

THEORY

Theory on Form

The paradigm of the architect passed down to us through the Modern period is that of the form giver, the creator of hierarchical and symbolic structures categorized on one hand by their unity of parts and, on the other by the transparency of form to meaning.

- Bernard Tschumi on form.

(TSCHUMI 1987: 207)

Historic changes are to be understood primarily in terms of changes in the mode of vision – in other words, that vision has its history as well as architecture.

- Adrian Forty on History and Form

(FORTY, 2000:149).

The complex nature of architecture include varied relationships, themes and hierarchies of elements. Architecture and landscape design uses form to communicate varied philosophic arguments. Programme/brief is used as a formal structure, describing the broader objectives of the design profession. Architectural history provides a dais of transformations, discussing previous directions and their responses. My theoretical premise will investigate the possible relationship between architectural form and programme.

The search for form resulted in an extensive quest leading to a variety of philosophical arguments. The study is focused on assimilating ideas on form in architecture and landscape design. The time-line discusses the historiography of form. The document assimilates research on form, identifying significant accounts that shape the practice of architecture and landscape design.

The theoretical investigation focused on two aspects:

1. How architecture views form and programme.
2. Form in landscape architecture.

The theme of form is concurrent in the discussion. Central to the research is the use of *diagramme in landscape design*, the diagrams guides architectural and landscape developments. A brief account of landscape history focuses on *use* and *form* in garden design. The historic account of architecture was limited to seminal works of architects and philosophers, who influenced thinking about the perception of form.

2000BC – 1000 BC

Antiquity (i)

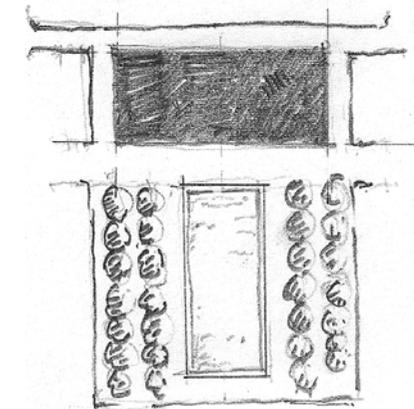
The understanding of architecture was associated with two qualities: learning and the gift of invention. Imhotep, a famous architect of ancient Egypt, supposedly had knowledge of astronomy, magic and healing. Theory of architectural design was pragmatic and minimally indebted to the laws of mathematics; the principles of measurement used the *cubit* (subdividing the hand into 7 parts). Plan and elevations used axial lines and summitry. Architecture was used as tools for social and economic power. (KOSTOF, 1977).

GARDENS IN ANTIQUITY

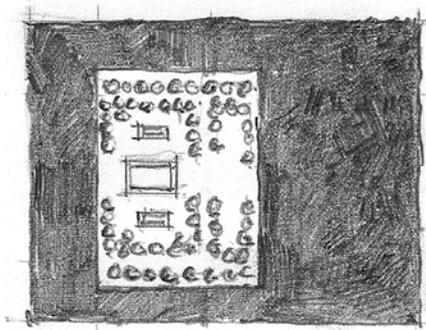
Garden design was influenced by the interrelationships between God, man and nature. Religious/Astronomical compounds reflected the importance of the gods, in control of nature. Design reflected ritual and sacrifice in temple and pyramid designs. If kings become gods after death, temples and gardens were designed for their use in the afterlife (TURNER, 2005).

Use: Domestic gardens were part of the house, containing outdoor 'rooms' with water and trees for shade.

Form: Houses were of brick and mud, the roof was used for cooking. Water was carried from wells.



Fig_1: Antiquity: diagramme illustrating the typology of Domestic Garden.



Fig_2: Antiquity: diagramme illustrating the typology of Palace Garden.



Fig_3: Antiquity: diagramme illustrating the typology of Egyptian Sancturay.

CONCLUSION

In Antiquity (i) form was minimally influenced by mathematics, it was derived from the empirical influence of gods and ritual sacrifices in temple and pyramid designs. Architecture and landscape embodied the religious beliefs and spiritual places of the civilization.

Antiquity (ii)

1400 BC – 500 AD

Use: Palaces were the living quarters of royalty, fruit trees were cultivated in the courtyards.

Form: Palace gardens were planned symmetrically, palace compounds were rectangular buildings with internal courts (TURNER, 2005).

Use: Temples recreated the nature of the world and social orders of the time, the temples contained sacred groves and lakes. Secondary uses include storehouse for food and vegetable gardens.

Form: Built of stone and adobe. Axial lines used with a-symmetrical building geometry. Internal spaces were used in ceremonial activities (TURNER, 2005).

The expansion of the Greek empire in the Hellenistic period produced extensive programmes, resulting from vast conquests. Architects, with new building typologies, redeveloped traditional design principles to create new forms in temples, treasuries, theatres and stadiums. Roman architects invented hydraulic engineering, surveying and new forms in building. Greek architecture influenced Roman design, this flux resulted in a cross-programming of stylistic counterparts between the two civilizations. Hellenistic architecture of the 4th century AD was significantly influenced by Christianity in the Roman Empire (KOSTOF, 1977).

ARCHITECTURAL THEORY IN ANTIQUITY

Theory in the Classical period was based on objective foundations and explained the source of artistic ideas. Divinely determined forms were drawn from geometry e.g. the Doric temple. Building typologies evolved through cultural traditions, representing the timeless and universally objective truths of 'the orders'.

