss the entire spectrum. Therefore the principle of unity is considered as one aspect of a broader issue.

- The principle of unity is studied and analyzed according to various theories adopted by different scholars such as Trystan Edwards (1926), Howard Robertson (1924), Pierre von Meiss (1990) etc. Thus the built form is the architect's tool, which he uses to fashion reality. It is form that

encapsulates the whole spatial organization. It is a 3-d composition, comprised of many built components. Therefore the unity in architectural composition discussed in relation to built form. Thus primarily visual perception is used. Therefore this can result in a personal bias.

- The study will not go in to the discussing about hidden dimensions of the work of art and aesthetic expressions. Although the study of connotative meanings is beyond the scope of this work.

- Drawings and photographs also bring limitations due to the perception as two dimensional.

- Good Sri Lankan, contemporary examples selected for case studies to examine the principle. The works of successful architects such as Geoffry Bawa, and Thisara Thanapathy have been selected. The selected work included university of Ruhuna, new parliament complex at Sri Jayawardenapura, Kotte, hotel Blue water at Wadduwa, a contemporary house at palawatte, and Seema Malaka at Colombo. But international examples also used in order to explain the principle, where appropriate.

- Due to the non availability of sources a very few examples have examined in detail. lack of data, gathered information can be greatly influenced and varied over time, limitation of the given time frame imposed strict limitations for a more in – depth study.

According to Aristotle: "It is not everything that can be proved, otherwise the chain of proof would be endless. You must begin with somewhere, and you must start with things admitted but indemonstrable. These are first principles common to all sciences which are called axioms or common opinions."

0.5 Study methodology

Violett – le – Duc (1968) sees architecture from two different aspects:

1. Theory, which deals with that which is permanent and always valid,

   notably the rules of art and the laws of statistics; and

2. practice which seeks to adapt these eternal laws to adapt these

   to the variable conditions of time and space.

Therefore this will be an in –depth study analyzing of practical situations, with a theoretical base throughout the study. **A case study approach has been adopted as the methodology of the study**. It evolved into several main phases as follows:

- At the outset, it emphasizes the definition of architecture, its generators and constituents.

- Then it overviews the definitions, role and the important principles identified in composition in architectural form.

- At the next phase it focusing only to the principle of unity composition in architectural form and draw attention to the definition, its importance, role it plays. It is examined based on various theories put forwarded by theorists in the past. It will also look into the perceptual principles that govern unity, the problems of achieving unity and strategies used to achieve it in architectural composition.

- Finally through the selected case studies critically examine the principle of unity and its achievement.

List of references

1. Miess, P.V. (1990), *Elements of architecture*; from form to place: London, E & FN spon
2. Gudet, J. (1909), *Elements et theorie de l' architecture*: Paris , Librarie de la constr, vol 1.
3. Antoniades, A.C. (1980), *Architecture and allied design*: Kendall ,Hunt publishing company
4. Ibid.

- CHAPTER ONE -
Architecture; Its generators and constituents.

CHAPTER ONE – ARCHITECTURE; ITS GENERATORS AND CONSTITUENTS.

1.1 Definition of Architecture

Architecture is primarily an art. Architecture is the art of articulation of space so as to produce in the participator a definite space experience in relation to previous and anticipated space experience. Thus, architecture is primarily a meaningful spatial entity. As we know, any piece of architecture is always a three dimensional entity. Therefore, 3D form cannot be separated from this spatial entity. Because 3D image is the capsule that enwraps the space. Hence, there are long accepted principles in composing an architectural form. To determine an architectural form there are compositional forces or generators.

Thus, like many other arts architecture also manifested truth about itself and its creation. These truths are the people that use it, the context and the activity pattern that goes on within it. Therefore architecture is manifested and born through these truths. Hence, user, context and activity pattern are the compositional forces or generators of architecture.

1.2 Generating factors of Architecture

A works of architecture is originated mainly through its generators. (According to the oxford dictionary, to generate means, to bring something into existence.) Therefore these generators in architecture are the factors that initiate in bringing in works of architecture in to existence. Also it can be called as a force which is responsible in generating expressions of the built form. Not only that they are the 'composing forces' of a built form. Well behaved generators create a good product of architecture. Thus the primary generators of architecture are the user, context, and the activity pattern. It can be further explained as follows:

"Architecture is an art; and art is a means of communicating the truth about itself and its context. The more subtle that this communicating is the more successful will that work of architecture be. (The more complex is the work of system of truths communicated, the more piece of architecture, becomes expressive.) Often, the building itself, the brief, determines the truth should communicate and the hierarchy these truths are seen to

include the truth about the 'people' the user it, the 'activity pattern' that goes within it, 'context' it is in and often a 'higher purpose' it may have to perform."

-SLIA journal, review of the American embassy-

Hence, these primary forces or primary generators responsible for a total built form. The secondary forces such as climate, technology, materials etc. are make considerable contribution by modifying it. But they do not determine the form of the building. As Rapaport (1982:25) states,

"Materials, construction, and technology are best treated as modifying factors, rather than form determinants, because they decide neither what is to be built nor its form – this is decided on other grounds. They make possible the enclosure of a space organization decided upon for other reasons, and possibly modify that organization. They facilitate and make possible or impossible certain decisions, but never decide or determine form." [1]

1.2.1 Primary generators

1.2.1.1 User

'Architecture is all about relationships; socio spatial relationships'. Thus the resulted built form cannot be considered as merely a symbolic expression, it is an integral part of the truth of its creation. This truth is that it is built for the people, for their needs, wants and aspirations. Therefore a good work of architecture should acknowledge and realize the mind set, nature and the behavioural pattern of the user.

In the wider application of the context in most conditions, two user categories are found. They are the primary user who performs an activity within a building and the perceiver who reads the built form externally. As Ruckstull (1925) states,

"Architecture must transmit something meaningful to the senses and minds of those who interact with it, who read it."

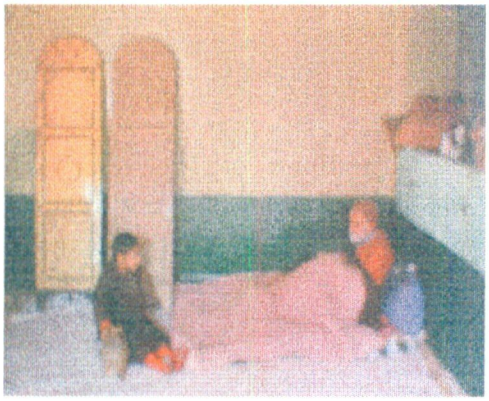
Hence, there are set of basic needs which must be satisfied for the endurance of human beings. These needs can be categorize as tangible or physical and intangible or psychological. Tangible needs which mean the aspects which are reconvert to the physical comfort of people such as acceptable lighting levels, ventilation, proper circulation patterns, and other technical requirements. The intangible needs are related to psychological comfort of user. This encompasses sense of well being, sense of belonging, security, privacy etc. Thus fulfilling intangible needs are far more difficult than satisfying tangible needs. Therefore to satisfy those needs architecture should grasp the mind set, nature, and the behavioural pattern of the user.

When considering the mind set of user, physical attributes of a built form could affect emotions of the user. Therefore it is needed to arrange the physical features in a manner as to create intended and required quality in the environment; the quality which is needed to create particular soul, moods within the user.

Not only that, it should address the nature of the user. The nature of the user may determined by the cultural, social, economical political and environmental factors. Therefore according to the different life styles and social conditions of people the entire built form following those changes. The differences in culture bring changes to the living pattern and attitudes of people. A gypsy community lives in a different way and hence their houses display the temporary nature of their cultural habits. Similarly a Muslim house will be more introverted with a large amount of privacy and a separation from society given to the women in that house. Similarly political state of a person in a society gives or takes away privileges to a person – which is reflected in the way they live. Therefore architecture should crystallize the public realms, social values and cultural ethics.

Also in order to make the user comfortable the designer should recognize and analyze the behavioural pattern. Because, architecture can determine the human behaviour. Thus, this behaviour may be defined by the individuals' psychological capabilities, culture, his personality, the social group which he is a member and his environment.

Hence, According to Habraken (1983) "Architecture is the process and the product of human habitation." It is inconceivable that a society can exist without architecture in as much architecture cannot be conceived without a social content.



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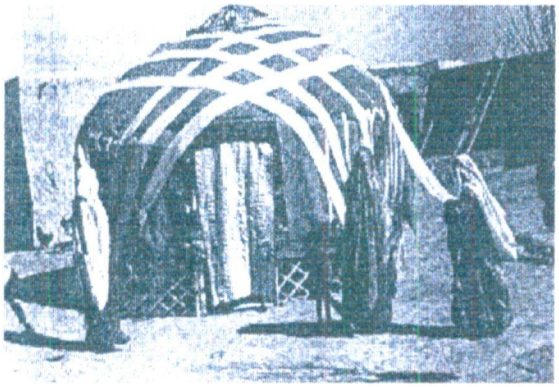


1.1B.

Fig. 1.1: User as a Generator.

1.2.1.2 Context

Architecture generated by primarily responding to contextual parameters is termed as the context generated architecture. It is evident that the context not only acts as a generator of but any architectural product, which is generated, by other generators of architecture should always respond to the existing context to make a coherent environment.

The context is a sort of space with its own character, uniqueness, and identity. It can be identified as a space created from natural spaces or man made spaces. The natural context may encompass with water bodies, vegetation, beaches, flora and fauna, rocks, trees etc. The man made context comprises of cities, villages, towns etc. These features contribute greatly to giving definite expressions to a particular location and serves as an inducement to evoke reaction and a dialogue between people and the physical entity.

On the foregoing observation says that the architecture is an art that should not be in conflict with its context, environment, with which it is in separating linked. On the other hand, its aim should be built up harmonious response to its context and environment, by generating appropriate expressions, which would help interact or communicate with the observer.

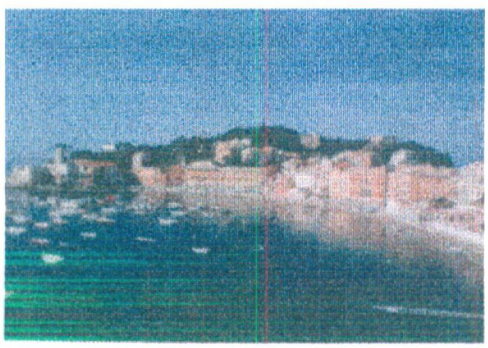
Hence, early settlements can be considered as a manifestation of mans capacity for handling his context. Examples supporting this position include fertile land close to

river, reservoir, and protected land close to forest. Therefore context is one of the vital generating factors of architecture. The context can be divided into two main components as macro context and micro context.

Macro context: The macro context is the broad consideration of a situation as an environment. For an example the region which land or a site belongs would be the macro context.

Micro context: The characteristics of the environment of a particular place, itself can be termed as a micro context. If we consider the site as the generator, the shape of the site, the size of the site, the topography, whether it is a flat site or a sloping one, the location of the site (urban, rural), Factors like whether a corner site, or a site in front of street etc. acts as the forces which generates architecture.

Therefore context is one of the most essential forces which produce a fine architectural work.



1.2A

1.2B

Fig. 1.2: Context as a generator.
Credit: Practical photography, Freeman J.

1.2.1.3 Activity pattern

Society encompasses the web of living and non – living things together, man, other living beings, environment and their interactions. Thus a society is a group of individuals who are linked to one another, either directly or indirectly by various interrelated activities. Hence human being creates his built environment to ease and perform his activities. Therefore activity pattern becomes one of the primary generating factors of architecture.

There are particular activities, functions intended to perform through any building. For instance 'home' is a purposeful human creation of space. It has definite and specific activities or functions to perform. So it is obvious each and every activity needs to have a certain kind of environment. Another fine example that shows the inspiration of activity pattern is the traditional village layout where the dwelling units were set out in the form of a cluster.

As Coloquan (1981) states,

"All spaces interiors and exterior are experienced by people passing through them in a definite sequence. Spaces do not occur in isolation. They are linked together. Thus the effect of a space depends on the spaces that come before and after it. All spatial sequences should be functional and legible."

Therefore, architecture can be considered as articulation of spaces that uses tangible elements embodying a meaning to satisfy diverse purposes and house different types of activities.

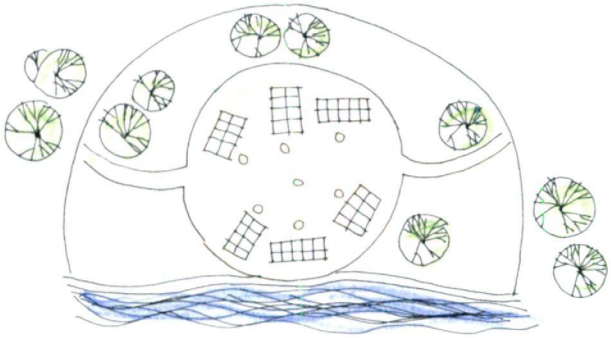
Hence activity pattern may force significant impact on the quality and standard of a built form.

1.3A

1. 3B

Fig. 1.3: Activity pattern as a generator.

1.4A.



1.4B. Village layout

Credit: The architecture of an island, Sansoni B. (1998)

Fig. 1.4: Sinhalese traditional village.

1.2.2 Secondary forces or modifying factors

1.2.2.1 Climate

Climate is one of the factors that modifying the creation of built form. For instance buildings designed for different climatic conditions have different appearance. A house built in a dessert climate will be different to one built in Iceland. A house of the south of Sri Lanka can enjoy the pleasant natural elements with open to the outside spaces and cross ventilation. But a house in a country where it's cold during at least one part of the year can not enjoy a house of similar nature. They will need to close the house and insulate it rather than leave provisions for cross ventilation. Also climatic factor influences the details (e.g.: shading devices, pergolas) of a built form.

As Rapoport (1982:83) states,

".....climate is nevertheless, an important aspect of form generating forces, and has major effects on the forms man may wish to create for himself....."[2]

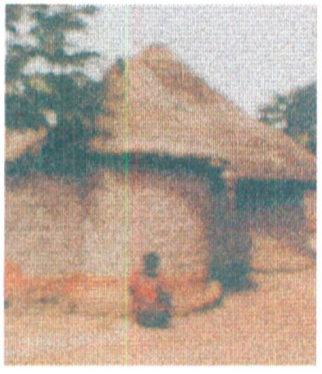
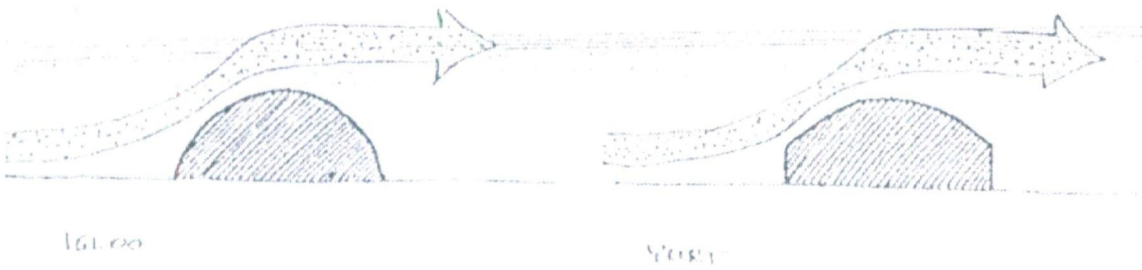
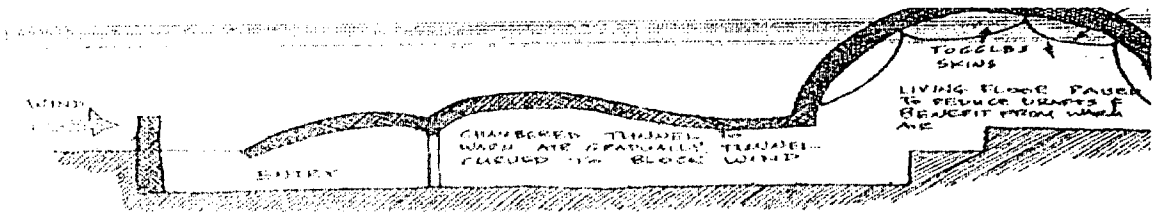


Fig. 1.5: Thermally efficient, typical mud hut at village in Guinea.
Credit : The adobe tradition, Louis J.

Fig. 1.6: Buildings designed for different climatic conditions have different appearance.



1.7 A. Wind and the forms of Igloo and Yurt.



1.7 B. Diagrammatic section through Igloo.

1.7C. Tepee, showing wind controlled flaps.

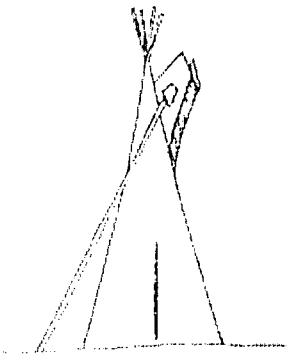


Fig. 1.7: climate as a modifier in building form.

Credit: House, form and culture, Rapoport A. (1982), p. 90-91.

1.2.2.2 Technology and materials

Technology and materials has a power of potential and at the same time limitation to create architecture. For instance Eskimo has ice and fur and bone, and some driftwood; the Sudanese have mud and some palm logs; the Siberian herdsman has only felted hair, hides small amounts of wood for build their dwellings. Thus the scarcity of materials and limitation of technology considerably effects on determines the architectural work. Therefore technology and materials act as modifying factors of a building. As Rapoport (1982:104) points out,

" To create any type of place, space must be enclosed. The availability and choice of materials and construction techniques in an architectural situation will greatly influence and modify the form of the building."[3]

The attributes and characteristics of a built form can be determined by the technology and the materials used. For an example according to its surface treatment the same material will be used to get the different qualities as smooth or rough, matt, satiny or shiny. In those different situations it gives different expressions to the beholder. In that sense it also has a symbolic significance. Thus building materials can carry connotations.

Therefore the form of the architectural product is not decided upon available technology. But the technology and materials are used to execute the decided form, according to their in – depth intention, or meaning.

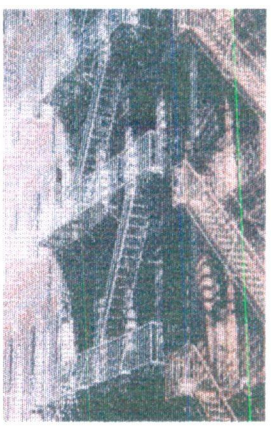
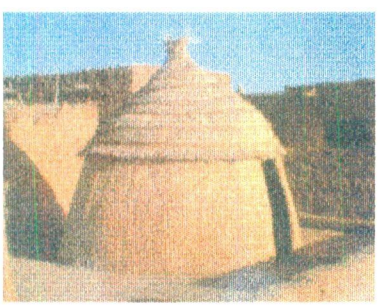


Fig. 1.8: Technology as a modifier.

Credit: Practical photography, Freeman J.



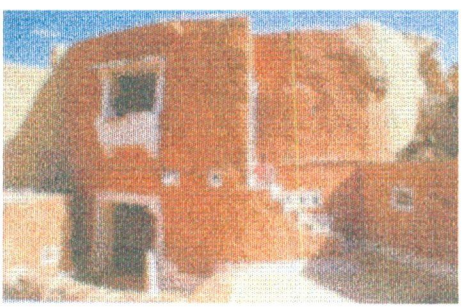
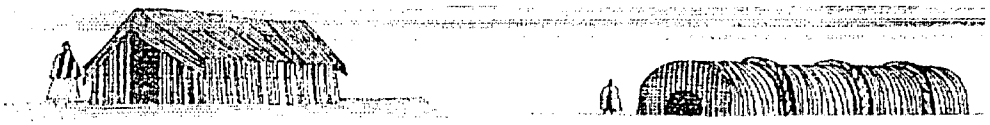


Fig. 1.9: Materials as a Modifier



left: Uru dwelling, Peru. Right: Marsh Arab dwelling.

1.10A. Dwelling made of one material (reeds).