PLATO

Plato's world had two realms, the existential realm of physical objects and the metaphysical realm of ideal forms (GELERNTER, 1995:42). Plato believed that the world organises itself according to the timeless mathematical relationship of precision, believing in the existence of a perfect world accessible to those who reason about nature. Known as the Theory of Forms, Plato believed that universal forms must exist before particular individuals can exist. He sought to identify generic types in form (TURNER, 2005).

VITRUVIUS

Vitruvius's *De architectura libri decem* is the only remaining testimony of theory in Antiquity, written between 33 and 14 BC. History has proven that the main dialogue in literary theory from the Renaissance onward, was based on Vitruvius's ideas.

In the treatise, the origin of architecture and its primary motivation is the human need of protection against the elements. Vitruvius postulates that the earliest dwellings were imitations of natural forms (caves, leafed huts or swallows' nests), "men are by nature given to imitations and ready to learn" *homines imitabili docilique natura* (VITRUVIUS II.ii.3). Imitations extended into rules as architecture evolved from uncertain/vague observations to fixed rules of symmetry (VITRUVIUS II.ii.3). Vitruvius views symmetry and laws of architecture in unity with that of the cosmos and the fundamental principle in nature (the Vitruvian man). (KRUF 1994: 24).

Vitruvian theory relating to programme and form:

Architectura libri decem; Book I, Chapter 2:

The fundamental principle of architecture is defined as *ratiocination*; the intellectual apprehension of architecture. This concept subsequently became the central conversation of architectural theory in the 19th Century (KRUF 1994:25).

Architectura libri decem; Book I, Chapter 3:

The three fundamental requirements needed for architecture to satisfy are *firmitas* (strength), *utilitas* (utility) and *venustas* (beauty). This covers construction, materials, building function and aesthetics. Vitruvius remarks that proportion is the most important aesthetic requirement in architecture. Under *venustas* six models are listed, affecting the formal relationship of architectural form. These concepts use mathematics and proportion to create correct building forms. These models stipulate what the correct appearance of a building should be. Two of these are:

- *Decor*: the appearance of building form and content, rejecting the application of applied embellishment.
- *Distributio*: the concept of architecture parlante (describe where this comes from), buildings should be an expression of its function to its occupants (KRUF 1994: 25).

1400 BC – 500 AD

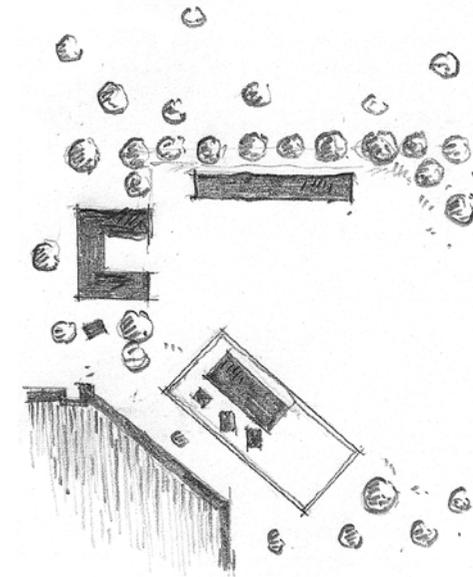
Use: The Greek belief in deities necessitated places where offerings could be made. Usually walled in stone boundaries, sanctuaries were sacred landscapes/ places of spiritual enlightenment where discussions, offerings, education and exercise (gymnasium) took place.

Form: Usually built outside of towns; groves were walled sanctuaries adorned with a statue of a god, architectural elements and ornamental planting. Formed round a court and stadium for races, gymnasiums/ palaestra had roofed colonnades and seating for spectators (Philosophers also taught here).

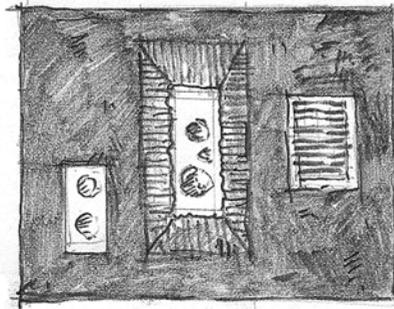
CLASSICAL GARDENS IN GREECE & ROME

* *Formal elements of the Greek sanctuary is the sacred landscape, second to which is the building.*

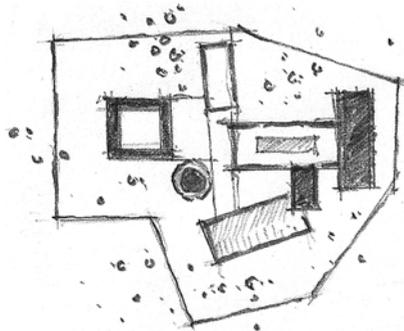
Historic examples of temple garden types are divided into categories satisfying different needs. The idea of beauty in Ancient Greece viewed 'form' as the shaping element of the physical world, exemplified in Plato's 'intoxicating delight of understanding'. He believed that the existence of a perfect world is only accessible to those who reason about nature (TURNER, 2005).



Fig_4: Antiquity: diagramme illustrating the typology of Greek Sanctuary.



Fig_5: Antiquity: diagrammes illustrating the typologies of Greek and Roman Courts.



Fig_6: Antiquity: diagramme illustrating the typology of Roman Villa.

CONCLUSION

By the term Venustas (Beauty) Vitruvius expresses the pleasure of form, made possible through the use of proportion. Form in the second discussion of Antiquity, the formal relationship between form and programme focussed on two aspects: the aesthetic in nature and its rational composition.

Use: Built in a walled city, court space was a valuable commodity, associated with wealth and status. Greek domestic courts were unroofed living spaces.

Form: Walled for security and privacy, there are three types of Roman courts; the atrium, the peristyle and the xystus.

Use: Palace-estates with subsidiary buildings and gardens, in rural and urban settings. Places of entertainment, recreation and court business; villas had outdoor enclosures, domestic courts, sacred courts (gymnasiums), temple gardens, parks and grottoes.

Form: Buildings were axially planned (a-symmetrically placed) and grouped in a protected enclosure. Influenced by Roman patterns and eastern 'paradise' gardens.

600 AD – 1500 AD

The Middle Ages

ARCHITECTURE IN THE MIDDLE AGES

“The predominance of the philosophical, theological and geometrical aspects of the subject clearly shows that the concern with architecture was nourished from heterogeneous sources”

- Krufft on the Middle Ages

(KRUFFT 1994:40).

Complete faith in the belief that God will supply knowledge of the Divine to artists, the individual did not contribute to the making of form. Theoretical discussions of the Middle Ages took place in various locations. Until the Abbot Suger of Saint-Denis, all writing on architecture had referred to the views of Vitruvius.

ABBOT SUGER OF SAINT-DENIS

Suger (1081 – 1151) was the first to describe the process of construction. In new additions made to the abbey church of Saint-Denis Suger observed an aesthetic “concern in the consistency and the coherence of the old work with the new” (BISCHOFF 1981: 97). Suger is acknowledged for his aesthetic terminology in the Middle Ages (KRUFFT 1994: 32).

VILLARD DE HONNECOURT

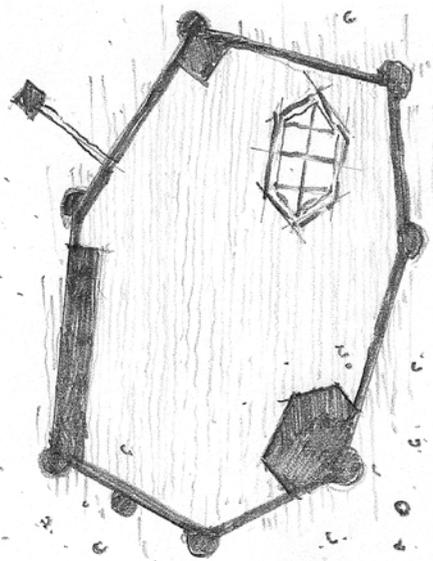
Villard de Honnecourt's (1081 – 1151) lodge-book (written between 1225 and 1250) is the only manuscript of the High Middle Ages devoted to architecture. The book, intended to provide understandings of masonry and construction, describes the lodge traditions of the time. Hans R. Hahnloser (c. 1848) divides the logbook in seven headings. Honnecourt's plate 36, the representation of portraiture (draughtsmanship) illustrates “the method of depicting [a figure] through drawing, as taught in the art of geometry, in order to facilitate work...” (HAHNLOSER, 1935). The plate applies geometric systems to human/animal forms. Honnecourt *plate 36* motivates proportion from geometry (circle, square, pentagon, and triangle) (KRUFFT 1994: 38).

PLOTINUS

Plotinus (204 –270 AD) developed the theory of Neoplatonism: artists should view many particulars to gain a clear impression of the elemental forms. Known as the Ideal Theory of Art (its influence shaped the western world); 'art should imitate nature'. Nature, in the view of Plotinus, implies that forms are pre-existing in the metaphysical realm (TURNER, 2005).

MEDIEVAL GARDENS

* Medieval Christianity viewed nature as a chain extending from God to all organisms. Medieval gardens embody the idea of nature revealed to man through religion, gardens function as places of contemplation (TURNER, 2005:125).



Fig_11: Middle Ages: diagramme illustrating the typology of Castle Garden.

Use: Forts were occupied by soldiers, nobles and their families. In wartime the internal space was used as protection for soldiers and the surrounding population. Castle gardens were planted either inside or outside the fortification.

Form: Castle gardens were small enclosures varying in form (hexagonal, irregular or rectangular). Outside the compound there were orchards, pleasure- and hunting parks.

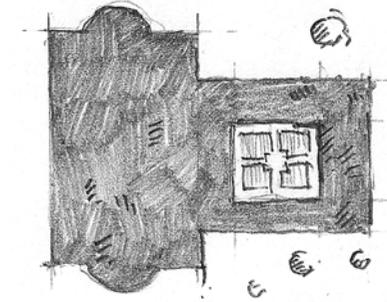


Use: Recreation, contemplation and rituals of the monastery took place in the garden, which gave access to adjacent buildings in the complex.

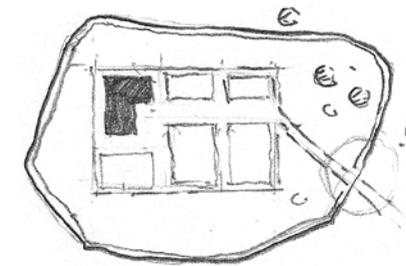
Form: Typically square, the garden was surrounded by a covered walk. The cloister garden evolved from its humble origins to the Renaissance ornamental gardens and later into the 19th Century gardenesque gardens.