Left: Iran. Right: Pueblos, southwestern united states.

1.10B. Dwelling made of one material (mud).

Left: Arab tent. Right: Mongol yurt.

1.10C. Portable tents of sticks and felt.

Left: Masai dwelling (Africa). Right: Yagua dwelling (Amazon).

1.10 D. Two examples from the great range of house forms using thatch and wood as materials.

Fig. 1.10: Materials and house form.

Credit: House, Form and Culture, Rapoport A. (1982). P.27.

1.3 Constituents of a work of architecture

All the above mentioned generators and modifiers responsible for space, form and details of a built form.

1.3.1 Space

Architecture is primarily a spatial entity. It is articulation of space in a meaningful way. Hence, what is space? Space is very enigmatic, inexplicable....and never remains or static. It is conceived as following space contains direction and can be comprehended only within a frame of reference which is finite. Various scholars interpreted notion of space and spatiality in many ways such as;
Aristotle defines space as a container of things – a sort of succession of all – inclusive envelopes, from what is 'within the limits of the sky' to the very smallest.

As Ching (1979) points out,
"Space constantly encompasses our being. Through the volumes of space, we move, see forms and objects, hear sounds, feel breezes, and smell the fragrances of a flower garden in bloom."

"Space is here, there, vast, profound, boundless. Everything is in space, every action happens in space. Everyone lives in space."

Therefore, space is not just an empty vehicle, ready and having the capacity to be filled with things. It is more than that; It is amorphous and intangible and not an entity that can be directly described and analyzed; it can seem to mirror rhythms of human feeling. That's why it has been called as 'frozen music.' Thus architecture is the art of space and all architectural innovations conceived from new concepts of space. Pierre von Miess (1990:101) once said, " Architecture is the art of the hollow;...."[4]

Accordingly 'Architectural space' is a purposeful human creation, while other spatial experiences denote more of a psychological schemata man develops in interrelating with the environment. Therefore architectural space culminates humans all other spatial experiences.

Thus, awareness of space goes far beyond cerebral activity. It engages the full range of senses and feelings, requiring involvement of the whole self to make a full response to it possible.

Walt Whitman has given a great assignment to architecture as follows:

O to realize space!
The plenteousness of all,
that there are no bounds,
To emerge and be of the sky,
of the sun and moon and flying clouds,
as one with them.

1.3.1.1 Attributes of space

In any space architectural, there are some fundamental attributes associated with it. These attributes are the principle purveyors of the inherent spatial meaning, and together they form the very existence of any space. They are the centre, the enclosure, and the continuity.

1.3.1.1.1. Centre

"In terms of spontaneous perception, man's space is 'subjectively centered'. The development of schemata, however, does not only mean that the notion of centre is established as a means of general organization, but that certain centers are 'externalized' as points of reference in the environment. This need is so strong that man since remote times has thought of the whole world as being centralized. In many legends the 'centre of the world' is concretized as a tree or a pillar symbolizing a vertical axis. Mountains were also looked upon as points where sky and earth meet. The ancient Greeks placed the 'navel' of the world in Delphi, For Islam the Ka'aba is still centre of the world."

Eliade, N.C. Shulz (1971)

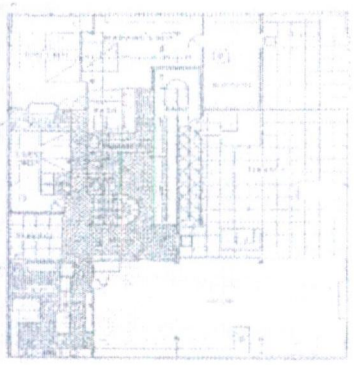
What's this quotation explains to us is, it is the reference point of understanding the space, which is the utmost important fact. In those most of the beliefs it is difficult to reach the centre. He further explains that the man's personal world has its centre. The notion of home as the centre of one's world goes back to childhood. Considering the 'home' as the reference point that a child experience outer world. Thus, this centre represents to man what is known in contrast to the unknown outer world.

1.3.1.1.2 Enclosure

Enclosure is the container of the volume. In architectural space, form is defined further by the enclosure. Not only walls, floors, ceilings, roofs are forming enclosures of a spatial entity. But landscape, texture, light and shade etc. also create enclosures.

Enclosure either can be a tangible physical entity or an intangible sense of enclosure. As a tangible entity, again it may be of two types. It can be a space demarcater; where the walls, floor, ceiling becomes the elements of the enclosure. Yet it can also be a space container, thus, a spatial unifier which is formed by the tangible physical form itself; in which case the roof and walled envelope become the elements of the main enclosure. The main enclosure as the unifier creates the 'limits' through which architectural space can be born. Thus the enclosure can generate varieties of forms, where the form dominates.

While the linear, centralized, radial organizations remain the main types; there are other spatial organizations, as clustered, grid etc; which are variations; but not directly influenced by the above three generators.



1.11A. First floor plan, Villa savoye.
Credit: Le Corbusier, Curtis (1986).

1.11B. Exterior view, Villa savoye,
Credit: 20th century Architecture,
Glancey (1998).

Fig. 1. 11: The effect of enclosure is enhanced by the Geometrized form.

1.3.1.1.3 Continuity

Above mentioned two relative factors further concretized by the continuity. It creates the meaningful area as a whole; it seems to be sights of the person, by interpreting personalization through the past experience.

Continuity simply implies or suggests the 'path way'. So it takes the relationship with another portion of the space. Because it is educe the lack of sensitivity of the space by doing the continuity with referring to enclosure and centre.

The continuation of spatial relationships can be simply explain as follows ; A bed room exists, as there is the house, as there are other rooms in the house: the living, the dining, the kitchen, and the verandah. In making its existence worthy, and meaningful, the bed room links itself with other rooms. It flows into the living, the living, into the garden; the garden into the foot path; the foot path into the street; the street into the city; the city into the country; the country into the world; the world into the infinite!

As Shulz (1971) points out,

"Any closed form, however, has to be entered, and a direction is thereby introduced. For a house not to become a prison it must have openings into the world beyond that connect this inner world with the outer."

1.3.2 Form

The simple meaning of form is the wrapping of 'space.' Form is conceived when it encapsulates the space. As Ching (1979:113) states " The form and enclosure of each space in a building either determines , or determined by, the form of the spaces around it."[5]

Thus, form consists of two components, physical form and significant form. Physical form of an object is the set of all its features directly or indirectly perceptible, such as its shape, colour, texture, smell, sound, temperature etc. The significant form is the abstraction of physicals form which includes some features which refer to the relevant message.

One of the points of view in Architectural form is the point of contact between mass and space. Where the philosophical interrelationship between these two elements is unclear, so will form of the architecture be unclear. By defining the point of juncture between mass and space, the architect is making a statement about the interrelationship of Man and his universe. For examples the Egyptian pyramid stands as the consummate expression of a form which emerges from the earth as dominant mass. It is a statement of unchangeable absolutes. On the other hand Islamic architecture the use of form and space is different again. The magnificent domes which are central to so much Islamic work see a reflection of inner space, which, seeking expression, pushes the membrane outward, taut, to set the form. So in all the cultures of the world, architectural form is an expression of the philosophical interaction of the forces of mass and space.

1.3.2.1 Attributes of form

Unity, Simplicity and clarity are the attributes of form.

1.3.2.1.1 Unity

Unity is a synthesis of multiple into one. Another point of view is, it is the pacifying of contrary forces. When it is perfectly balanced a well composed, beautiful, entity will forms. Then the duality will resolve and over all composition becomes meaningful. Each element of whole stands its own, rightful place and unify with the context. Such a form is united with the rest of the world.

Fig. 1.12: Taj mahal -Unity

1.3.2.1.2 Simplicity

As there are simple use of words that imply representative meanings, indicating obvious order of feeling or imagery, line, circle, sphere, cube, pyramid, express simplicity. Silhouettes of any sophisticated form express simplicity. It however, is not the extreme order or lack of complexity which has become a common phenomenon in modern architecture. For instance Villa savoye is simple in outside, yet complex inside. Thus simplicity is an inclusive process. The enormous difference between banality and simplicity lies in elegance.

The simplicity is closely associated with scale and size. Antoniades (1980) point of view is scale is a dialogue between man and object. Thus it can be used to determine intended expression. The history of architecture contains number of examples in which "scale" can be seen in its total and its great variety

of applications. Therefore it can be used to manipulate simplistic, humble appearance of a built form.

"Whatever is truly great is truly simple"

- Branford, (1963) –

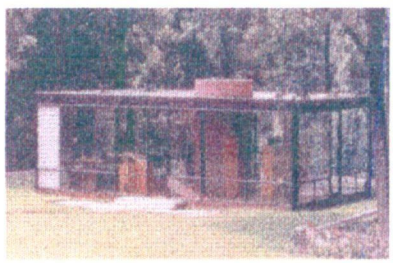


Fig. 1.13: Simplicity, The more simple and regular the shape, the more easily it is perceived.
Credit: Architects and Architecture, Sharp (1991).

1.3.2.1.3 Clarity

Clarity is the legibility of a built form. It means that the built form is not confusing and it is easy to "read". Through, clarity of a built form the intended expression can easily obtain by the beholder.

According to Christopher Alexander (1973) that physical clarity cannot be achieved in a form until there is first some, programmatic clarity in the designers mind and actions.

1.3.3 Details

The creative process won't stop at the form making. Shaping and detailing begins at form making. The generating factors and modifiers used to create desired expressions through the details. Thus, shaping, space, and form interrelated. Totally they give expression. Once these expressions are picked by the observer communication happens.

Not only that, the sense of detail is an important component in aesthetic attention. It exhibits the relationship between aesthetic and practical judgment. According to Plotinus,

"There is health when the body is harmonized into unity and beauty when the essence of unity controls the parts and virtue in the soul when it is unified and

brought in to a single harmonious whole. Details in a building play the role of 'parts' that contributes to make a single harmonious whole."

Hence, there is no appreciation of beauty of a building that does not involve an awareness and understanding of its parts.

The contribution of appropriate details creates 'variety' in architecture. Even in the nature, this phenomenon called variety can be seen through the details. For instance, flowers differ from each other by its colours, shapes of petals etc. Thus it shatters the monotonous and makes the world interest and vivid place.

Architecture being a form of arts, it must creates variety around the world as human beings always longing for variety. As a result, details will add richness and beauty in to the architectural work.

Another truth about the architectural detail is that it acts as the vehicle in the integration of external and internal built environment.

Details and architecture cannot be separated. They are interwoven with each other to create a complete whole. Thus details perform as parts which contribute to make the whole.

1.4 Concluding remarks

Architecture is primarily an art. The user, context and activity pattern are the primary generators of work of architecture. Space, form and details are the constituents of architecture. These architectural constituents are the final outcome of the primary generators. Thus, primary generators determine the form and secondary forces modifies it. Therefore these generators and modifiers can be regarded as compositional forces of architectural form. Hence, the next chapter is focusing to the composition in architectural form.

List of references

1. Rapoport, A. (1982), *House form and culture*, London: Printice hall international inc.
2. Ibid.
3. ibid.
4. Meiss, P. V. (1990), *Elements of Architecture*, London: E & FN Spon.
5. Ching, D.K. (1979), *Architecture; form, space and order*, New York: van Nostrand reinhold.

- CHAPTER TWO -
Composition in architectural form.

CHAPTER TWO – COMPOSITION IN ARCHITECTURAL FORM.

2.1 Definition and role of composition in architecture.

"Composition (from the French composer – put together) means exactly the same as synthesis. The elements to be put together in a work of architecture (as, of course, in any other form of art) may be completely unrelated totally antithetical, yet if they are become architecture, painting, dance, or music, they have to be put together in complementary ways through a rationale that will accommodate them in a cooperative way" [1]

- A. C.Antoniades (1980:39)-

Hence, Architecture deals with assembling of a set of elements or spaces in a particular manner to create an intended expression. A works of architecture then is a work of synthesis in which elements are put together in such a way as to constituent an entity, to create a new thesis or a new statement. As Antoniades (1980:18) points out," architecture is a discipline aimed at synthesizing, organizing, and creating order out of nothingness or unrelated parts."[2]

Further, composition is the conscious arrangement of parts or elements, vertically, horizontally, diagonally or in any other way to produce a functionally and aesthetically pleasing form. Once a correct relationship in works of architecture is achieved, it will inevitably become an aesthetically rewarding product. Therefore, the important fact is, a well composed product enables to evoke ones aesthetic sense. As Smith (1974) states, .

"The aesthetic response occurs when attention fragments are combined within the brain to form a pattern which has both coherence and elegance"

Thus, the composition can also be termed as form. The elements of form of two entities of one category can be similar but the nature and the way these have been arranged can bring the peculiarities to these entities. For example each human being is composed with a specific set of elements which gives that person the human

form. But according to the nature and the way of the elements of the form, that person can be stocky, slim, tall or short etc. and thus gain his identity.

People like Howard Robertson, Trystan Edwards, Peter F. smith, Pierre von Meiss etc. brought up sets of principles of composition. Thus, a successful, infinite, innovative and pleasing architectural product can be achieved when those principles are correctly handled. Therefore the important ingredients of architectural composition would be the principles of unity, punctuation, inflection, contrast, scale and proportion.

Thus avoid and ignorance of those principles will form disoriented solid void relationships, confused, visually discomfort and unpleasant crippled built form. So it will leads to a monotonous or chaos built environment. Therefore it is needed to address those principles.

"An understanding of functional design, the study of building and its various parts, cannot, however, be satisfactorily translated into an architectural creation unless it is accomplished through a comprehension of the laws of composition, through knowledge of the grammar of design."[3]

- H. Robertson (1924:01)-

2.2 Important principles identified in architectural composition.

2.2.1 The principle of unity

What is meant by the unity is the quality of 'oneness' in a composition, which is created, when the proper relationships exist between the different elements and the composition as a whole. This quality of unity is achieved when balancing opposite polarities. Then the entire built form is in a balanced equilibrium holding the work together as a total whole. This balancing is crystallized in architectural form as the resolving of duality. In creating the spatial movement within, the form manipulates solids and voids in composing, solids; duality is resolved by introducing a trinity; a third element. Thus the unity of overall composition is well-built.

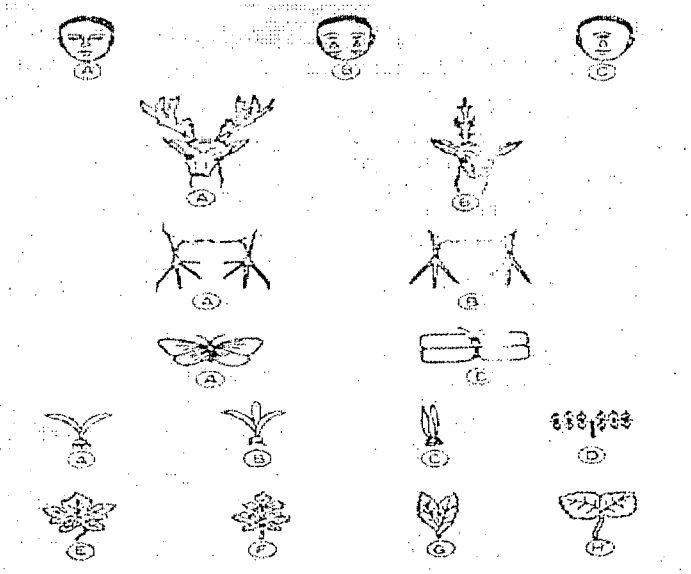


Fig. 2.1: The canon of number in animated nature.

Credit: Towards tomorrow's Architecture, Edwards, T.

2.2.2 The principle of punctuation

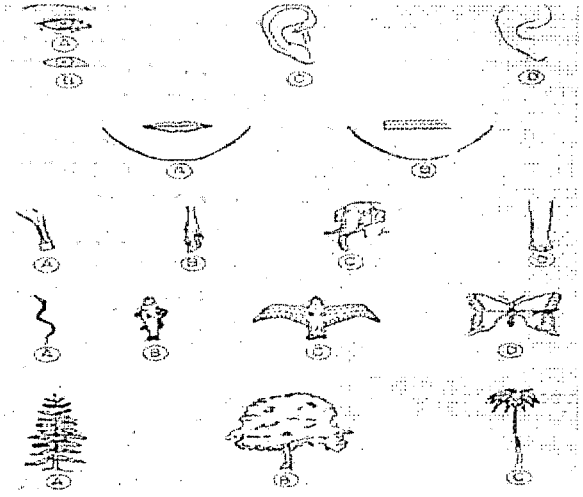
Trystan Edwards (1926) says "A thing must have a boundary, for otherwise it could not become an object of contemplation at all, it would be quite nebulous. If there is an object or building without depicting any element to show its extremities one might be entitled to ask 'Why it should not extend further in either direction?'"

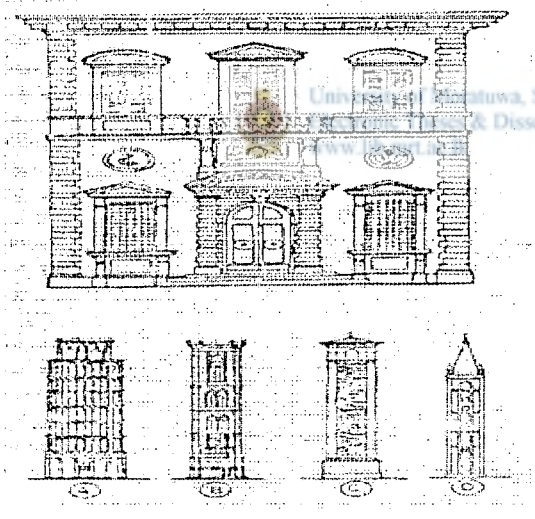
Since this principle is derived from animated nature, it is easier to explain with reference to nature. See the trunk of the trees spreads at its base or blade of grass comes to a point. When considering the context of human being see the way of hair punctuates head. Just as a human being have his extremities like hair, ears, nose, fingers etc. Composition of an object too has its extremities that one can form concept of that particular subject.

"Punctuation is a process of design by which one can give an object a certain consciousness of its extremities. By means of it the object appears to be saying to itself 'Thus far do I extend and no further'"[4]

-T.Edwards, (1926:51)-

2.2A. The canon of punctuation reference to animate nature.





2.2B. The canon of punctuation reference to Architecture.

2.2. The canon of punctuation.

Credit: Towards tomorrow's Architecture, Edwards T.

Fig. 2.3: West door of St. Mary Iffley, England.
Door with a certain consciousness of its extremities.

Fig. 2.4: Hotel tree of life, Kandy.
Column bases depict punctuation.
From the centre of the column vertical forces issue in both directions. In this case length of the column seems to be undetermined. By introducing a base and a capital the length can be defined.

Thus, when the beginning or the end of a thing has been given formal expression, the thing may be said to have punctuated. Punctuation is needed in built forms to express the super qualities of the contributory elements. Consequently, perception of its own extremities can make an element more significant.

Two ways of punctuation

Punctuation can be two fold as:

1. Vertical punctuation
2. Lateral punctuation

Vertical punctuation

Vertical punctuation takes special place to define extremities in a building. In this type, the basic punctuation is discussed. The building faces from the meeting with the ground and termination towards the sky.

Vertical punctuation can be mainly categorized into five types which are varied to each other:

a) Base and the crowning feature
b) Element and compositional feature.
c) Terminal feature
d) volumetric feature
e) Central feature

Lateral punctuation

Lateral punctuations are important when the two sides of the façades are to be defined. In the articulated buildings in continuity show the different methods of punctuation in the horizontal direction. The two ends of the building must show the end of one façade and the beginning of the new one. That is the place where the transitions of the faces are to take place.

The ways and means of enhancing punctuation in a built form as follows:

Ornaments and mouldings

The mouldings, ornaments and other kinds of elaborations are used to emphasize the boundaries of architectural feature.