Use: The middle class lived on enclosed plots. Gardens were for food, medicine and recreation.

Form: Irregular in shape, the gardens were bounded by adjacent buildings, walls, fences, ditches and hedges. Covered with beaten earth and gravel floor surfaces optimally using available outdoor space.



Fig_12: Middle Ages: diagramme illustrating the typology of Cloister Garden.



Fig_13: Middle Ages: diagramme illustrating the typology of Medieval Garden.

CONCLUSION:

Architecture embodied all aspects of Christianity (knowledge, theology, morality & history), arranged in the structure of the building. Nature was seen as the physical embodiment of Christianity, resulting in the idea of 'imitating' through ornamentation. Antiquity derived proportions from organic forms (Honnecourt) with an underlying theme of transcendental/metaphysical. Scholastic philosophy of the Middle Ages prescribes that the relationship between architectural form and programme should adhere to an aesthetic approach shape by a divinely inspired geometric proportions.

Renaissance

ARCHITECTURE IN THE RENAISSANCE

Plato's work was revisited by the Humanists during the Renaissance, re-introducing the importance of mathematical proportions (as in Greek and Roman architecture). Classicist architecture was made to imitate the Platonic Forms contained in nature through proportion.

HUMANISTS

"The Humanists rejected the medieval, romantically worshipping everything ancient, studying and copying the works of antiquity."

- Mark Gelernter on Humanism
(GELERNTER, 1995:96)

The Humanists reasserted the Classical notion of individual power, reviving the ancient disciplines of art, architecture and philosophy. The medieval assessment, viewing reality as preordained, replaced rational thinking and individuality by two alternative mindsets:

Aristotilianism: Derived from Aristotle's empiricism - understanding is gained through human knowledge, not through an intuitive grasp of supersensual ideals or forms.
Platonism: Derived from Plato's rationalism, all objects in the sensory world are only imperfect copies of metaphysical ideas (experience through knowledge) (IBID, 1995:97).

ALBERTI & PALLADIO

Alberti (1404 -72) and Palladio (1508 -80) were influenced by Plotinus and Neoplatonism. Palladio based his architecture on the circle, the square and harmonic proportion. Imitation of these forms enabled the production of buildings that partaking in the essence of the universe, imitating the nature of the world (TURNER, 2005:17). Alberti defined beauty as characteristic of nature having unchanging norms. Inspired by Classicist architecture, he attempted to discover 'ideal forms'. He derived proportional ratios from nature, arguing that nature is rationally organised according to principals of mathematics. (GELERNTER, 1995:105)

1350 AD – 1650 AD

Use: Occupied by noblemen early, Renaissance castles provided security; the gardens were used for social gatherings.

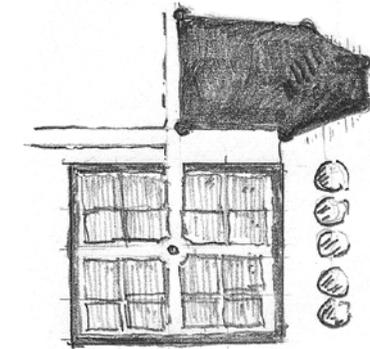
Form: The value of garden design was signified by the additional space emerging as a result of castle conversions into manor houses. Square and rectilinear design elements were combined, with structured patterns, to create order in garden design at the time.

Use: Gardens no longer faced inwards, the open spaces were used for recreation. Collections of antique statues were displayed.

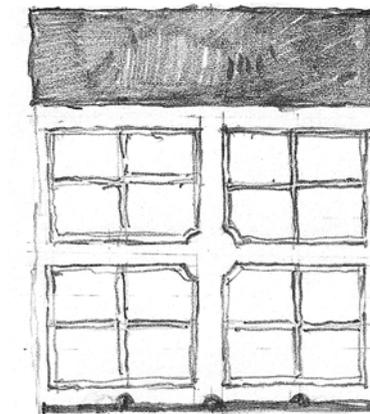
Form: Developed by Bramante, a central axis is integrates garden and house. The axis created a distinct composition, fusing rectilinear enclosures and terraces on different levels.

RENAISSANCE AND MANNERIST GARDENS

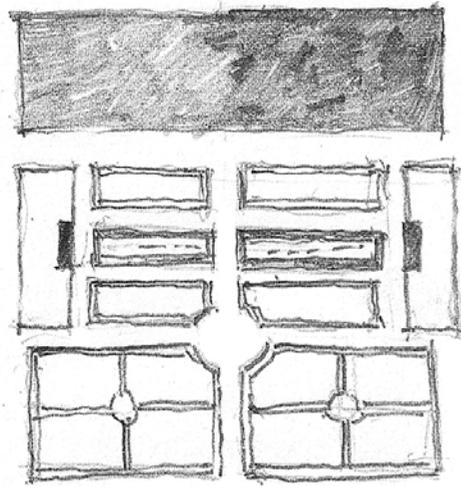
** Nature is the source of form, the Renaissance return to the classical traditions of from. Garden designs should resemble the styles of antiquity. (GELERNTER, 1995:141)*



Fig_13: Renaissance: diagramme illustrating the typology of Early Renaissance.



Fig_14: Renaissance: diagramme illustrating the typology of High Renaissance.



Fig_15: Renaissance: diagramme illustrating the typology of Mannerism.

CONCLUSION

The Renaissance reasserted the Classicistic notion of form, derived from nature through rational thinking. Influenced by the Neoplatonic and Neoclassical, nature was perceived as the source of form and the rules of proportion. Designers imitated these principles to achieve an empirical reality. The relationship between form and programme was mathematically determined through rationalism, proportion derived from nature should resemble the styles of antiquity.



Use: The principles of the Renaissance reached the apex of perfection in underlying principles of symmetry. Gardens became places of novelty/allusion displaying the patrons' wealth.

Form: Recreating emotions through movement and drama became important (as in Mannerist painting). Houses were considered as ornaments sited/composed in a dramatic setting. Advances in hydraulic technology allowed for elaborate water features.

1600 AD – 1750 AD

Baroque

BAROQUE ARCHITECTURE

Baroque distanced itself from the classical notion that the universe was organically formed. Humanist influences sought new meaning in the rational/mechanistic, proving that existence is derived from this point of view. The epoch synthesises the Classicism of the Renaissance's with the emotional tensions of the Mannerists. (GELERNTER, 1995:121)

DESCARTES

Descartes (1596 - 1650) believed that the only reliable knowledge is found in the reasoning mind. Descartes's 'geometric method' is a deductive reasoning philosophy that leads artists, architects and philosophers to base design theories on self-evident axioms/proverbs. His theory separates the metaphysical world of the mind and the physical world of reality in two distinct spheres, the mind can conceive form in the conveying body without being an integral part of it (TURNER, 2005:17).

LOCKE

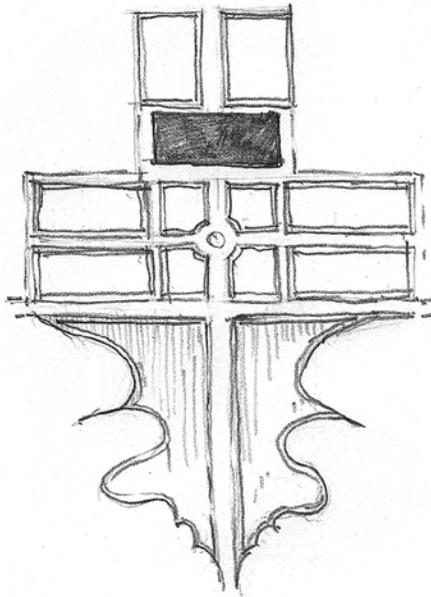
Locke (1632 - 1704) postulates that the mind gains knowledge by experience. The mind is at birth a "tabula rasa", the experience of form creates mental impressions of the outside world. The theory of experiential knowledge assumes that objects in the physical world have physical qualities (solidarity, extension, colour and taste). Such qualities cause ideas to appear in the mind of a perceiver, if the mind does not know the qualities directly, mental ideas are given to what the qualities are (GELERNTER, 1995:130).

BLONDEL

Blondel (1675-98) believed that timeless Classical principles shape building form by order, enabling the mind to understand architectural form. Architecture is construed through specific projects, these present different building problems to be expressed in building form. Architecture must not be disillusioned with the fantasies of individual minds, it should follow laws of nature and reason (IBID, 1995:174).

BAROQUE GARDENS

** Rational thinking influence by the rationalist philosophy of Descartes and Cartesian geometry*



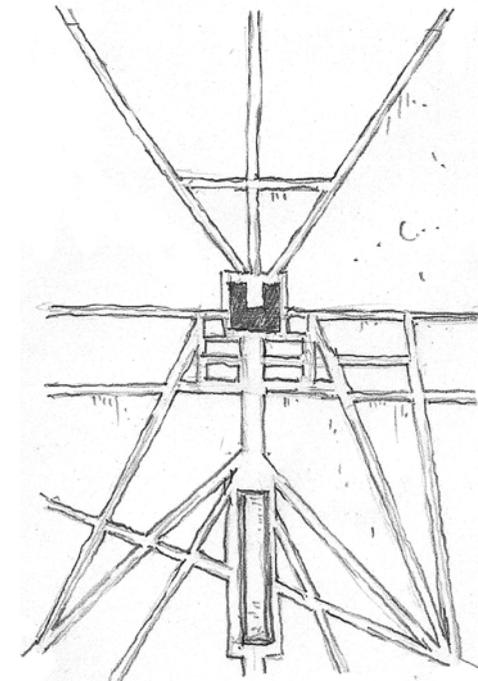
Fig_16: Baroque: diagramme illustrating the typology of Early Baroque.

Use: Re-establishment of power to the prelate and princes produced garden designs echoing the supremacy of authority. City walls were replaced by guns and military power. Baroque gardens facilitated court gatherings, larger parks were used for hunting.

Form: Axial lines were projected beyond garden enclosures, focusing on external landmarks. Discoveries in optics, perspective and geometry translated into dramatically planned avenues.

Use: Gardens reflected aristocratic government e.g. the gardens of Versailles.

Form: Cartesian geometry rationally composed the natural landscape. Using perspective, the high baroque gardens integrated a central building with landscape elements (e.g. avenues and fountains).