Colour

As Trystan Edwards, (1926:159) points out,

"Colour is an aid to punctuation is very familiar phenomenon in nature."[5]

Hence, colour is an accent form and creates emphasis of form by three primary colours (red, yellow, blue) or by the admixture of any of these three. Therefore colour can be used to highlight the punctuation.

Tone

".....Tone is an accent form. The distinction between colour and tone is that while the former is due to the qualitative property of life the latter is due to quantitative property."[6]

- Trystan Edwards (1926:156),-

Thus, it can be said that tone is also a facilitator to emphasize the boundaries and edges of an architectural feature. The tone is the shaded effect of the primary or secondary colours.

Texture

Texture, adds the interest to a surface of a built form in order to limits its extremities. Thus, texture is merely the structure of surface.

2.2.3 The principle of inflection

According to Trystan Edwards (1926),

"....all the operations and dispositions of living things exemplify inflection. For example when we meet some familiar face in the street we might either smile or say 'Hello!' to acknowledge the presence of the person. And a dancer will move according to the drum bear and a ballerina to the background music of the ballet. They are all exercises in the artistic inflection of human figure."

Thus, Inflection is a more comprehensive principle than the other two. It can be defined as the 'principle which governs the relation of the parts of an object to the whole and relation of that whole to what lies outside it.' This leads to contrast between the components of an object while retaining the unity as well; but avoiding the monotony of the object. It an adds the aesthetic beauty to assemblage. As Trystan Edwards points out, inflection as a principle that secured the organic unity of an assembly of objects by

endowing them with a degree of sensibility manifested simultaneously in two ways as:

1. The object must have a certain similarity, for otherwise it is difficult to recognize them as members of the same group.

2. Thus all the components must be rest in the rightful place to express their inherent differences.

The principle of inflection has two theoretical aspects of different natures. They are the association of elements and dissociation of them to express similar and different relationships among the levels of the context.

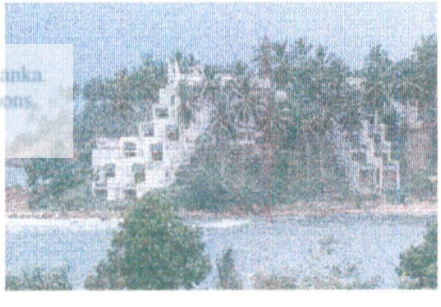


Fig. 2.5: Thangalle bay hotel,
Principle of inflection.

Fig. 2.6: Violation of principle of Inflection.

Punctuation, to express the boundaries of an object is an example for the association of elements. Hence, in a way punctuation also related to principle of inflection. Edwards, T. (1926:79) says,

"Punctuation is that a special form of inflection. It is merely the inflection of an object to take cognize of its own boundary."[7]

2.2.4 The principle of contrast

"Elements of difference character that are placed next to each other or in the immediate vicinity can form contrasts. The purpose is to make one element or form stand out more sharply when used against or in combination with another."

Venturi, R. (1966)

Thus, placing those different elements in such way, Contrast serves to give an immediate and unambiguous identity to two elements. It brings sense of relativity.

As Miess P.V. (1990:44) states, " Contrast enables us to establish differences..... Contrast is a principle for ordering our environment." [8] Accordingly it offers 'interest' to a built form and leads to mutual reinforcement without necessarily resorting to explicit hierarchy. As a result it makes more startling and vigorous effect on the eye.

Fig. 2.7: Sri Lanka institute of information technology, Malabe
Contrast gives more starling and vigorous effect on the eye

This experience not only owned to architecture, but it is applied to, day today lives of human beings. As H. Robertson (1924:26-31) says,

"..... In every day life one of the greatest sources of pleasure to the individual is that furnish by contrast. In effect, contrast is equivalent to absence of monotony, and supplies relief to the brain and the senses..."[9]

Thus excessive violence of contrast may defeat its own ends, for instead of accentuating, for example, the dominating proportions of one element over another, it may result in complete separation of these elements, and break up the composition. Such a separation may arise where a too strong contrast of materials occurs, or where there is a sudden dividing line between the character of the ground and upper stories of a building.

Enhancers of the principle of contrast.

Colour

In the first instance colour is identified as the hue, intensity and tonal value of a surface. There by colour use as a facilitator to enhance the surface character of a form or a space. It helps to distinguish a form from its context. A space encompasses quality of cooler, warmer heavier, lighter due to the colures that used. Likewise an object can be made to appear lighter or heavier and nearer or distant due to the colour that applied to it.

Similarly when applying two or more colours which totally unrelated to each other also enhance the contrast of a built form.

Fig. 2.8: Apply more colours enhance the contrast of the built form.

Texture

Texture is the attribute of the surface or plane and can be experienced visually as well as through the sense of touch. The human eye is trained to interpret the textural qualities without any physical contact with the surface. But under some certain circumstances the quality of texture as perceived by the eye deviates from that felt physically. This is due to the fact that texture is not only actual but could be stimulated as well. Thus this quality of texture used to enhance the principle of contrast.

2.2.5 The principle of scale and proportion

2.2.5.1 Scale in Architecture.

The word scale draws its origin from the Latin word 'scala'. "Scala" means the instrument which one uses to reach some place.

'Scale' refers to how we perceive the size of a building element or space relative to other forms. For instance, a building large size may possess human scale if it possesses adequate articulation of elements familiar to the human being, through which he can relate his size to the size of the building.

In composing a built form, scale is a very important tool to architects. Practice, observation and experience will gradually assist in forming a sense of correct scale values.

In architecture, basically we are concerned with two types of scales: the building elements whose size and characteristics are familiar to us through experience and the human figure.

- Generic scale: The size of building element relative to other forms in its context.
- Human scale: The size of a building element or space relative to the dimensions and proportions.

Thus, scale does not only denote a physical process. But it generates psychological conditions on beholder. It can be described as feelings or emotions such as "humble", "down to earth", "majestic", "arrogance" etc.

Buildings in Mawanella, Walasgala towns furnish this idea. Here, the observer has a definite human character. Therefore scale has both spiritual and physical connotations. But for design purposes, both aspects of scale must take into consideration.

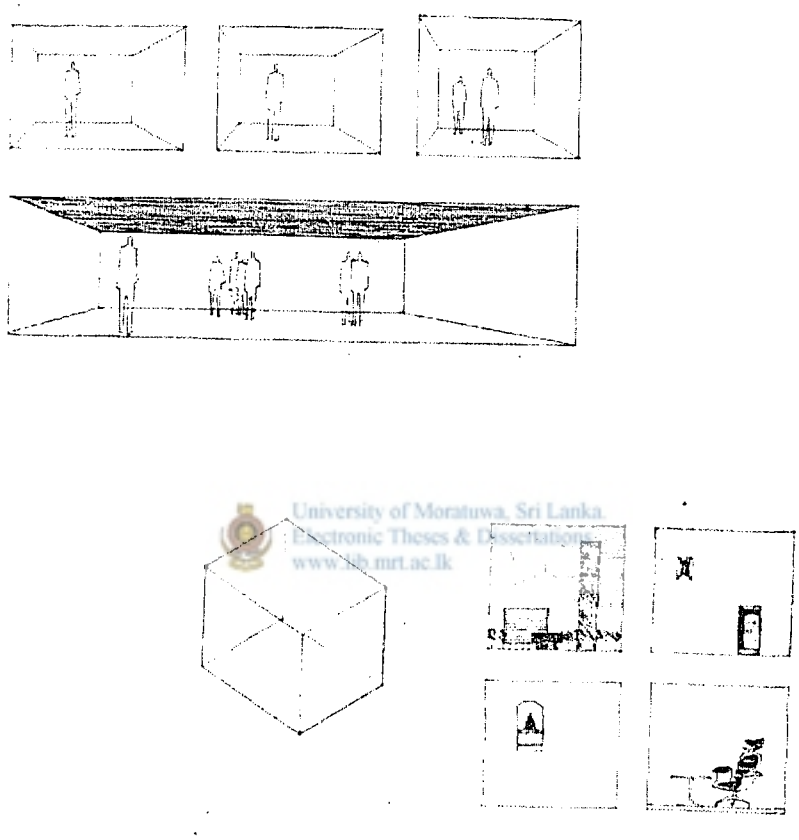


Fig. 2.9: Scale.
Credit:Form, space and order,Ching D.K. (1979), p. 326.

2.2.5.2 Proportion

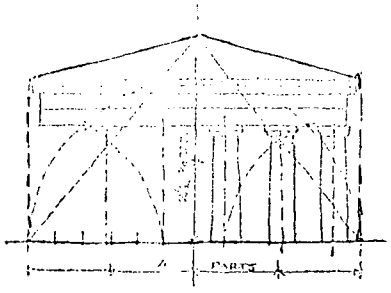
"Scale is a dialogue between human and object while proportion denotes only a dry concept of a physical relationship between the parts of a building. Ina strictly architectural sense, "Proportion represents a geometric concept which can be seen as the result of comparison of physical (linear) dimensions. The proportions of a building are 'there' even though a human being may not be around to estimate or appreciate them that are because the relationship of width and height, or to the total dimensions to the dimensions of elements of the edifice are there."

-Scholfield, P.H. (1985)-

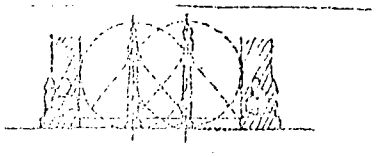
The proportion in architecture is also a relative term. It represents physical relationships. It gives an idea about the relative size of one part to the whole. It is a geometric concept Proportional relationships cover the whole field of architecture and they can be considered from the point of view of commodity, firmness and delight.

There are number of theories of proportion, such as golden section, the orders, renaissance theories, the modular, the ken etc.Thus; the intent of all theories of proportion is to create a sense of order among the elements in a visual construction. Ignorance of fine proportioning systems eliminate the 'oneness' or 'unity' of a built form.

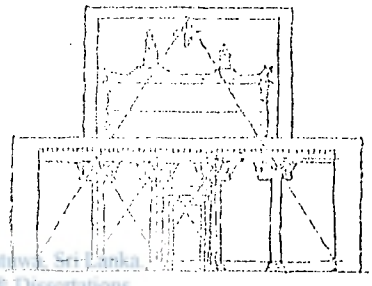
Good proportional systems had been used in the most well developed phases the history of architecture and those buildings have been admired for generations.

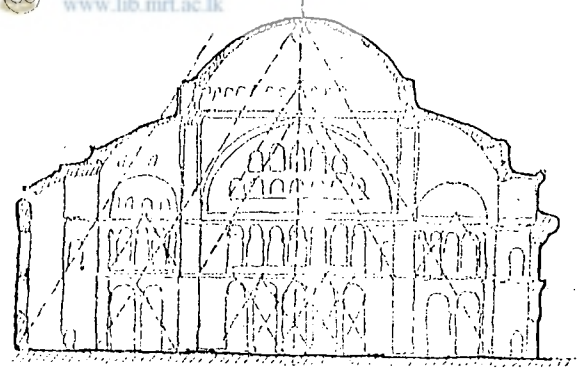


2.10A.The presence of triangle in Greek Proportions.



2.10B.
Geometrical proportions
in Persian buildings.





2.10C. The presence also in Byzantine proportions of the equilateral triangle.

Fig. 2.10: Proportions

Credit: The principles of architectural composition, Robertson H. (1924), p.79.

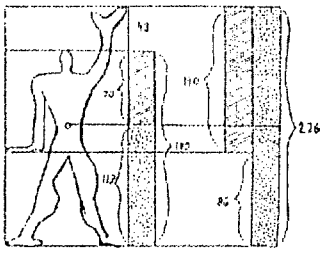


Fig. 2.11: The modular, Le Corbusier, 1945-50.
Credit: Elements of Architecture, Miess P.V. (1990), p.63.

2.2.6 Principle of mass

It is a fact that the human eye is pleased by definite forms, because such forms can be easily understood and create delight and satisfaction.

A knowledge of this as a principle, will enable us to compose through a cultivation of the practice of visually weighing one element with another, and subsequently placing them so that they form a nicely balanced picture, with a well placed centre of gravity, and this quite independently of whether the elements are of the same type or are, on the contrary, of all sorts of shapes and sizes. As Robertson (1924:18) states,

"There are no limitations to the number of elements which may go to form a composition, provided that their grouping be so arranged as to furnish a dominant or focal point or interest, which point should be the one to which it naturally returns after an examination of the various subordinate details of the composition." [10]

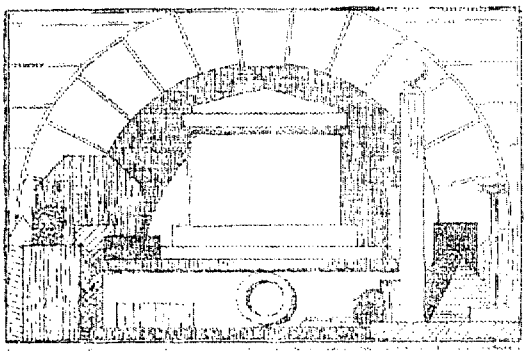


Fig. 2.12:A composition of geometrical shapes and simple forms, in which varying weights and tone values serve to form a balance between elements of widely different shape. In spite of lack of complete symmetry the centre of gravity remains in the middle of the picture.
Credit:The principles of architectural composition, Robertson H. (1924), p.23.

2.3 Concluding remarks

Composition in an abstract form is curiously universal in its fundamentals, both sculpture, painting, and in architecture. Thus "composition is the key stone of architectural design" Robertson H. (1924) once said.

Number of people discussed, interpreted and described important principles related to architectural composition. Hence, well manipulated architectural principles form Good works of architecture encompasses with a new statement and a new position. Forming those artifacts it is necessary, not only to consider the structural, practical, and logical requirements, but to envisage forms from the purely aesthetic point of view.

Thus, there is a wider spectrum of architectural principles; unity is the most fundamental to works of art and to its creation.

List of references

1. Antoniades, A.C. (1980), *Architecture and allied design*: Kendall ,Hunt publishing company
2. Ibid.
3. Robertson, H. (1924), *The principles of architectural composition*: London, The architectural press.
4. Edwards, T. (1926), *Architectural style*: London, Faber and Gwyer.
5. Ibid.
6. Ibid.
7. Ibid
8. Miess, P.V. (1990), *Elements of architecture*; from form to place: London, E & FN spon
9. Robertson, H. (1924), *The principles of architectural composition*: London, The architectural press.
10. Ibid.

- CHAPTER THREE -

Principle of unity in the composition of architectural form.

CHAPTER THREE - PRINCIPLE OF UNITY IN THE COMPOSITION OF ARCHITECTURAL FORM.

3.1 Definitions and the role of 'unity'

Unity represents the 'oneness' or 'wholeness' of a built form. Another point of view is unity is the pacifying of contrary forces. Forming this unified whole every component finds its rightful place while retain their identity.

The phenomenon of unity also deals with the nature. For instance a leg dismantled from the body leads to caricature. But it being as member of the body finds its rightful position while retain its identity and forming unified entity.

Likewise architecture must essentially address the concept of unity. Because it is the quality that architecture differs from haphazard arrangements. But this unity should achieve through the complexity and contradiction in architectural work. Therefore achieving unity in architecture is an inclusive process. As Robert venturi (1977:88) once said, "It is the difficult unity through inclusion rather than the easy unity through exclusion." [1]

Therefore, unity being an important consideration to be made in an architectural composition, if by any means being ignored leads the whole composition to a failure. One way of achieving 'unity' in a composition is through 'resolved duality'. Thus the presence of 'duality', the splitting up and weakening of unity, is one of the most common defects in architectural composition. Therefore, forming this unified whole duality is resolved by introducing a trinity; third element. See the way of human face composed; between the two eyes, nose is the trinity which resolving duality.

This is explaining in canon of number which is put forwarded by Trystan Edwards. It says "Both nature and art abhor a duality which has not in some measure been modified so that it may partake of the character of unity."
Robertson (1924:13), also confirms that,

" It is a rule of the grammar of composition that absolute duality should be avoided, and that no composition should consist only of two equal and detached elements which compete with each other and which form in reality two individual and similar compositions set side by side, each with its own axis of symmetry or centre of interest"[2]

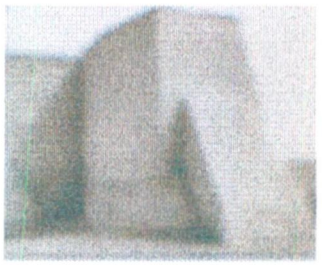


Fig. 3.1: Unity in mass.

Fig. 3.2: Unity in a street

Fig. 3.3. Exterior view of east façade,
Peter White house, Mauritius.
Unresolved duality.
Credit: Geoffry Bawa, Taylor, B.B.
(1995), p.60.

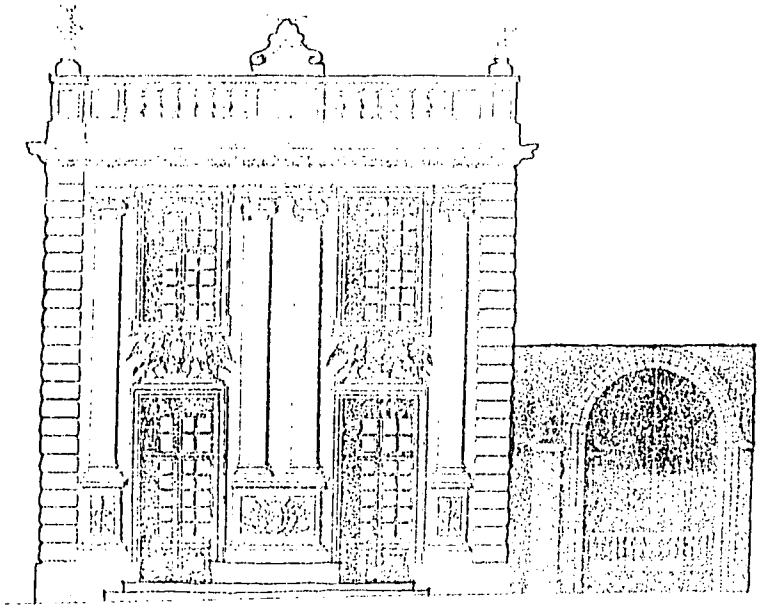


Fig. 3.4:
The pavilions which
Flanked the *Chateau* at Marly
The compositional duality of their two- bay facades lacks unity, but reinforces the unity of the whole complex. Their own incompleteness implied the dominance of the *chateau* itself and the completeness of the whole.
Credit: Complexity and contradiction in architecture, Venturi, R. (1977), p. 26.

3.2 Perception and unity

3.2.1 Perception visual objects as unified 'entities'

There are many psychological approaches which explain the visual perception and its relevance to the arts. Among these approaches, the Gestalt psychology of perception is considered to be a one which is most successful in opening up new avenues for understanding of visual arts. Architecture as a visual art could benefit greatly from the findings of the research on the Gestalt theory.

Gestalt theory considers a perceptual whole the result of, and yet more than, the sum of its parts. The whole is dependent on the position, number and inherent characteristics of the parts. Also it shows that the nature of the parts, as well as their number and position, influences a perceptual whole and it also has made a further distinction: the degree of wholeness can vary. Therefore the fundamental formula of gestalt theory might be expressed in this way: There are wholes, the behaviour of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole. Hence it is the hope of Gestalt theory to determine the nature of such wholes.

Thus, this unified character of our experience is not limited to the visual modality. It is united with day to day life such that experience of speech, sentences comes to us

as well structured unified groupings encompassing smaller units than the sentences themselves.

3.2.2 Perceptual principles that govern unity

A set of perceptual principles have been put forward by the Gestalt psychologist, as the determinants of unity. The presence of these principles facilitates our perception of different elements of a visual entity, as being structured into one coherent whole. Identification of these principles will enable us to understand their relevance in formulating a set of strategies, useful in architectural compositions.