Fig_17: Baroque: diagramme illustrating the typology of High Baroque.

CONCLUSION:

The epoch saw a development in the theory of rationalism (Descartes). Form is derived from reason and rational structures. Philosophy of the epoch separated the idea of form in two mental spheres; the primary objective qualities and secondary subjective qualities. A belief in reason, orderliness and timeless principles of form referenced the Classical shapes of building and landscape form. The relationship between form and programme sought to reflect functional problems presented by different projects.

Enlightenment

ARCHITECTURE IN THE ENLIGHTENMENT

The Enlightenment contributed to the idea of style, archaeology and the acceptance that different times in history viewed values and forms of artistic expression differently. The positivist attitude developed from advances in science and objective knowledge; scientific knowledge was entrusted to predict and control future events. (GELERNTER, 1995:155)

HERDER

Herder's (1744-1803) new idea of history introduced three concepts: the archaeological, the eclectic and the modern. For Herder the unit of aesthetic taste is derived by shared cultural values, out of this he derives the notion of style / collective taste. Different from Classical architecture, his concept of style does not deny the idea of different but equally valid design approaches. (IBID:164)

BOULLÉE

Boullée (1728 - 1799) viewed architecture as a fantastic art of pure invention. The source of form is conceived by 'pictures in the mind' (imagination). He revisited Plato's platonic solids to illustrate the limits of architectural form, in the shape of spheres, cubes and triangles. (IBID:172)

NEOCLASSICAL AND ROMANTIC GARDENS

** Enlightenment was a response to the Baroque. Plato's theory of forms were revisited 'art should imitate nature'*

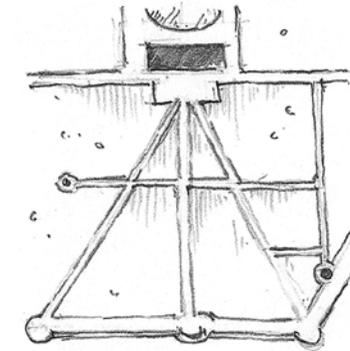
1700 AD - 1810 AD

Use: The name is derived from Stephen Switzer; it is a style inspired by existentialist rural living. Central to the style is a renewed interest in agriculture and forestry. Estates had planted avenues to create new/reshape existing forests in the landscape.

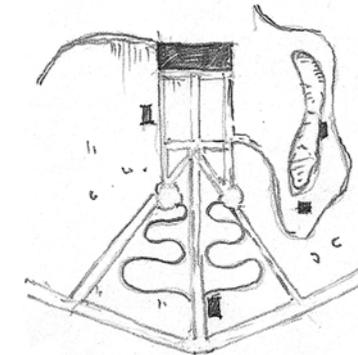
Form: The style was concerned with perspective, attained by the use of radial geometry.

Use: Inspired by ancient Rome, the style reflects the Classical landscapes of antiquity. Landowners who travelled used these gardens to display their 'voyage souvenirs'.

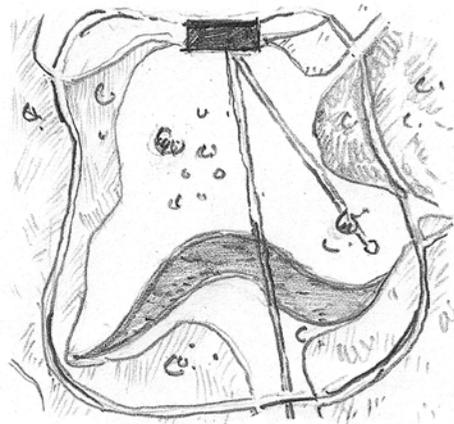
Form: Placing of garden elements (groves, water, sanctuaries and temples) took priority over plan geometry.



Fig_18: Enlightenment: diagramme illustrating the typology of Forest Style.



Fig_19: Enlightenment: diagramme illustrating the typology of Augustan Style.



Fig_20: Enlightenment: diagramme illustrating the typology of Serpentine Style.

CONCLUSION:

During the Enlightenment, contrasting views on form were shaped by Positivism, Romanticism and Neoclassicism. Kant's theory on sensibility and understanding distinguishes form in two minds; intuition (immediate impressions of sense) and understanding (the mind's ability to conceptualise). Carlo Lodori (1690 – 1761), views the use of ornament as illogical, form ought to be entirely shaped by its function (GELERNTER, 1995:155). The Enlightenment view was that form should conform to function, necessity and honesty in materials.

Use: The values of the Enlightenment admired the 'natural' in style, in the productive use of grazing on the estate grounds. The landscape was designed round a circumferential access track, allowing guests to experience the parkland.

Form: The house was positioned in the centre of lawns, trees and parameter landscaping with a carriageway and a serpentine lake. Known as English gardens, the style abstracts the use of line. Influenced by Lancelot Brown, free-flowing/serpentine lines were used to compose the garden of lakes and woodlands.