3.2.2.1 The principle of *similarity*, proximity and continuity

1. Similarity:

The principle of similarity states that things which share visual characteristics such as shape, size, colour, texture, value or orientation will be seen as belonging together.

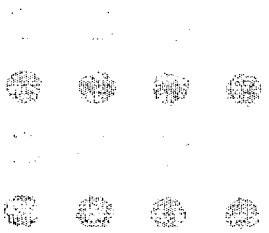
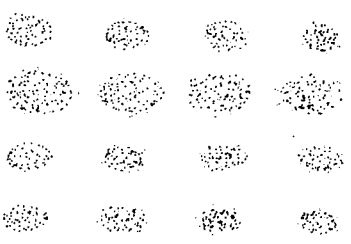


Fig.3.5: Similarity,

The two filled lines give our eyes the impression of two horizontal lines, even though all the circles are equidistant from each other.



Fig, 3.6:Similarity size,

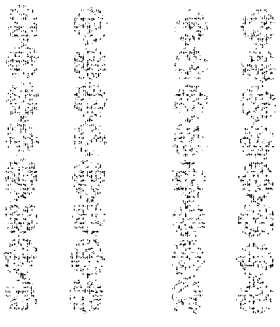
The larger circles appear to belong together because of similarity in size.

2. Proximity or contiguity

The principle of proximity or contiguity states that things which are closer together will be seen as belonging together.

Fig. 3.7: Proximity,

Looking at the picture to the right, since the horizontal rows of circles are closer together than the vertical columns, we perceive two vertical lines. Since the first two columns, we perceive and the last two columns have less space between them than the center two columns, we perceive two groups of two columns.



3. Continuity

The principle of continuity predicts the preference for continuous figures. We perceive the figure as two crossed lines instead of 4 lines meeting at the centre.

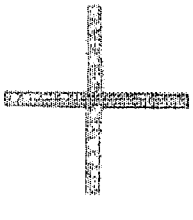


Fig. 3.8: Continuity.

3.2.2.2 The principle of figure and ground

The terms figure and ground explain how we use elements of the scene which are similar in appearance and shape and group them together as a whole. Similar elements (figure) are contrasted with dissimilar elements (ground) to give the impression of a whole. A breakdown of figure and ground occurs with camouflage, where the objective is to make the figure so much like the ground that it disappears from view.

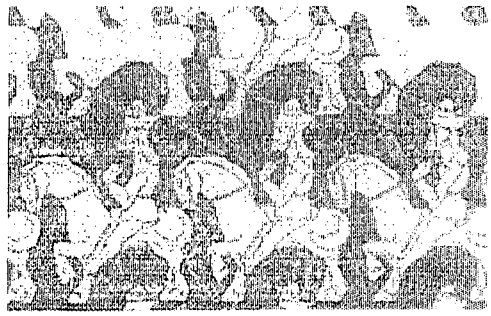


Fig. 3.9: Black horses and riders,
Figure and ground

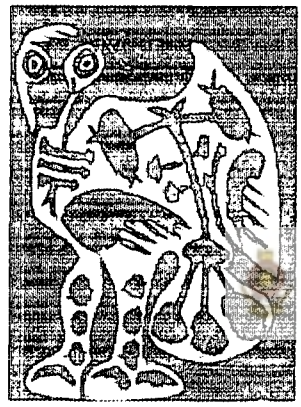
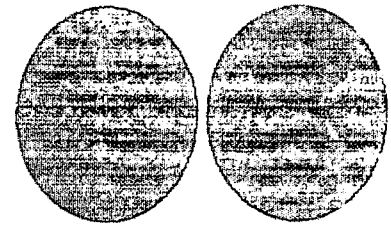


Fig. 3.10: The large owl,

The eye moves from the bird at rest in white figure and black ground to the reversal of bird in flight when black becomes figure and white ground.
Credit: A graphics survey of perception and behaviour for the design professional, Wilson, F. (1984), p.67



3.11A.

Small objects on a large field

Tend to become figures on a ground.

3.11B.

Large objects on a small field become either figure or ground.

Fig. 3.11: Visual connection.

3.2.2.3 The principle of Closure, area and symmetry

1. Closure:

The principle of closure applies when human eye tend to see complete figures even when part of the information is missing. Ones mind reacts to patterns that are familiar, even though he often receives incomplete information. It is speculated this is a survival instinct, allowing completing the form of a predator even with incomplete information.

Fig. 3.12:
In a closer view in which neither the outer nor the inner circle is seen completely, our perception continues to be that of completed circles.

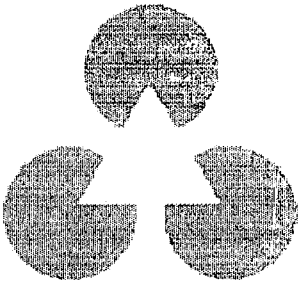


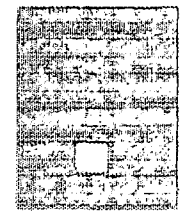
Fig. 3.13: Closure.

2. Area

The principle of area states that the smaller of two overlapping figures is perceived as figure while the larger is regarded as ground. We perceive the smaller square to be a shape on top of the other figure, as opposed to a hole in the larger shape.

We can reverse this perception by using shading to get our message across as seen in fig.3.14 B

3.14A.



3.14B.

On a White background this looks like a box with a hole in it.

Fig. 3.14: Area.

3. Symmetry

The principle of symmetry describes the instance where the whole of a figure is perceived rather than the individual parts which make up the figure.

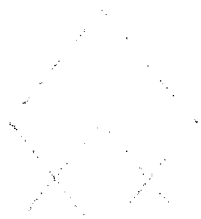


Fig. 3.15:
Two overlapping diamonds, or three objects, a small diamond and the irregular objects above and below it? But if it perceives according to the principle of symmetry, it will probably see two diamonds overlapping.

3.3 Unity and its relationship to beauty

The architects and various other scholars who are concerned with the subject of aesthetics have also stressed the prime importance of the quality of unity in any art form and its relationship to the concept of beauty.

As Trystan Edwards (1926) points out,

"Architecture we have argued is the expression in concrete form of an idea. The same may be said of painting, sculpture, music or literature; in fact if any art which is original and not initiative. Any idea or conception, before it can be successfully translated into any medium, must priory be complete, and can not be composed of scattered elements which are unrelated to each other and represent diffusion as opposed to unity. The conception being necessarily a unified whole, it follows that its concrete realization in architecture must express complete unity. It is the presence of the quality of unity in architecture which makes the difference between an architectural composition and haphazard arrangement of scattered architectural elements which if they may be dignified by the title of 'conception' must be considered as representing a weak and incomplete idea of necessarily a low order"

The concept or the idea of a particular building may be expressed through one dominating element or a plurality of elements of varying sizes. It is a certain relationship. That should exist between these elements as mentioned before, which makes possible the expression of the conception of a building through a unified whole. Trystan Edwards has made an effort to identify these relationships; in his book called 'Architectural style' there he has formulated a set of three principles which are helpful in achieving correct relationships among the parts of a composition.

It is clear from the principles of grammar mentioned by Trystan Edwards that the main function of them is to create a coherent and unified whole. He introduced three principles to determine the unity of a built form.

The first of three principles that have been established explains that a thing if it is to be a work of art must be a one thing or an assemblage and not duality of a division, while the second emphasize the extremities of the thing, and separates it from the surroundings. These two principles correspond with the figure and ground phenomenon which has been described before. The third, secures the subordination of part to the whole an also establishes the relation of the whole to what lies out side it. The presence

of this principle, which, by taking into account the existence of one element by the other creates a regularity and continuity, in what we see around us.

The above principles that have been name as number, punctuation, and inflection, according to Trystan Edwards should apply equally to all buildings in any given style and to the styles of architecture. In so far as the principles are compile with, to that same extent is the quality of the beauty is manifested in a design and whenever the principles are violated we have ugliness. It is evident by now that the beauty of a building depends on to a larger extent upon the unity which is brought about by certain relationships that exists between the parts of a building.

Hence, many writers assert that 'unity' is an essential element in a composition, and it has often been equated directly with beauty.

Rudolf Arnheim (1977) for example, in his book " The dynamics of architectural form" tries to explain the beauty as follows:

" The demand of harmony and good proportion does not tell us what kinds of forms to be harmonize and proportioned, nor does the existence on neat workmanship. Physical function does not sufficiently determine form and no such determination explains why a visible kinship should result between function and expression. The meaning of beauty as I hope to indicate emerges only if we understand the beauty has a way of perfecting expressions."

The unity it could be said that, is the fundamental basis on which the perfecting of expression could be made possible the presence of the quality of unity can be detected, disrespecting of what ever the expressions a building may have.

Also Robert venturi (1977) in his book, ' Complexity and Contradiction in architecture' says, "..... an architecture of complexity and contradiction has a special obligation toward the whole: its truth must be in its totality or its implications of totality. It must embody the difficult unity of inclusion rather than the easy unity of exclusion. More is not less."[3] Hence, according to him aesthetics of a unified whole should derive from the inner complexity.

To perceive a beauty of an object contribution from the observer is also an important factor.

According to Alan Holgate (1992: 37),

" .....beauty in objects, depending to some extent on the analytical skill and knowledge of the observer, but also on the inherent qualities of the object such as complexity and visual organization."[4]

Hence, it is evident from our discussion that the unity is a major determinant of the beauty of a work of art. The apprehension of unity in an architectural composition has special significance, since it's essentially a three – dimensional entity which has exterior as well as interior. Thus, this unity is beauty for the soaring of emotions and for the intellect as well. For this unity reveals the whole creation, which unveils the truth.

3.4 The problems of achieving unity in architectural composition

3.4.1. The experience of unity in architecture

There are two fundamental ways of experiencing the unity of an artifact depending on its nature and complexity. For instance a painting in two dimensional can be seen at once. It enables the viewer to grasp manageable units, easily surveyed by the eye, and to attain an image of the whole by finding the relations between components. But architectural creation in three dimensional may not allow it to be perceived at one rather its total image is constructed by the partial views taken from the different points and angles. Hence, buildings which can be fitted into the visual field only from considerable distance of smaller sub wholes whose completeness can be encompassed even in short distances.

As Rudolf Arnheim (1977) points out,

"There is an essential difference between the way a viewer interrelates parts in a picture and the way he does so in a building. The parts of a painting are all directed forward the viewer in the same way: they are about the same distance from him. They all appear together in the context of the whole composition, they are available for inspection in any sequence, and while one of them is looked at, the others present, though out of focus, in the visual field. The same is true for architecture only when one survey....."

Hence, if human beings are to interact with a building functionally, they must be united with it by visual continuity. Therefore, architect, as the creator he must posses an ability to create buildings to achieve a unified whole.

3.4.2. Constraints in achieving unity

The designer is always confronted with a certain set of constraints in creating cohesiveness in his compositions. Robert Venturi, for example speaks about the complexity and contradiction inherent in the design problems faced by the contemporary architect. Today the problems of program, structure, mechanical equipment, and expression, even in single buildings in simple contexts, are diverse and conflicting in ways previously unimaginable. The increasing dimension and scale of architecture in urban and regional planning at to the difficulties while these constraints make the architects work more difficult, it also prevents him from preceding towards to extreme simplicity it is said that going in to such extreme obvious unity does producing boring architecture the architects of the modern period have been subjected to severe criticism because of the simple and obvious unity, they achieved in their buildings for the sake of expressive purpose, and ignoring many of the constraints present in the design problem. Venturi (1977) in criticizing such obvious and simple unity speaks as follows:

> " I like elements which are hybrid rather than 'pure', compromising rather than 'clean', distorted rather than 'straight forward', ambiguous rather than articulated, perverse as well as impersonal, boring as well as interesting , conventional rather than designed, accommodating rather than excluding, redundant – rather than simple, vestigial as well as innovating, inconsistent and equivocal rather than direct and clear. I am messy vitality over obvious unity."

What is meant by this statement is that the unity must come out of the complexity and contradictions inherent in the constraints of the design problems and not by the simplification which ignores the constraints. He goes on to say that the simplified and

superficially complex forms will not work. Instead the variety inherent in the ambiguity of visual perception must once more be acknowledged and exploited.

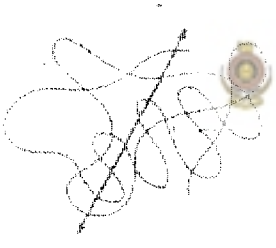
Thus, the first one of these constraints is the obstacles presented by the context in which a particular building is to be located. The second is the various requirements of the program of a building. The third one has been identified as the difference between intended or inherent pattern and practical execution.

3.5 Strategies to achieve unity in architectural composition.

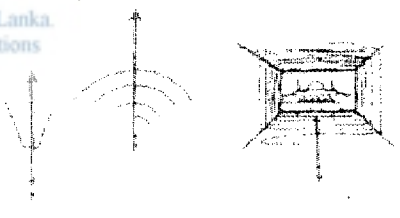
3.5.1 The use of axis

The word axis implies a line established by two points in space, and about which forms and spaces can be arranged. It is the most basic means of arranging forms and spaces in architecture.

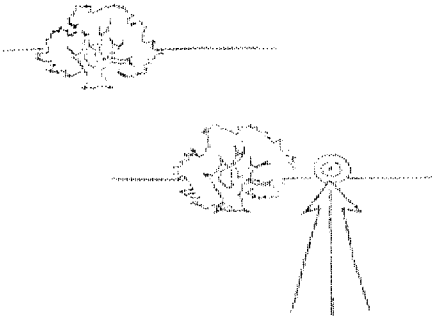
Alone this axis forms and spaces arrange in two ways as irregular or regular manner.



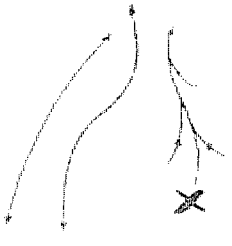
An axis imposed on a free plan area demands a new and related order.



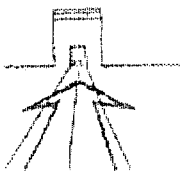
Terminus as a generator of axial movement.



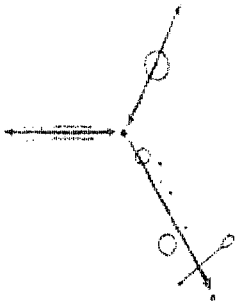
Often objects adjacent to a strong axis suffer in the relationship.



An axis may be bent or deflected but never divergent.

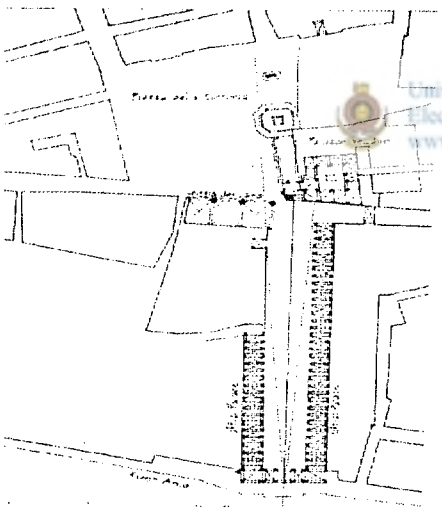


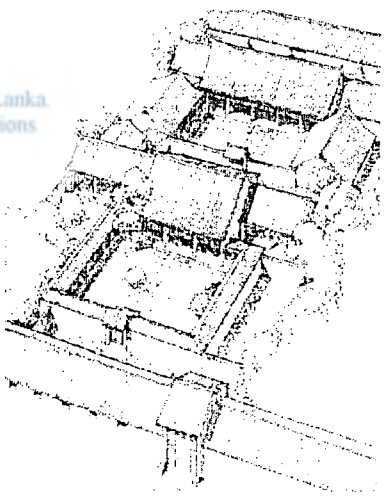
A powerful axis requires a powerful terminus.



An axis is a unifying element.

Fig. 3.16: Axial characteristics.
Credit: Landscape Architecture, Simonds, J.O.

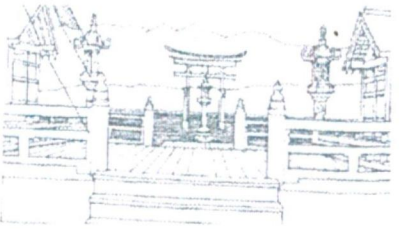




Axial space framed by the Uffzi Palace leads from the river Arno, through the Uffizi arch, to the piazza della signoria.

Chinese courtyard house: Peiking, China.

Itsukushima temple:
Hirosima prefecture,
Japan.



View from temple toward "Toru" in the bay

Fig. 3.17: Use of Axis.
Credit: Form Space and order, Ching, D.K. (1979), p.336-340.

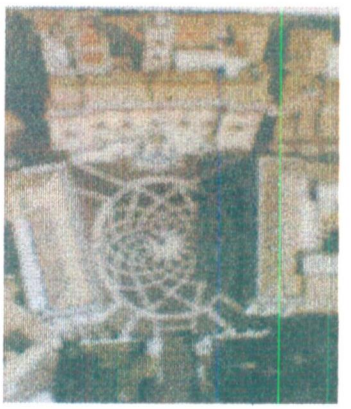


Fig. 3.18: The piazza del Campidoglio in Rome
The axis occupied by a statue.
Credit: Rome, Chamberlin, E. R. (1979),p.19.

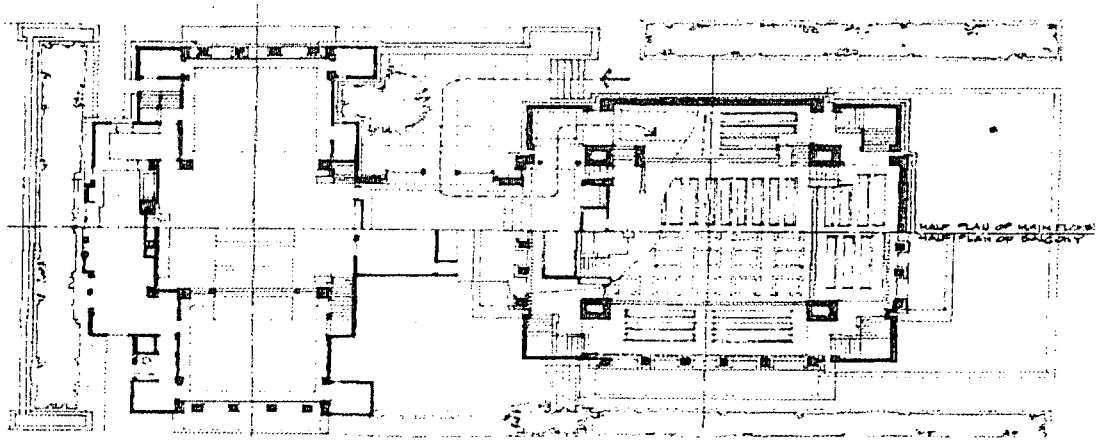
3.5.1.1 Symmetry

Thus an imagery, perceptual and not visible an axis is a more powerful regulating device while it implies symmetry, it demands balance.

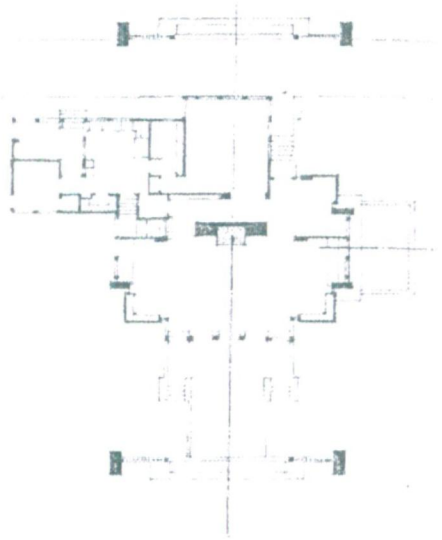
As Ching (1979:334) states,

" The specific disposition of elements about an axis will determine whether the visual force of an axial organization is subtle or overpowering, loosely structured or formal picturesque or monotonous." [5]

Thus, that the tendency of human eye is to perceive visual forms as simple as possible. In that process certain three dimensional entities are perceived as approximations of primary geometric forms. One of the most important properties of primary geometric forms is their inclination to be centrally symmetrical. Central symmetry is essentially for religious buildings and for those which seek to symbolize secular power. This symmetrical state cannot exist without implying the existence of an axis. A symmetrical object can be divided into two equivalent parts by use of an imaginary axial line. Consequently, symmetry is one of the strategies which facilitates our perception to visualize as a unified whole. Symmetry offers our eye a satisfaction of balance and the power to create with ease unity standing out from the rest of the environment.



Unity church: Oak park, Illinois, Frank Lloyd Wright.



Robert W. Evans house: Chicago, Illinois, Frank Llyod Wright.

Fig. 3.19: Use of symmetry.

Credit: Form space and order, Ching, D.K. (1979), p.343-346.

The Spanish steps

Fig. 3.20: The formal and ceremonial effect created by use of symmetry.

Credit: Rome, Chamberlin, E.R. (1979), p. 15.

Fundamentally, there are three ways of achieving symmetry by use of axis as:

1. Strictly symmetrical composition

   It refers to that the elements in the contrast directions are almost similar in size, character, shape and weight.

2. Circumstantial distortions

This is resultant due to the not capable of achieving strictly symmetrical composition. The complexity in modern world rarely allowed achieving strictly symmetrical entity. The particular functional and expressive needs that are unable to fit into a strict symmetry can be housed by circumstantial distortions.

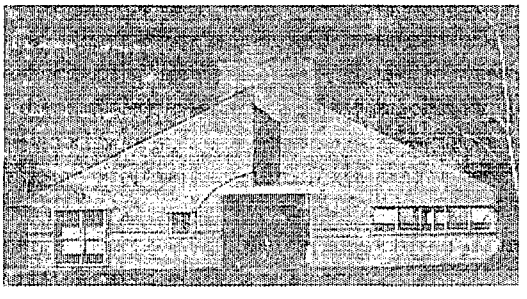


Fig.3.21: Residence in Chestnut Hill,

Windows of different sizes on either side of the axis act as circumstantial distortions, in otherwise strictly symmetrical composition.
Credit: Complexity and Contradiction in architecture, Venturi, R. (1977), p.119.

3. Asymmetrical composition

This is achieved by mainly by the use of equality of weight (in Appearance), on the contrasting directions.(rather than apparent similarity.) In this, the horizontal and vertical play essential roles. Our upright position, top and bottom, horizontal or vertical line, the right angle between the two, are immediately understood and we are able to discern the slightest deviations.

These three different ways of symmetry possess different visual characteristics.

Fig.3.22: Asymmetrical balance: one of the greatest architects to have mastered it in the 20th century remains without any doubt Frank Llyod Wright; The Marcus house project, Dallas.
Credit: Elements of Architetcure, Meiss, P.V. (1990), p. 70.

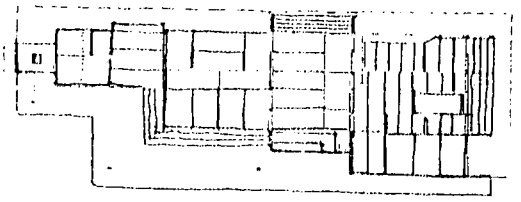


Fig. 3.23: Shoi-ken, tea house, in the garden of Katsura, Kyoto.
Fully recognized the importance of symmetry.
Credit: Elements of Architecture, Meiss, P.V. (1990), p. 70

3.5.1.2 Balanced composition

This refers to where dissimilar elements are precisely balanced about a principle axis. Here the properties such as, colour and texture used as a tool for determining the visible weight of the built form. Thus this balanced composition encompasses with the inflection creates sense of presence of the principle axis in the composition. Thus it leads to perceive the physical entity as a unified whole.

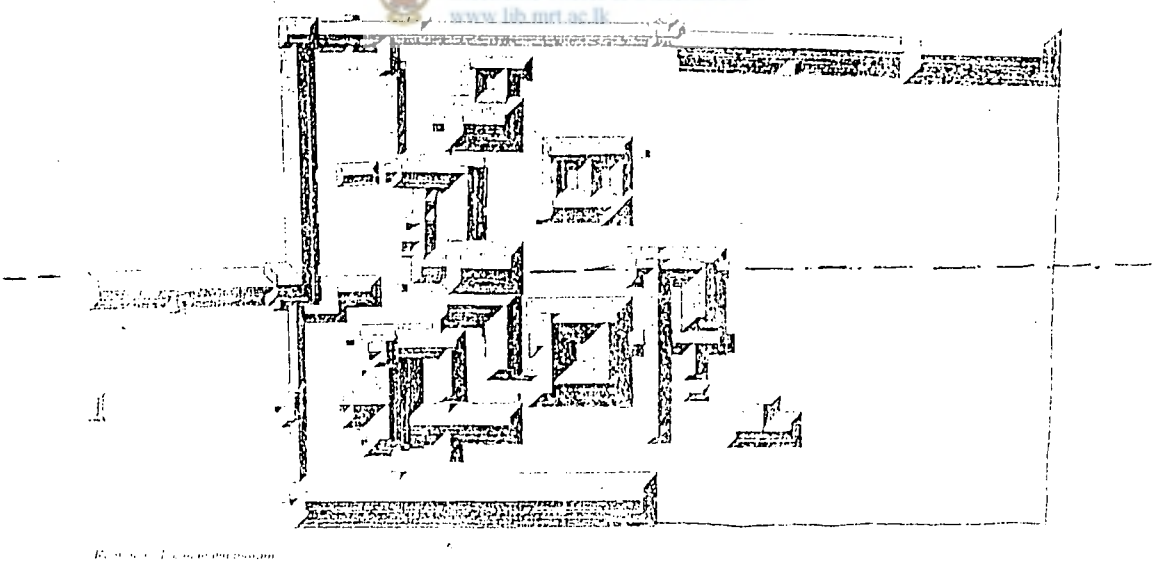
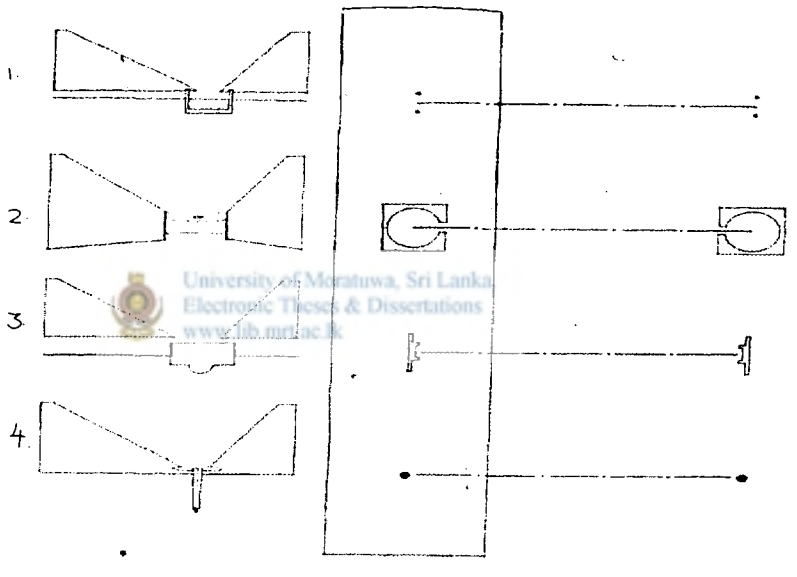


Fig. 3.24: Balanced distribution of elements about an axis.
Padmanabhapuram palace, India.

3.5.1.3 Punctuation of the axis.

In certain situations axis is used to achieve unity, as well as it is used to facilitate the sequential experience in some compositions of built forms. This kind of compositions can be seen in religious, administrative buildings even in city layouts.

Hence, the terminating elements of an axis serve to both send and receive its visual thrust. These terminating elements can be any of the following.



1. Points in space established by vertical, linear elements or centralized building forms
2. Vertical planes, such as a symmetrical building façade or front, preceded by a forecourt or other similar open space.
3. Well defined spaces, generally centralized or regular in form.
4. Gate ways that open toward a view or vista beyond.

Fig. 3.25: The terminating elements.

Credit: Form Space and order, Ching, D.K. (1979), p.335.

3.5.2 Repetition of similarities

According to Gestalt principles the eye is trained to perceive similar and closely positioned elements as belonging to one unified whole.

Thus, well coordinate similar elements can be used to create a larger unified whole. The similarity could manifest itself in many ways such as the size, shape, or certain attributes and characteristics of elements. These similar elements in a composition according to the character and attributes make different visual effects on beholder. For instance, use of exactly similar elements in a built form creates different visual effects than that of using merely similar elements.

But using exactly similar elements only produce repetition of shapes. But in the aesthetics point of view it is not accepted.

Hence there are ways of use this repetition of similarities, as well as the particular ways of unite elements.

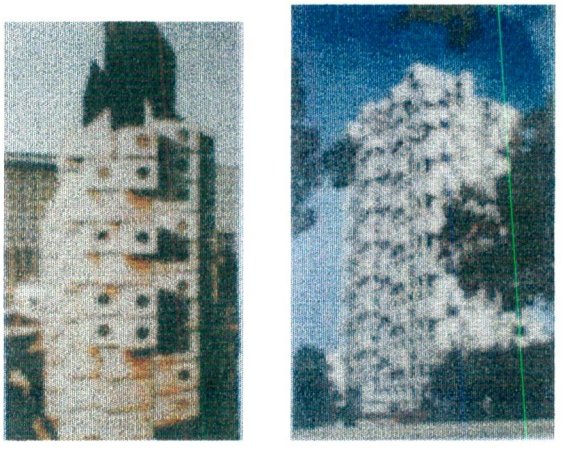


Fig. 3.26: Repetition of similarities.

3.5.2.1 Modularity

The most basic way of achieving such unified whole is to use the module in composing. It is an elementary unit. It facilitates easy ways of combining elements. The effect of visual successfulness depends on the method of combing elements.

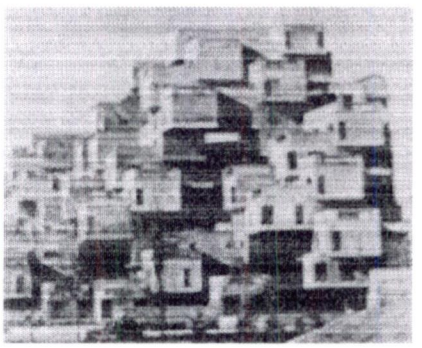


Fig. 3.27: Modularity.

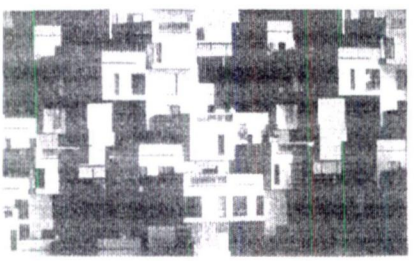
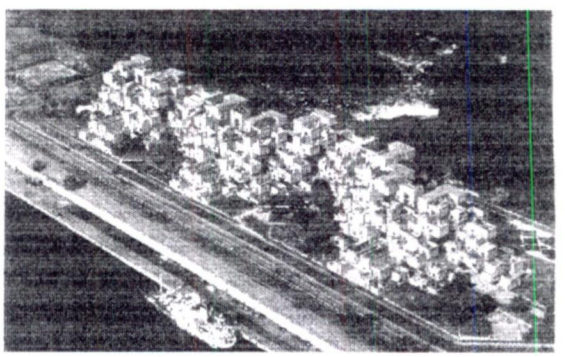


Fig.3.28: Habitat, the modular 158 unit apartment building complex designed by Moshe Safdie.
Credit:
Architecture today, Jencks C. (1988),



3.5.2.2. Repetition of shape and character

Due to the complexities in some situations prevents the use of module. In such instances elements of similar shapes and character used to achieve a unified whole. Many housing projects, on irregular sloping sites illustrate this. Therefore final resultant would be an irregular form.

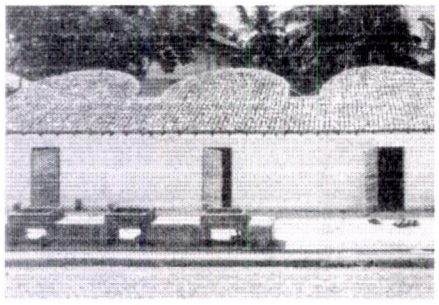


Fig. 3.29: Yahapath Endera farm school, Hanwella.
Repetition of roofshape.
Credit: Geoffry Bawa, Taylor, B.B. (1995), p.91.

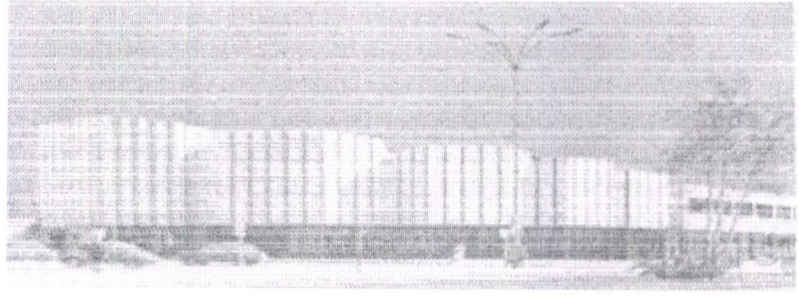


Fig. 3.30: Cultural centre, view to main entrance, Wolfsburg
Beauty through repeatable forms that make the unity.

Credit: Alvar Alto and the international style, Pearson, P.D. (1978),p. 222..

3.5.2.3 Repetition of proportions

"The use of proportions can visually unify the multiplicity of elements in an architectural design by having all of its parts belonging to the same family proportions. It can provide a sense of order, and heightened the continuity of a sequence of spaces. It also establishes relationships between the exterior and interior elements of a building."

-D.K. Ching (1979)-

Proportion also can used to manifest repetition of similarities. Thus, according to above mentioned quotation particular nature of these relationships can not be immediately captured by the casual observer. But the visual unity and order it creates can be sensed. Hence it is an indispensable tool that can be used by a designer.

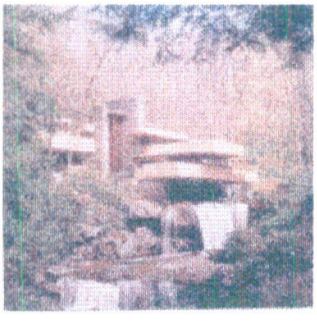


Fig. 3.31: Falling Water, Pennsylvania, reflects the use of a set of elements different in size where a subtle and abstract proportional relationship between these elements creates a sense of unity.

3.5.3 Hierarchy

According to perceptual principle of figure and ground eye is capture the visual object as a dominating figure on a subordinate surrounding. But when considering the architectural compositions; the several elements may be take part as figure. This may create competition among the elements, unless a proper relationship establish. It affects the clarity of a built form.

As Robertson, H (1924) states, the axis in compositions states that the presence of a 'dominant' fixes a focal point and establishes unity, whereas a series of equally competing axes break up the composition into series of individual elements which are destructive of the general unity. He further explains that when the unity is in danger, because of the competing equalities, it is often preferable to create dominant even at the expense of strict logic, or better still to reexamine the programmed so as to eliminate the elements of complete incompatibility.

Thus when differences exist among the parts it will build up a clear hierarchical relationship among other parts.

Hierarchical order can be see even in nature. For instance, see the structure of a bees organism. It encompasses with queen, soldiers and servants. Thus it is organized according to hierarchical structure. Hence, architecture also cannot detach from nature. In architecture hierarchy could be seen in two basic forms. That is elements in a hierarchy and the patterns or orders in a hierarchy.

Fig. 3.32: National theatre, London, reflects Hierarchy in form.
Credit: Architecture and architects, Sharp (1991).

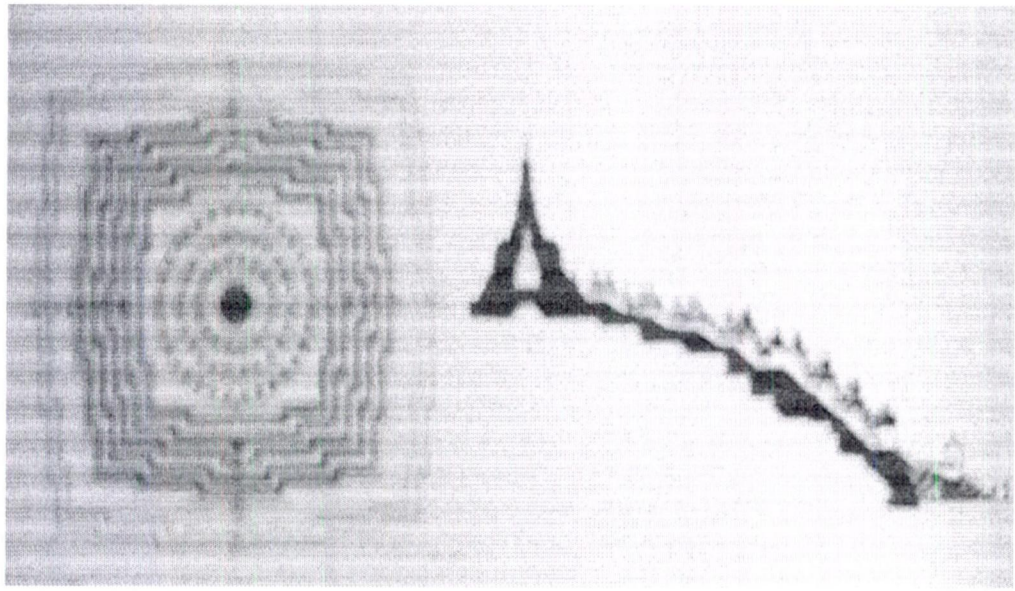


Fig. 3.33: Stupa of Borobudur, Java.

The creation of a clear hierarchy between elements builds up the whole.

Credit: The landscape of man, Geoffry and Susan (1975), p.62.

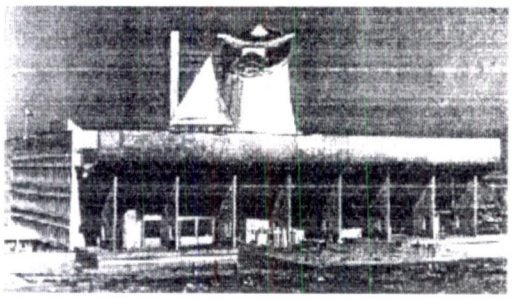


Fig. 3.34: Legislative assembly building, Chandigarh, India.
Hierarchy,

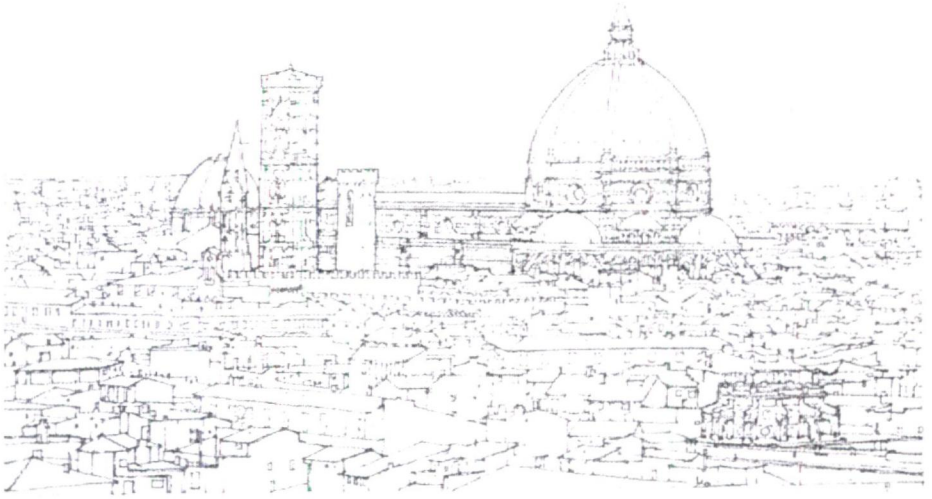


Fig. 3.35: View of Florence illustrating the dominance of the cathedral over the urban landscape.
Credit: Form space and order, Ching, D.K. (1979), p.353.