1800 AD – 1900 AD

19TH Century

ARCHITECTURE IN THE 19TH CENTURY

By the 19th Century the objective foundations of the Classical had been eroded. The period inherits a pastiche of eclecticism from the Enlightenment. The predominant influence of Realism caused a stylistic confusion in the discipline of architecture. The era of Eclecticism juxtaposed all previous stylistic traditions. Known as a time of relativism, the use of styles was justified by functional, aesthetic, or religious suitability for a particular project. (IBID:187)

DURAND

Jean-Nicolas-Louis Durand (1760-1834) examined the Classicist in architecture as generic principles. He argues that good architecture satisfies essential requirements of building. Durand focuses his argument on economy, construction, commodity and beneficial conditions. The principles of Classic architecture are broadly discussed through rational geometric planning. (IBID:176)

ÉCOLE DES BEAUX-ARTS

The French school of architecture re-establish the objective principles of Classical architecture. Archaeology advocated the revival of the Classic traditions, allowing aesthetic primacy of design over practical matters of construction. It was divided into ateliers, where students were taught building, design and practical aspects of construction. Historically, this was the first time students could study architecture without prior working experience or experience of construction. (IBID:193)

CHOICY

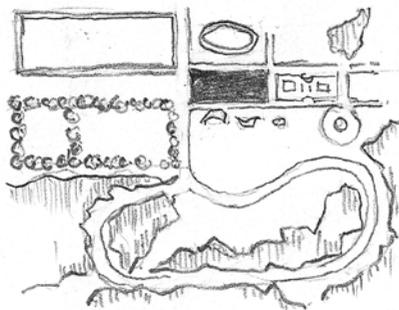
Choicy (1841-1909) believed that architectural form followed logically from technical constraints, designers operate within a stylistic expression offered by available technology of the time. Choicy underplayed the role of the individual in building design, having little or no say in the development of the forms. He argued that form emerges as a result of conceptual necessity. Termed constructional fatalism by Reyner Banham, Choicy has a strict deterministic view on architectural history. (IBID:211)

LOOS

Loos's essay "Ornament and Crime" was directed against decoration in architecture. He believed that all building material possessed an inherent language of form. Ornament is additive form that interferes with the inherent language of design. Loos promoted the idea of honesty in material form, advocating against the notion to copy or assimilate the inherent properties of one material (a notion derived from Semper). (FORTY 2000:161)

ECLECTIC GARDENS

** In the 19th Century, the botanical appearance of plants became important (TURNER, 2005).*



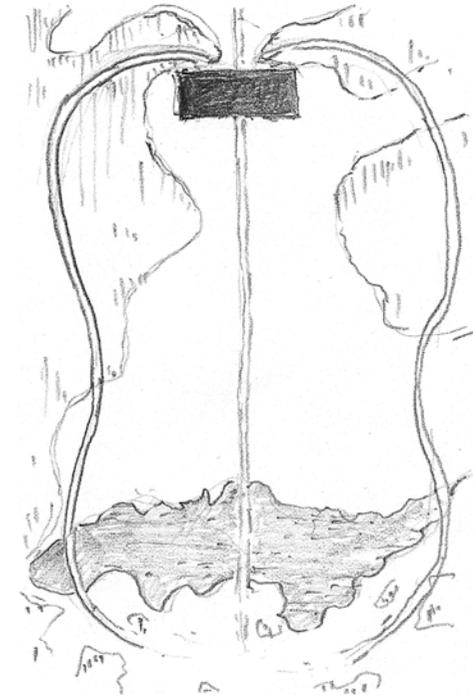
Fig_22: 19th Century: diagramme illustrating the typology of Mixed Style.

Use: Influence by the gardenesque and 19th Century occupations with travelling, the style produced gardens displaying stylistic collections through landscape history.

Form: The eclectic collections comprised of mixed zones laid out in different styles.

Use: Landscape-style gardens are divided into three zones; the dwelling zone, a farm zone and a scenic zone.

Form: Stylistic employment of the zones comprise a rectilinear design for the house garden, free-form/serpentine for the farm and irregular/natural design for the scenic zone.



Fig_23: 19th Century: diagramme illustrating the typology of Landscape Style.

CONCLUSION

The 19th Century was characterised by Eclecticism, the arts and crafts movement saw art as the creative expression of the designer. The Classicist quest for correctness over originality undermined the subjective, producing stylistic form. The epoch endorsed the use of existing forms; good architecture should use them without question and rather focus on the art of construction. Form was influenced by economy and the expense involved in the production. The relationship between form and programme was driven by efficiency in its production.



20TH Century

The 20th Century was dominated by two seminal movements; the Modern and the Post-Modern.

The Modern Movement was the inception of Walter Gropius and the ideas of the Bauhaus school. The *Language of Vision* matured to become the accepted philosophy of the avant-garde in Europe. Two groups were formed, the Congrès Internationaux d'Architecture Moderne (CIAM) in 1928 and the Modern Architectural Research Group (MARS) in 1933. They offered the 'International style' as a replacement for all previous ones, arguing that the new approach would bring about architecture that would functionally, rationally and economically satisfy architectural requirements (GELERNTER, 1995:250).

Post-Modern is a reaction against the Modern and all other subsequent philosophies and architectural movements that asserted themselves in the belief that philosophy, technology and science could solve complex human behavior. The term Post-Modern evolved in the mid-1970's and is associated with a reorientation against the ideas of Modernism and its proposed solutions to complex problems (IBID:278).

GUADET

Julien Guadet (1834-1908) questions pure rational and analytical thinking, viewing intuition as the true generator of artistic ideas. He assimilated universal principles of Classicism in architecture, defining it not as a particular style but as a general attitude to design. He was against copying archaeological forms without understanding their underlying logic. Gaudet argued that forms are created in universally objective design elements and compositional principles. Gaudet believes that a designer should first conceive the idea of the building form, the realization of architectural resources will shape the idea through the process of design (building technique, finance, programme/brief).