3.5.4. The dominant binder

The dominant binder is one of the ways of resolve the duality in a composition by being a third dominant element combing the two rivalry equalities. It could be a linear element which runs through a whole composition by cutting across each one of the secondary elements or may manifest itself as central space, such as a court yard or a piazza around which the secondary elements are organized.

As Howard Robertson (1924) Points out,

" As an alternative to a composition resulting in a single unit, it is equally possible to assume two buildings, each with its independent centre of interest, and to unify them by the introduction of a third building which will completely *dominate* them, having the necessary mass and importance to create a unique and much stronger centre, to which the original centres becomes subservient. We have in this case a composition formed of a plurality of elements in which there are three

centres of interest, but the central element of which forms the dominant necessary to produce unity."

The dominant binder creates itself basically, in two different ways. It could be a dominant element in a composition, such as a roof or a continuous boundary wall, or, it could be seen as a consistent pattern such a colour and texture.

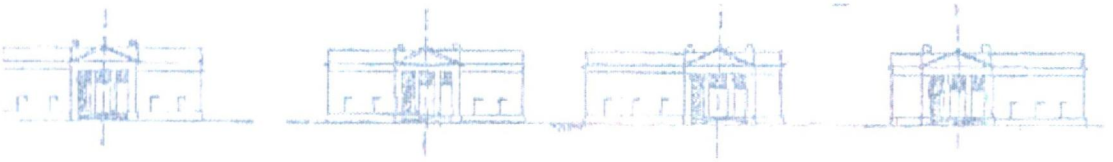
According to Robert venturi (1977) the dominant binder is another manifestation of the hierarchical relationships of parts. It manifests itself in the consistent pattern as well as by being the dominant element.

Fig. 3.36: The use of the dominant to provide unity
in compositions of plural elements.
Credit: The principles of Architectural composition, Robertson, H. (1924), p.16.

Fig. 3.37:
Unity suggested by linked element.

3.5.4.1 The dominant element

Thus this dominant binder can be present in a composition as its major element. Ones attention draws to the major element due to its presence. There by makes diversity of other different elements in relation to its presence. The unity of the entire composition is achieved when this conflict resolve related to the major element.

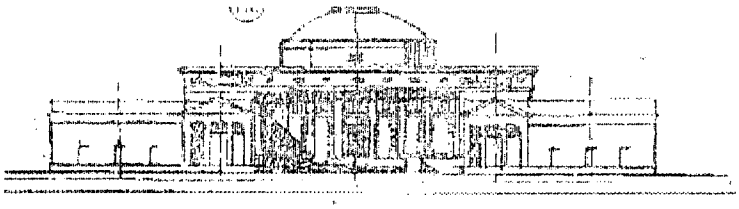


Duality.

Duality lessened by focusing interest towards centre.

Unity suggested by a linked element.

Complete unity.



The two original elements unified by the introduction of a dominant third element.

Fig. 3.38: Dominant element.

Credit: The principles of Architectural composition, Robertson, H. (1924), p.14.

3.5.4.2. The Dominant binder as a consistent pattern.

A consistent pattern is usually an imposed order into a plurality of different elements. It is used to achieve coherence in between them. Hence, consistent pattern impose similarity in different elements. In most cases, Colour and texture used to achieve this similarity.

This is clearly visible in city architecture. Arterial circulation used as a dominant device in contemporary urban planning.

Robert Venturi (1977) in his book 'Complexity and contradiction in architecture' states, that in the program a consistent binder is most often represented by circulation, and in construction the consistent binder is usually the major order of structure. Contemporary architects like Kenzo Tange have used this consistent pattern for his collective forms for Tokyo.

3.5.5. Enhancers of the principle of unity

Enhancers shape up the unity of a building up the finest level which is already unified by primary strategies.

1. Façade treatment

According to the perceptual principles of unity the sizes, numbers and locations of doors and windows provide a character kept in the critical distances.

By inflection the molding, balcony railings, valance board, grill patterns, with each other and with other buildings unity is gained. This type of ornamentation provides a visual richness in addition to unity.

2. Materials, details, texture and colours

Materials, finishes, textures and colours of buildings in proximity should vary within a range so that the buildings could be perceived as unified, yet individual buildings that form a group. This provides visual unity by acknowledging each other through consistent pattern.

3.6 concluding remarks

Unity is most fundamental to all aspects of architecture. It is said that, visually pleasing physical entity is achieved when balancing its contrary forces. Hence, it blends with the context, shines with the context, and receives its shine by being one with it.

A biological process governs unity. This has been identified as human perception. Thus, the Gestalt psychology of perception is considered to be a one which is most successful in explaining behaviour of unified wholes.

There are constraints as well as strategies when achieving unity. Axis, symmetry, repetition of similarities, hierarchy and the dominant binder are strategies used to achieve unity in architectural composition.

Thus, in the next chapter is an attempt to see practical situation of this theory with special reference to contemporary Sri Lankan architecture. It is discussed according to the adopted theory and looking at piece of architecture in two ways as if it is encompasses unity itself and within the context.

List of references

1. Venturi, R. (1977), *Complexiety and contradiction in architecture:* London, The architectural press.
2. Robertson, H. (1924), *The principles of architectural composition*: London, The architectural press.
3. Venturi, R. (1977), *Complexiety and contradiction in architecture:* London, The architectural press.
4. Holgate, A. (1992), *Aesthetics of built form*: new York, Oxford university press.
5. Ching, D.K. (1979), *Architecture ; Form , space and order:* new York, van Nostrand Reinhold.

- CHAPTER FOUR -

An examination of unity in contemporary Sri Lankan architecture

4.0 CHAPTER FOUR – EXAMINATION OF UNITY IN CONTEMPORARY SRI LANKAN ARCHITECTURE.

4.1 Case studies

4.1.1 University of Ruhuna at Matara

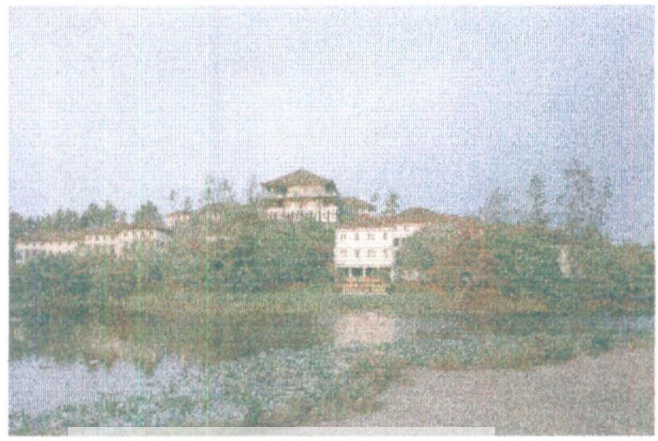


Fig. 4.1: View from the south across the lake.
Credit: Bawa: Geoffry Bawa: The complete works, Robson, D (2002), p. 158

The University of Ruhuna designed by most renowned architect Geoffry Bawa. It is located in a spectacular site on the south coast over looking the sea. The 30 hectare site straddled three steep hills, the westernmost overlooking the sea and separated from the other two by a low lying valley that carried the main road from Matara to Hambantota. The designer precisely wrapped the buildings of the science faculty around the northern hill and those of the arts faculty around the southern hill, using the depression between them for the library and other central facilities. Hence, it is a successful creation which captured the full advantage of site forces.

When considering, the approach to the building complex, the entire built entity has been set back from the main road to such an extent, so that the beautiful three dimensional compositions of the complex and its micro environment can be felt from the road. From the entrance a row of jasmine trees guides the path way.

Fig. 4.2: At the entrance

Fig. 4.3: Approach route.

In its configuration of the path axis is used as an ordering discipline, in each instance exploiting the contrast potential between the linear and transverse axis. Along the transverse axis formed by the approach route, visual attention is concentrated at a junction and movement is turned on to a longitudinal axis.

The progression is along a transverse system which responds to the dramatic sloping landscape. Hence, the design exploits the site to make every part of the campus seem unique. Pavilions, varying in scale and extent, are connected by covered links and separated by an ever changing succession of garden courts. There are places to pause and consider, and contemplate along the main axis.

Views are carefully orchestrated in a scenographic sequence that conceals and reveals in turn, playing the northern views of jungle and the ocean beyond, always referring back to the picturesque hump – backed bridge that connects the entrance across the lake to the central valley and acts as the linchpin of the whole composition.

Hence, the whole building complex is dramatized by this views and vistas which give delight and surprise. The buildings are precisely inflected to each other in their relative levels. Therefore, whole composition is unified.

Fig. 4.4:
The built form makes a free movement with the rhythm of the natural terrain.

When considering the main space, it is placed along the main axes and in the core space itself the grand finale is formed by an elevated podium which is the transmitting point. The way of the design placed, brings the architectural climax to a unified and harmonies finale in line with the whole theme.

Fig. 4.5: The elevated podium where the axis terminates.

Fig. 4.6: Plurality in movement.

Fig. 4.7: A small entrance podium, unresolved duality.

Plan configuration

Buildings were located along a linear and a transverse axis. It is composed by number of several buildings in a rhythmic pattern. The plan configuration is remarkably harmonious with the natural terrain.

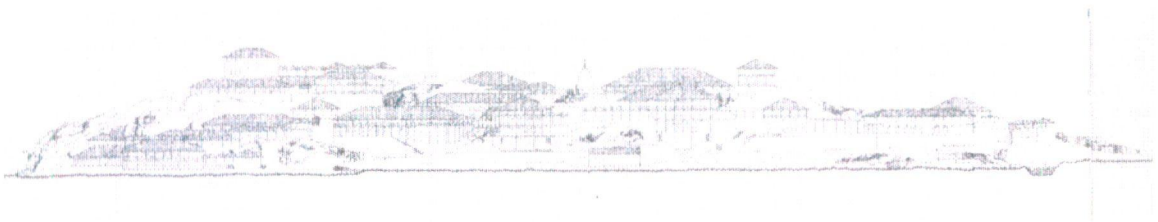


Fig. 4.8: Elevation

Credit: Geoffry Bawa, Taylor, B.B. (1995).

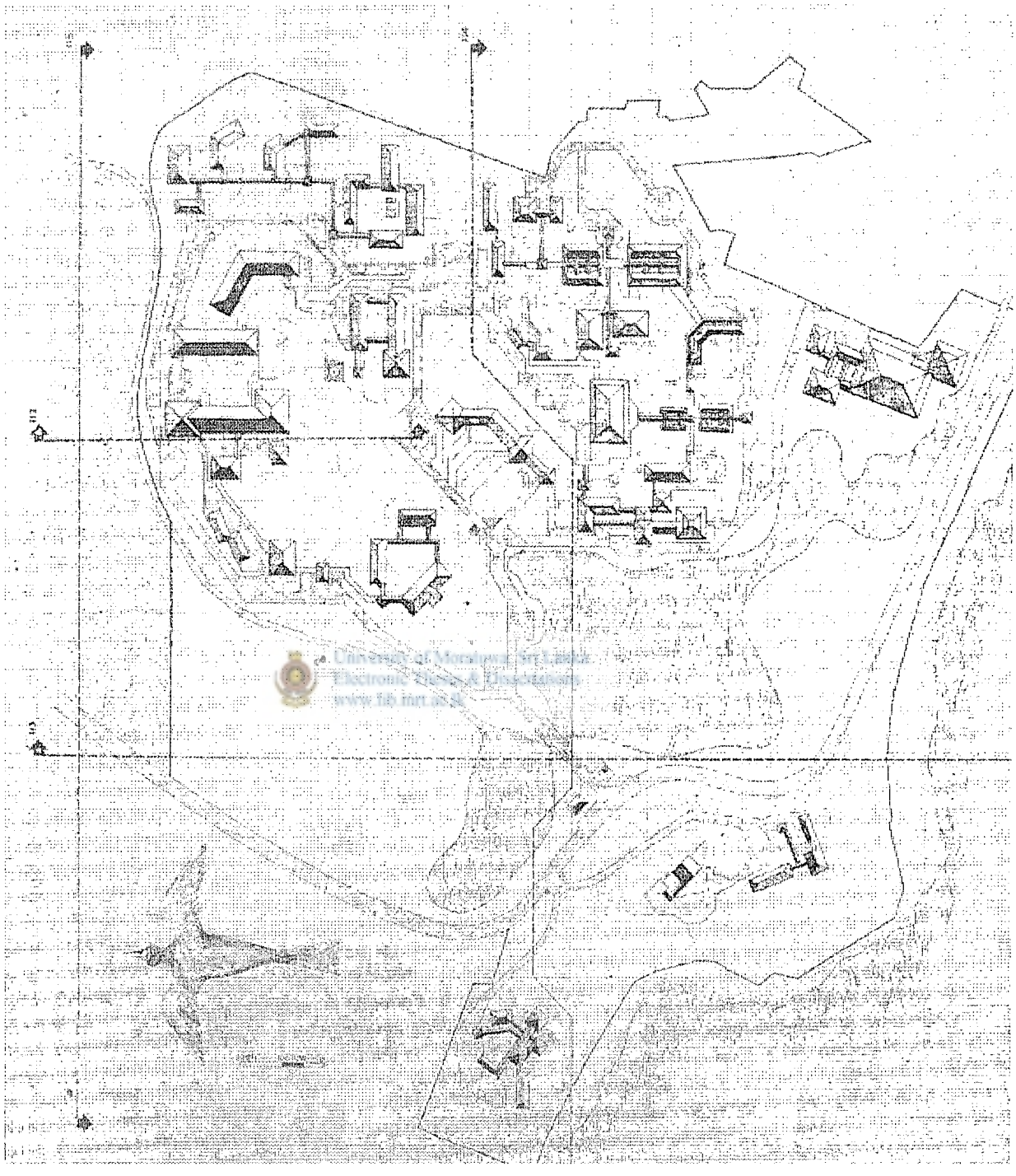


Fig. 4.9: Layout plan .(not to scale)

Credit: Geoffry Bawa, Taylor,B.B. (1995), p.97.

3D Composition

The building mass is dominant, elaborate and responds to both linear and Centro dial aspects of the situation. Each component each element is cautiously modulated in a hierarchical pattern within a unified whole.

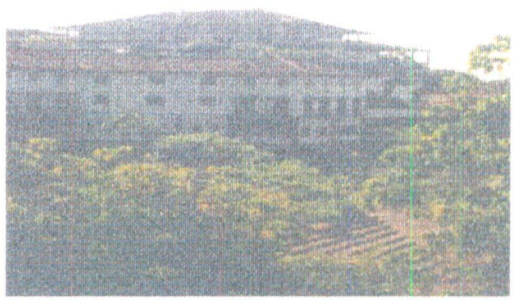
Hence, the built entity is in a balanced equilibrium and holding the many things into one. This is clearly visible in the way of horizontal (beams, monolithic roof slabs, etc.) and vertical elements (columns, walls, etc.) holding together to form a single entity. Thus, it is operating together to introduce the principle of balanced opposition of tension.

Further it is clearly seen, that the consistent pattern of repetition and rhythm continued through out the entire building complex. In some instances repetition of similarities facilitate by proportions.

Each small detail in it related to each other. It is achieved by use of similar shapes and character. This enhances the unity of the building complex.

When consider the scale and proportions, human scale is innovatively used to pacifying the contraries. The open pavilions erected on flight of steps on the ground which are connected by enclosed roots are marvelous composition of humanness beyond that scale. The wide linking terraces with trees and loans give the university an enormous sculptural appearance. Yet it has been able to maintain the relations of the proportions of the built forms in order achieve the human scale, both in height and length. In this instance proportions are used to unify the multiplicity of elements.

Fig. 4.10:
The modesty elegant buildings of different heights are carefully placed in the landscape to create a pleasing atmosphere.



Enhancers of unity in building complex

Façade treatment

Colour: Surfaces are enriched by colours which exploit the characteristics of the materials used being in harmony with the natural environment. Natural rugged material colours with bright colours are enhancing the liveliness of the built form.
The black and white surfaces and bright colours are merged along the path way.

Openings: The openings play a major role in harmonizing the natural terrain with the built entity. Always windows or door openings have been bordered by a band of colour contrasting to the colour of walls.
The consistent repetitive pattern of windows enhances the unity in bulling complex. Relatively small window openings which conform to natural cosmic patterns like squares, circles increase the apparent scale and sense of solidity while allowing dramatic lighting effects in the interior. The variety, intensity and contrasts of light echo and modulate the built form.

Fig. 4.11:
Consistent pattern of windows enhance the unity in building complex.

Ornamentation: Simplicity of ornamentation enhances the aesthetic appearance of the built form. Ornamentation shines out the textural patterns and colours of the surfaces.

Texture: Richness of textural patterns united with the outer world. Rough textures remember the Spirit of the Matara fort.

Materials: Each material, stone, timber, stucco, and wrought iron is exploited fully in terms of pattern and texture. All built with a limited palette of materials. The roughness and solidity is enhancing by materials used. Though, the rubble walls are harsh; but being true to itself, to its creation.

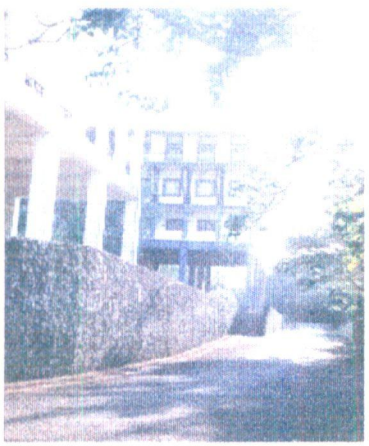


Fig.4.12: Though the rubble walls are harsh; but being true to itself, to its creation.

Roof scape: The overhanging hipped or gable roofs add beauty to the entire complex. The thick eave edges of the roofs enhance the aesthetical appearance. All the buildings are punctuated by its roofs and hiding many spaces within it.

The half round clay tiles laid on the corrugated cement sheeting unify with the natural setting. Exposed ceiling rafters imply the truthfulness of the design.

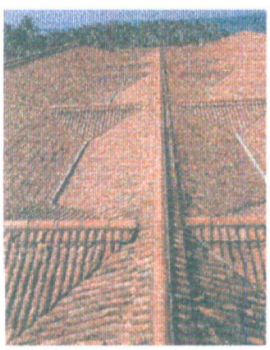


Fig. 4.13: Roofs.....hiding many spaces within it.

Credit: Bawa: Geoffry Bawa: The complete works, Robson, D. (2002).

Details: Simplistic details add clarity to the building form. The details of the corners of the hip roofs add calmness to the built form. Consistent pattern of details further enhance the unity of the building elements.

Fig.4.14:
Details of the hand rails, corners of the roofs add beauty.
Credit: Geoffry Bawa, Taylor, B.B. (1995).

Fig.4.15:
Roofs punctuates at the simple column heads, Upper link from pavilion to tutorial rooms.
Credit: Geoffry Bawa, Taylor, B.B.(1995), p.112.

Thus, this delightful unified creation is balancing of many opposites in to one. In experiencing these balanced ends, human being makes his own opposite pulses balanced and finds oneness with the built entity he experiences and with the rest of the world. .

4.1.2 New parliamentary complex at Sri Jayawardanapura Kotte

Fig 4.16: aerial view, New parliamentary complex at Kotte,.
Credit: Bawa: Geoffry Bawa, the complete works, Robson, D.(2002), p.149

New parliamentary complex built in a spectacular site at Sri Jayawardenapura Kotte. It is designed by architect Geoffry Bawa. The building complex is surrounded by a rippling water body.

When considering the building approach, it is across a great causeway and forecourt to the bronze doors in the entrance arcade. Thus, this ceremonial path forms a dominant spinal axis and the main impact on the path is the front façade which stand majestically at its termination.

The building mass is sculptured with a tendency towards complexity and reinforces the directionality of the lateral axis. This linear system affords additive opportunities along the axes and allows repetition and development of rhythm. In this instance movement becomes an important component of the form.

In the external transitional zone symmetrically articulated axes is used as the basic ordering principle in each case exploiting the contrast potential between the linear, diagonal and transverse axis. Still water pools and dripping pools are embraced in the entrance zone.

When considering the overall design, it placed main chamber in a central pavilion and surrounded by five satellite pavilions. Arriving in the ceremonial piazza the first satellite pavilion to the east takes the form of a large open colonnaded audience: to the west a second pavilion contains the public entrance and security checkpoint. On the south side a fourth pavilion contains the service court. A fifth pavilion at the south east corner contains the MP's dining room.

Hence, the main chamber being the core space, is placed reveal and distinguish its position of importance, giving it due emphasis. For this, devices of composition, effective use of proportions has been used.

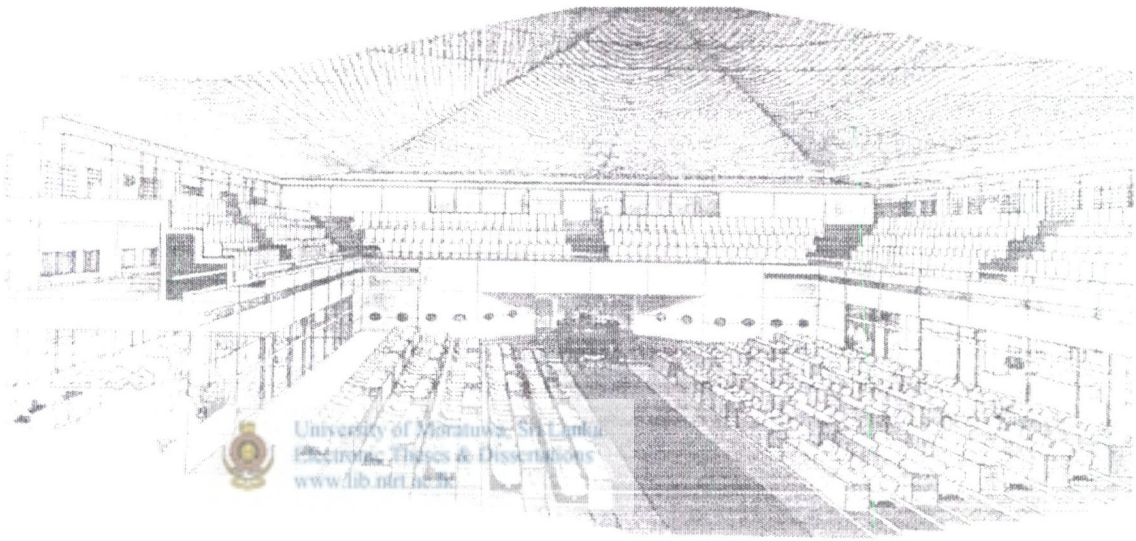


Fig. 4.17: The interior of the main chamber.
Credit: Bawa: Geoffry Bawa, the complete works, Robson, D. (2002).

Plan configuration

In the plan form the main chamber is in a central pavilion surrounded by a cluster of five satellite pavilions. The main pavilion is symmetrical about the debating chamber, but its axiality is diffused by the asymmetry of the arrangement of the lesser pavilions around it. Squarished plan forms are used. Hence, this symmetry and asymmetry forms unitary character of the complex.

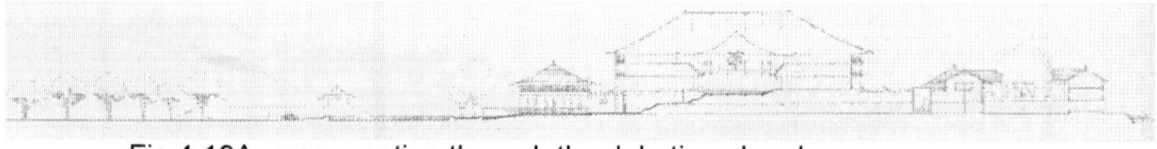


Fig 4.18A: cross section through the debating chamber

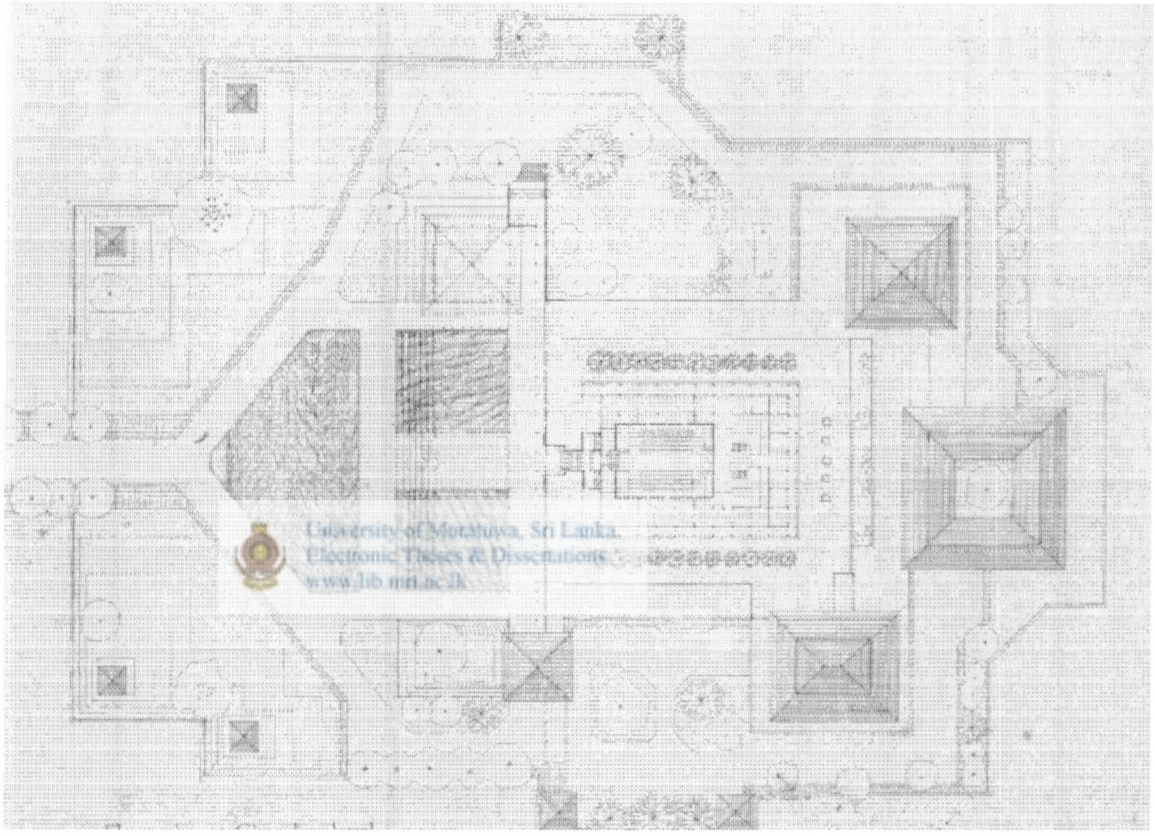


Fig 4.18B: Floor plan of chamber level

.Credit: Geoffry Bawa, Taylor,B.B. (1995), p. 165

4.18 Floor plan and section

3D composition

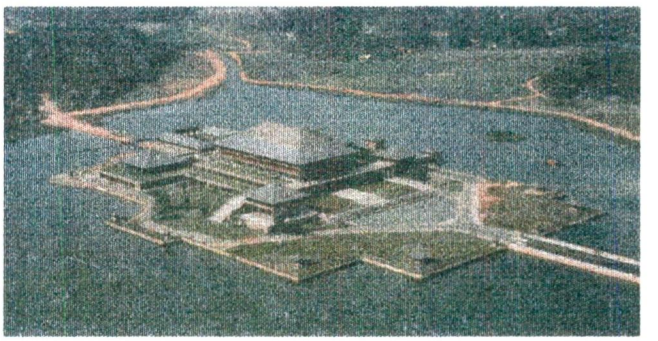


Fig 4.19: The building complex integrates many things into one, in forming a single entity.

Credit: Geoffry Bawa, Taylor, B.B. (1995), p. 164

In the parliament complex, 3D arrangement ensures a harmonious balance of elements with a clear hierarchy of forms. Hence, it is clearly visible the hierarchical relationship among the parts. The focal point of the entire building is the main chamber. It fixes and establishes the unity of the entire 3D form.

Further it can be observed, the central pavilion and the satellite pavilions encompass the similar shapes and character to achieve a unified whole. The desirable dimensional relationship can be seen between the parts and a part and the whole in the entire composition. It forms a cohesive building entity. Another fact is that, the way of proportions been used in the building complex unify the multiplicity of elements.

It is clearly visible that, the articulation system achieves a dynamic state of equilibrium through the juxtaposition of contrasting forms until the core space is reached. Hence, the final flourish of the design is the main chamber, a rectilinear configuration which accentuates the dominant linear axis. This symmetrical geometry ensures harmonious balance and unity of elements. Thus, equilibrium is attained by a series of elements in composition which facilitate a dynamic contrast between verticals and horizontals. It reveals balancing of many opposites, a matter of harmonies.

Fig 4.20: New Parliamentary complex: as a beautifully balanced unified entity.

Credit: Bawa: Geoffry Bawa, The complete works, Robson,D. (2002), p.148

Enhancers of unity in building complex

Façade treatment

Colour: Dominant greenish colour composition makes a visually pleasing built entity. Off white walls, ceilings with rich colours and dark timber colour elements unify with the entire context.

Openings: In the entrance arcade bronze doors are used. The silver doors are used at the central core of power or at the main chamber. Thus, the openings encompass similar character. The similarity of size, shape and characteristics of the openings hold the rhythm of the built form.

Ornamentation: traditional decorations, murals, moldings and traditional patterns on the timber and stone pillars form a rich visual effect on built form.

Materials: Stone concrete and timber are used. The stone and timber pillars are well blend with other building elements. Hence, materials and richly textured surfaces play an important role to reinforce the unity of the complex.

Roof scape: In this building complex most indispensable facilitator of the unified entity is the roof. The pavilions each retain a separate identity but united to create a single upward sweep of tent like roofs. The use of copper gives them the thinness and tent like quality of a stretched skin. The entire roof embraces the interior space. In the main chamber the ceiling seems to hover like a drooping tent of chain mail, with massive chandelier of silver palm fronds hanging from its apex.

The shape, texture and proportion of the roof are the strongest visual factor of the entire composition. In their final form the parliament roofs are an abstraction of the traditional Kandyan roof. The rhythm and way it is overhangs reinforces the impression that roofs are floating above the buildings.

Details: Especially the pillars make the true nature of itself and its creation: the roughness, the solidity and the strength. The traditional patterns of timber and stone pillars enhance the aesthetics of the place. Every detail in each element reveals that it belonging to one single entity.

Hence, the new parliament complex is one of the finest example of contemporary world which each element of whole stands its own, rightful place and well blends with its context.

As Geoffry Bawa once said,

"We have a marvelous tradition of buildings in this country that has got lost. It got lost because people followed outside influences over their own good instincts. They never built right 'through' the landscape. I just wanted to fit (parliament) into the site, so I opened it into blocks. You must 'run' with site; after all, you don't want to push nature out with the building." (Aung-Thwin 1984)

4.1.3 Hotel Blue water at Wadduwa

The hotel blue water is designed by most successful contemporary architect Geoffry Bawa. It is located along the coast of Wadduwa, situated between the railway line and the beach forms a unique setting for a sea side resort.

When considering the approach to the resort, an unpaved, sandy carport with sky piercing coconut trees leads to the entrance. At the entrance, a lofty porch indicates a main entrance in an enclosing wall that screens the hotel from the railway. As a result a rigid mass is expected. But in reality it's merely an enclosure not a part of a rigid concrete structure.

Fig. 4.21: Entrance to the resort

The entrance corridor bordered by shallow ponds. Thus, the linear polished floors of the corridor reflected as a water body. Hence, this polished floor is a continuation of the water; the swimming pool and the ocean ahead. The lifted eye then sees this axial corridor running across a large garden court, entrance lobby and out through the coconut groove towards the sea and the horizon. Thus, this long exposed corridor suggests the destination ahead.

Fig. 4.22: Mid way along the axis;
pushes to the destination

The entrance lobby is surrounded by geometric ponds. The water which starts at the upper lounge falls down as a sheet of water to a lower pond adjoining the main lobby.

At the reception it overlooks the sea, across the coconut palms. At this juncture, the dark bands of stair cases depict the punctuation and dark colonnade gives pause to the Journey.

Still being in the same axis and move further, the swimming pool, and beyond the coconut trunks the dazzling ocean is more visible. In this spacious area, the rippling bluish water bodies capture the eye immediately. At this space the sound of water not only awake your ear, but it awake your all the five senses. Though, it is the finale of this journey. This main space opens to a terrace shaded by pergolas. It filtered light and shades to the floor beneath.

Fig. 4.23:
This garden of water silently explained to us is, that it united with the sea at the forefront; the sea into the rest of the world; the world into the infinite!.

Fig. 4.24: Pergolas....creating patterns of light and shade.

Hence, this is a place where nature directs your every gaze at the blue water patterns reflects by the sea to form a unify entity with the context around it.

Plan configuration

When considering the plan form, a powerful axis is running from the entrance towards the sea and the horizon. Along this axis built forms are arranged perpendicularly. The built forms are not in a strictly symmetrical position. But it is in a balance composition.

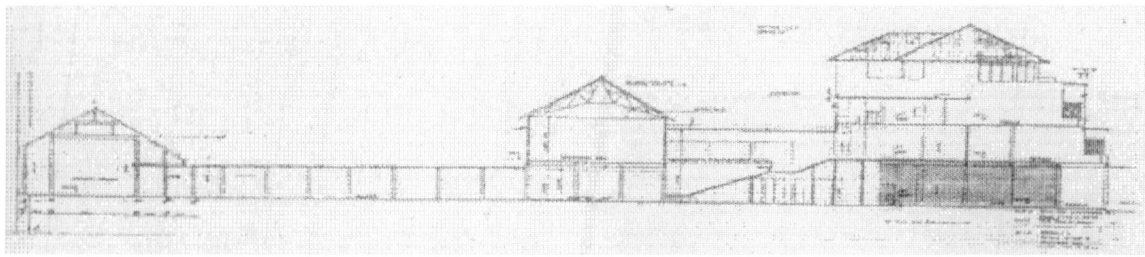


Fig. 4.25: Section through the main lounge.

Fig. 4.26: Plan form

Credit: Bawa: Geoffry Bawa, Robson,D. (2002), p.216.

3D composition

In this situation axis is used to achieve unity. The terminating element of this axis serves as a strong visual thrust. Therefore this interplay of axis creates uniformity to the total built form.

The 3D form dominated by the roof plains. The architecture of it restrained, but monumental. Clear hierarchical relationship among built elements is exists. Hence, the focal point of the built entity establishes the unity. As a result total built entity encompasses clear clarity.

In most of the occasions walls have been surrounded by corridors and colonnades. They enhance the visual aspect of the building. The colonnades, openings, roofs, details etc. contain similar character and shapes. This consistent pattern also adds beauty and unity to the built entity. The repetition of proportions also can be identified in this building. The proportion in built elements is desirably pleasing and exists between the parts and a part in the whole in the composition.

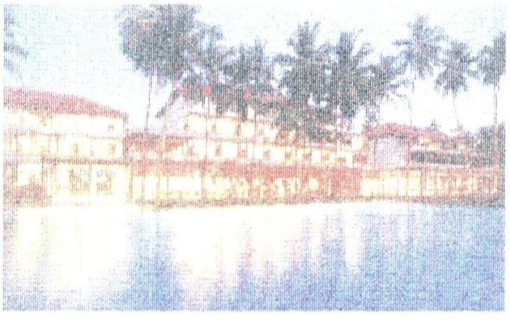


Fig.4.27: Resolving duality by introducing a trinity;
third element as a dominant binder.

Enhancers of unity in building complex.

Façade treatment

Colour : Eye pleasing colour composition is used. The white surfaces precisely merged with the immediate context.

Openings:

mainly windows have been placed in a repetitive pattern. The sizes, numbers and locations of doors and windows provide sense of coherence. Thus these repeating similar units provide a consistent pattern of unification.

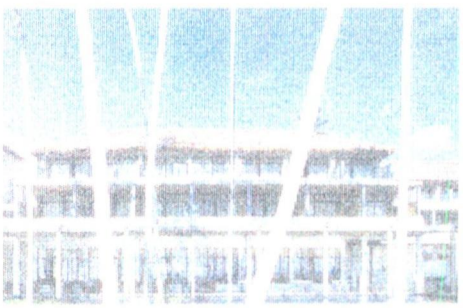


Fig. 4.28:
Windows have been placed in a repetitive pattern

Ornamentation: There is no highly elaborative ornamentation. Simple decorations are used.

Texture: Highly polished and reflective surfaces are used. Light and shade are creating patterns on these textural surfaces.

Materials: Materials are highly polished, light in tone and muted in colour. The sense of style, glamour and identity achieved without use of luxurious materials.

Roof scape : The hipped shapes and gable roofs are used. The roof punctuates on the wall. The clay tiles which covered the roof harmonize with the natural setting.

Details: Calm, simple details give an ethnic touch to the building form.

4.1.3 A house at Palawatte

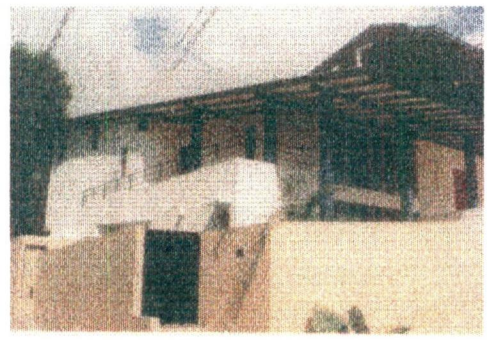


Fig 4.31: House at Palawatte
Credit: 'Wasthu", vol. 20 (Sep. 2002 – Feb. 2003), p.20

A five minute walk from Palawatte this well designed house is located. It is spread in a 7.5 perches land and comprises 2200 sqft. This eye pleasing built entity is a work of architect Thisara Thanapathy. Spellbound by the stillness of this place gives a deep breath from hectic city life.

In every side of the house is enclosed by a boundary wall.
Through the iron gates a visitor crosses a narrow strip of grassy patch. From the opened doors of the house a double height living room is visible. Hence the, whole interior is perceived as a single entity. This living room extends freely to the open verandah. A light weight colonnade runs at the edge of the verandah, transferring down the weight of the roof. Through the iron grills at the living room eye pleasing and mind pacifying views of the small garden is visible. Thus, the interior and exterior space merged to achieve a unified image.

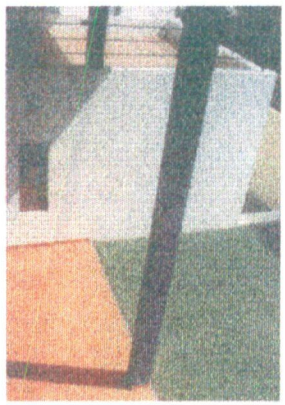


Fig 4.32:
Column at the edge of the verandah
Credit: 'Wasthu", vol.20
(Sep. 2002 – Feb. 2003), p.19

Fig 4.33:
living space merged with the garden.
Credit: 'Wasthu", vol.20
(Sep. 2002 – Feb. 2003), p.19

The living room flows to the other spaces; the dining, bedrooms, kitchen in making its existing worthy. A flight of steps, in the living room lead to the first floor of the house. Here, a small living space extends to a terrace. This terrace at the upper floor merges with the small garden and the outer world. The generous balconies around the house unify with the surrounding context.

In fact considering whole built entity make it unified whole, due to the composition of better balance, proportion, scale and rhythm.

Plan configuration

The house consists of two floors. The each floor reflects an inexplicable aura of simplicity. Figure and ground in the plan form is successfully composed, with achieving a unified image. Plan form clearly reveals the interrelationship with the outer world.

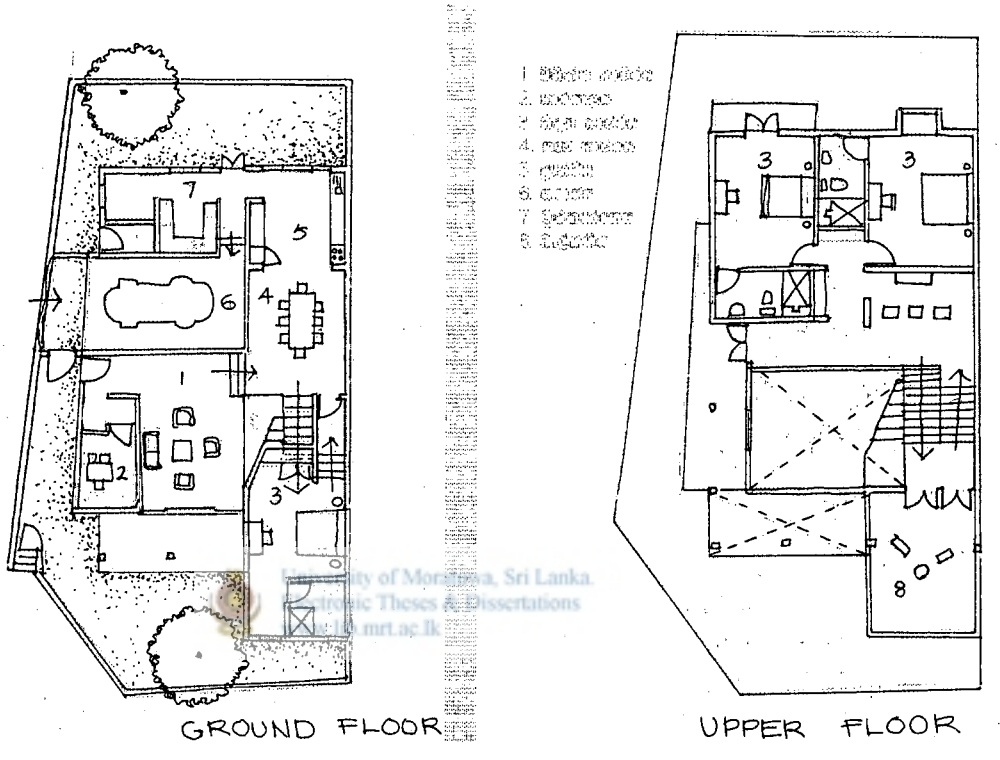


Fig 4.34: Floor plans
1. Living room, 2. Office, 3. Bed room, 4. Dining room, 5. Pantry, 6.Garage, 7. Kitchen, 8. Balcony
Credit: 'Wasthu", vol. 20 (Sep. 2002 – Feb. 2003), p.18

3D Composition

3D form is an eye capturing creation which encompasses unity, clarity and simplicity at every sphere. The important fact of this design is the simplicity of the built entity didn't ignore the complexity and contradictions inherent in constraints. Hence, this creation is born through the inclusive process.

Without a doubt, this well balanced 3D form perceive as a unified whole. For example, in certain instances columns are added to make the composition balanced.

Here, the dissimilar elements are precisely balanced. The properties such as colour and texture are used as a tool for determining the visible weight of the built form. The designer used merely similar elements to form a single entity.

Thus the scales and proportions are quite user friendly, the built form fits perfectly into its context.

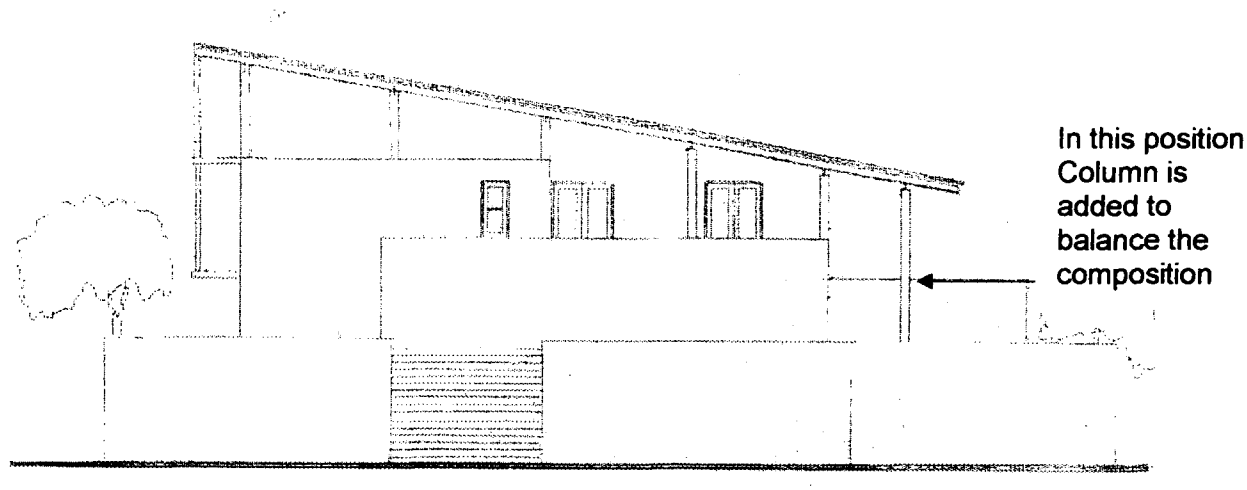


Fig 4.35: balancing the heaviness and lightness,
Front elevation
Credit: 'Wasthu", vol. 20 (Sep. 2002 – Feb. 2003), p.18

Enhancers of unity in building complex

Façade treatment

Colour: The colour composition of the house is simple. Maroon, White and blue are used to enhance the surface character. Hence, the selected colours go with each other to form a unified composition. The spaces encompass quality of cooler due to the way of colours used. Light colours of the walls well blend with the brown coloured floor tiles. Thus, it gives kind of a variety to the house.

Openings: The different sizes of the doors and windows used. But similar character is retained. In some instances, openings contain iron grills. But there are no moldings or

carvings around the door frames. Just, plain door panels are used. It enhances the simplicity of the house.

Ornamentation: There's no unnecessary ornamentation in the interior and the exterior of the house. The plain walls, columns, and hand rails give a simplistic appearance which lead to overall unity of the built entity.

Texture: The consistent pattern of the texture form a unitary character.

Materials: Materials such as timber, bricks and iron used at rightful places. Due to the materials used, lightness and heaviness of the built entity precisely balanced.

Roof scape

The roof is one plain and gives an impression of floating above the building. The wooden finishes are exposed. It implies the truthfulness of the built form. Here, the roof is one of the important facilitators of the spatial experience.

Fig 4.36: Floating roof being true to itself, to its creation.
Credit: 'Wasthu", vol. 20 (Sep. 2002 – Feb. 2003), p.20

Details

There are no more elaborations in details. Important feature in considering details are, the steps to the upper floor ascending without hand rails. The plain slender columns, hand rails and details of the openings make the building remarkably simple. Hence, the building is well detailed while retaining its simplicity.

Fig 4.37:
The stair case ascending without handrails.
Credit: 'Wasthu", vol. 20
(Sep. 2002 – Feb. 2003), p.17

Fig 4.38:
Simple details, upper floor.
Credit: Wasthu", vol. 20
(Sep. 2002 – Feb. 2003), p.20

In contemporary situation some of the buildings directly imitate the traditional styles. This is clearly visible in roof forms, column details etc. however this design, captures the essence of the traditional style. But, it is go beyond the replication.

Specialty of this house is each element, each small detail in it; the pebble, the leaf, the flower,....., Woven by simplicity which reveals the unity in it.

Fig 4.39: A view of the built form as seen from the road –It is unity, simplicity, and clarity at every sphere.

4.1.5 Seema Malaka at Colombo

The seema malaka Buddhist temple complex floats on Colombo's Beira lake. It is designed by architect Geoffry bawa. This building complex is affiliated to the Hunupitiya Gangarama temple and it is used as an inauguration hall for the Buddhist monks. It is the only modern Buddhist temple in Sri Lanka to have been built to non traditional design.

A person who finds difficult to move with the tiring highway automatically halts for a deep breath at Beira lake because of the vicinity of this eye pleasing built entity which is surrounded by garden of water.

A few steps down from the highway a narrow bridge crosses through the water body. This narrow path way bathing sun rays and leads to a central pavilion which is the main space and the dominant area of the building complex. Thus, the temple consists of a central plinth connected to the lakeside by a cause way and to two lesser plinths by short bridges. The main plinth carries a preaching hall or the main space, the northern plinth a small inauguration room and the southern plinth has a Bo tree at its centre with devales at its four corners. The devales are designed as four small cubicles with granite corner posts and paneled timber walls and they house the Hindu gods. A small stupa has been added on a projecting platform to the eastern side of the plinth.

Fig 4.40: View of the Bo tree and the reflections on the silky water body.

Plan configuration

The building complex consists of three separate buildings, connected to one another, which forms a trinitian arrangement in the plan form. The squarish plan configuration is in a symmetrical position. While it implies symmetry, it demands balance.

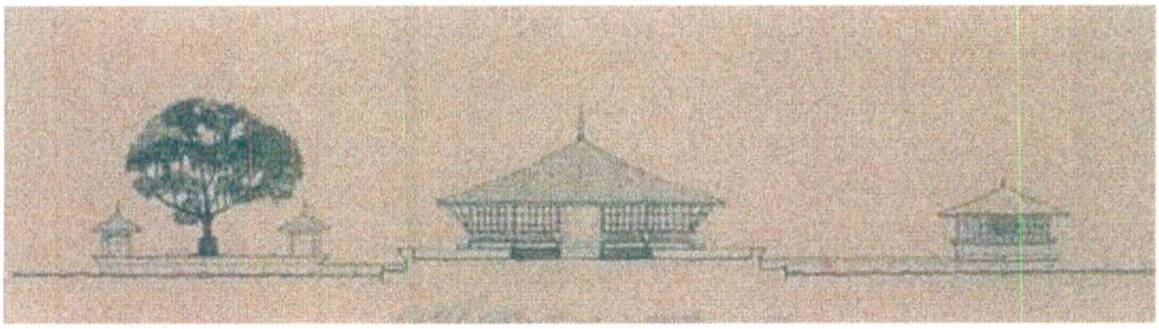


Fig 4.41: Front elevation of the Seema Malakaya

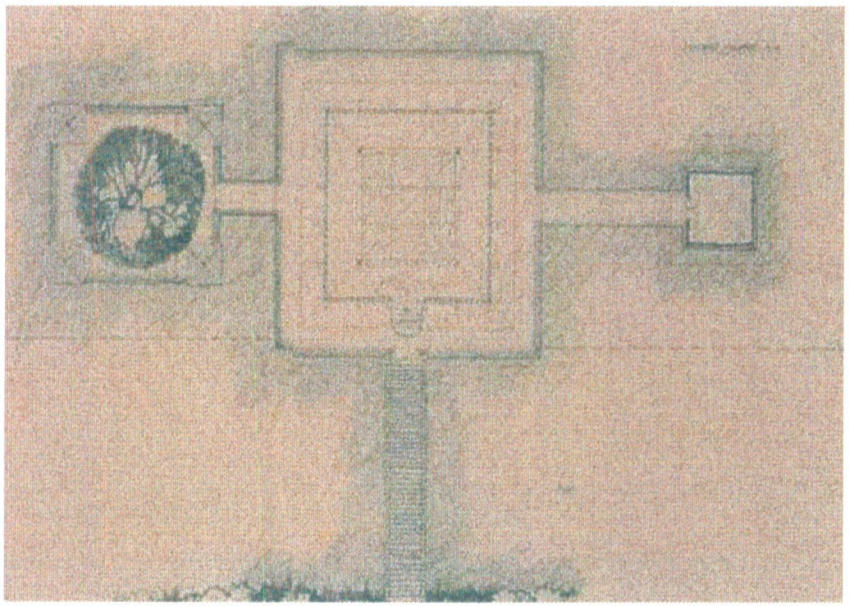


Fig 4.42: Symmetrical plan form which demands balance.

Credit: Bawa: Geoffry Bawa: The complete works, Robson, D. (2002)

Fig 4.43: A view of the built form as seen from the highway.

It encompasses unity at every sphere.

Credit: Bawa: Geoffry Bawa: the complete works, Robson, D.(2002),p. 136

3D composition

When considering the 3D form, the built entity is perceived as primary geometric forms. It is centrally symmetrical. Hence, it facilitates our perception to visualize as a unified whole. The elements in the contrast directions are not in similar size and mass. But it encompasses similar character.

The scale of the building complex could be called as human scale. The repetition of similarities and proportions made to sense visual coherence of the entire complex.

Enhancers of unity in building complex.

Façade treatment

Colour: The colour used to building complex is dark blue, White and brown. It harmonized with the surrounding bluish water. Apart from that, natural colour of timber is used. It well blends with the tonal range in its context. Hence, the colour of the built form enhances the unification.

Openings: composition and proportions of doors, rhythm and solid void ratio enhance unitary character of the building.

Ornamentation: The ornamentation and moldings around the preaching hall, facades, columns and in the openings facilitates the visual richness in addition to unity. Hence, ornamentation gives a symbolic significance to the entire built form.

Texture: The homogeneity of texture also enhances the unity of the building complex.

Materials: The materials used are timber and concrete. In some instances concrete used to imitate the quality of timber. For example the narrow bridge made out of concrete but it looks like timber planks.

Roof scape

It could be very well observed that all the buildings are punctuated at its base by the masonry white plat form (plinth) and also the top part by the glazed tiled hip roofs ending with pinnacles. Hence, the 3D form dominated by the roof plains. In the main preaching hall the roof increases its volume and embraces the gloomy inside. The interior is enclosed by a screen inward sloping curved rafters inspired by temples in Kerala and Nepal.

Details

Every element and details encompasses similarity and repetition of proportions which enhancing the unitary nature in built form. The visual unity and order it creates can be sensed by the beholder.

Fig 4.44:
Seema malaka with its surrounding context remains as a place of astonishing peace and harmony.

In overall built form it could be observed that each of these built elements are interrelated to each other in terms of their plan forms, roofs, details etc. Thus, each space, each element in it; the column..... bounded by a single tread of unity reflects an inexplicable aura of simplicity. Also it is very well inflected and blends with its context. Hence, the entire built entity holds its unification by its balancing of many opposites at every sphere.

4.2 Concluding remarks

The above study revealed the manner of identified strategies generates unity in each situation. It is clearly visible the use of these strategies determines the visual successfulness of any built form, from the smaller residential house to a larger building complex.

It is also obvious that one strategy in isolation does not generate unity in a built form. In each case building unified with itself and within the context. But recognizing its constraints and achieved difficult unity. Study revealed good work of architecture balancing of many opposites and carries sense of holding together.

- CONCLUSION -

Conclusion

Architecture is primary an art. In the simplest sense, it is the art of articulation of space in a meaningful way. However, 3D form cannot be separated from this spatial entity. Because space, to be perceived, needs to be encapsulated, the form or the 3D image is this capsule that encloses space. Therefore 3D form is a tangible and visible thing that affects the state of mind of the human beings.

This 3D form comprised of many built components and elements with certain qualities. Hence, there are long accepted principles in composing an architectural form to achieve a visually pleasing built entity. Not only that, a built form is easily understood in the presence of the well manipulated architectural principles. Unity, punctuation inflection, etc. are some of the important principles identified in combining the components of a built form.

From all those wider spectrum of architectural principles unity can be claimed as the most indispensable single design discipline or principle of architectural composition. Unity is the pacifying of contrary forces, balancing of opposites. It carries the sense of 'holding together'. In forming this whole, every single component finds its rightful place and the due identity.

Hence, this quality of 'oneness' is considered to be essential in facilitating the smooth and easy perception of the idea or the concept being expressed in a particular built form.

The importance of the 'oneness' in a composition is explained in the Gestalt psychology of perception. Therefore perception of unity is a biological process. Understanding of those principles facilitate to forming a set of strategies useful in architectural composition.

Most buildings of contemporary Sri Lankan situation do not reflect the unity within itself. Because today the wants and needs, structure, the functional program, and expression, even in single buildings in simple contexts, are diverse and complex. Hence, in the presence of such complex built environment architecture seems to have sought the help of some strategies to achieve in their composition. Achieving unity through these strategies should acknowledge this complexity in present world. Ignorance of such constraints may lead to extreme symmetry, regularity, simplicity

etc. in a built form. Hence, it forms a monotonous, dull, lifeless built environment. Hence, achieving unity should be an inclusive process. The unity of a composition should lie between extreme presence of unity which results in monotony, and the complete lack of it which results in chaos. Unity cannot achieve in isolation. It should acknowledge presence of other principles of architectural composition. For instance, it should have certain amount of contrast and variety. Then it gives an interest and vigor to a built form.

The study reveals in the case of university of Ruhuna, strategies takes in to account the presence of constraints in site forces. It embodies the achieving difficult unity of inclusion. Also this can be clearly seen in house at Palawatte. Specialty of this house is, it reflects simplicity while acknowledging complexity of its context. The new parliamentary complex and Seema Malaka achieved unity through symmetry. As in the case of hotel Blue water where the axis is takes in to account the presence of constraints.

While all such strategies are intended to achieve unity, each of them also has its own inherent qualities which make it more suitable for one particular composition than the other. Hence it is obvious the use of these strategies whether it is consciously or intuitively determines the unity of any built form irrespective of the magnitude.

The study also reveals that every good work of architecture becomes essentially carry the unified composition irrespective of its many other constraints. Due to the balancing of its many opposites into one it carries the clarity at every sphere. Through this clarity or legibility beholder easily capture the intended expression of the built form. While capturing these expressions communication happens. Hence, such a work of architecture elevates man's inner joy.

Because, human beings like many other animals, constantly and instinctively appraise their living environment. He experiences and perceives the built form from its external appearance. Hence, the more diverse and disordered outer world perceived through his five senses, have subjected the human beings to a constant inner chaos.

Therefore it is vital to see how can avoid such disorder and achieve unity in architectural composition. Hence, this was an attempt to convey the importance of unity as a guiding principle in architectural composition.

This study however, being made within a short period of time has not gone into the profound details of all above aspects which would have made it much more comprehensive. Such an attempt would have drawn more refined conclusion as well.

It is however, hoped that this study would contain basic information, and guidelines for more in-depth research on the same direction, which has become quite a relevant task to be performed today.

BIBLIOGRAPHY

Antoniades, A.C. (1980), *Architecture and allied design*: Kendall ,Hunt publishing company.

Arnheim, R. (1977), *The dynamics of architectural forms*: London, University of California.

Ching, D.K. (1979), *Architecture ; Form , space and order*: new York, Van Nostrand Reinhold.

Edwards, T. (1926), *Architectural style*: London, Faber and Gwyer

Holgate, A. (1992), *Aesthetics of built form*: New York, Oxford university press.

.Krier, R. (1983), *Elements of architecture*: London, AD publications ltd.

Miess, P.V. (1990), *Elements of architecture*; from form to place: London, E & FN spon

Rapoport, A. (1982), *House form and culture*, London: Printice hall international inc.

Robertson, H. (1924), T*he principles of architectural composition*: London, The architectural press.

Venturi, R. (1977), *Complexity and Contradiction in architecture*: London, The architectural press.

Wilson, F. (1984), *A graphics survey of Perception and behaviour for the design professionals*: New York, Van Nostrand Reinhold Company inc.