1900 AD – 2000 AD

He argued that architects select elemental forms (wall, door, window, column, vaults and stairs) and add them together according to geometrical principals (axiality, symmetry and proportion). Varied beliefs, climates, cultures and sites require different arrangements of these universal elements. The brief or programme influences and determines the design idea. Gaudet argues that, although the brief provides the designer with requirements and relationships of building elements, it should not impose the combination or geometry thereof. Architectural form is conceived in the mind (IBID:228).

NEO-PLASTICISM & MOHOLY-NAGY

The stylistic movement implemented by de Stijl painters was launched in 1917 by Piet Mondrian. The Neo-plastic movement aims to break free from individual inclinations and sentiments of pre-existing experience and to express form through pure geometry, freeing art from the fixed objective laws of plastic composition (IBID:234).

Lazlo Maholy-Nagy was the principle architect of the 'language of vision' at the Bauhaus. He reasserted a neo-classical belief in a universal objective language of design. Termed the language of vision, the theory deconstructs architecture into elements (lines, plane, masses and colours) and different compositions (principles of balance, proportion and rhythm). Maholy-Nagy's theory is based on the simplification of planar styles and elements and consequently formed the normative guide to the Modernist aesthetic. (GELERNTER, 1995: 247).

ECLECTICISM & VENTURI

In the 1950's the Post-Modernists revisit subjective formalism for its visual possibilities playfulness and free forms, rummaging through history, they selected fragments of forms from previous stylistic expressions. The collected styles were reassembled to gain a new meaning in a different context (IBID:280).

1900 AD – 2000 AD

Robert Venturi's 1966 treatise *complexity and contradiction in architecture* attacks the Modern. Venturi based his assault on two accounts: the rejection of tradition and that the objectification of the primitive/elementary at the expense of the diverse/sophisticated. He preferred the visual complexities in the Mannerist, Baroque and Rococo periods. Venturi revived the 19th Century concept of eclecticism. He derives form from historic precedents (IBID:282).

STERN

Robert Stern viewed the Classical as an essential component to the evolution of architecture. He postulated a theory he termed 'humanist'. Using the analogy of style as a language that continually evolves in time Stern argues that style is composed of two components; syntax (form) and the rhetoric (context). He criticizes the Modern Movement for rejecting the traditional (rhetoric) but keeping the syntax (form). Sterns' humanist theory generated the Post-Modern notion of context, the return to the classical rhetoric (IBID:284)

DECONSTRUCTIVISM

The movement was founded in the 1970's by Jacques Derrida as a reaction against Western philosophy's rationalist belief that in absolute knowledge and truth. The Deconstructivists undermined all previous concepts of theory and reasoning without supplying anything in its place; nothing means anything, and anything means nothing. In architecture the source of form was conceived by Peter Eisenman, Daniel Libeskind, Zaha Hadid and Bernard Tschumi. They fused ideas with the Russian Constructivists of the 1920's. Form expressed a world without order or logic through disorientated and dynamic geometry enforcing the idea that order is an illusion (IBID:285)

1900 AD – 2000 AD

Use: Seen as rewarding and spiritually satisfactory, owners were involved in design and maintenance of gardens.

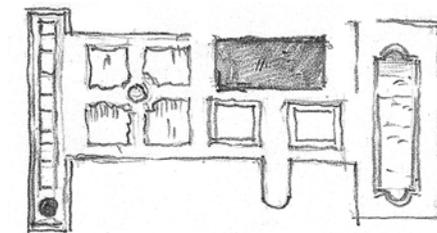
Form: Garden design was based on principles of the arts and the crafts involved in the making thereof. The technique produced two zones, a geometrically designed- and a naturalistic zone.

Use: Driven by the machine ethic of the modern, gardens were designed spaces for outdoor living, exercise and recreation.

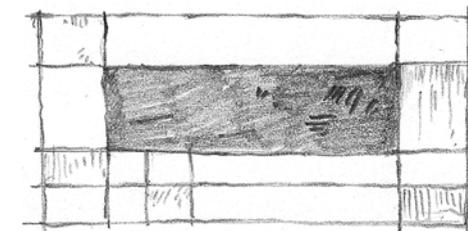
Form: The abstract style of Mondrian (de Stijl) provided the predominant source of form. Curvilinear and rectilinear designs were expressed in new materials (concrete, glass and steel).

ABSTRACT AND POST-ABSTRACT GARDENS

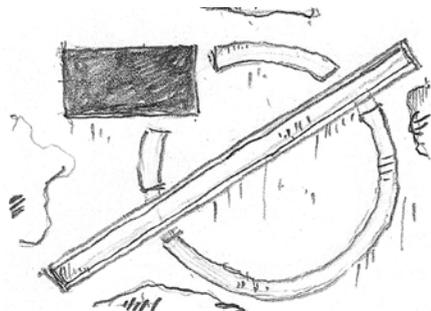
Modern/Abstract gardens: Nature is understood through scientific analysis, gardens should be based on the principles of abstraction. Post-Modern/Conceptual gardens: The understanding of nature depends on individual perceptions, these individual concepts should manifest in garden designs. (TURNER, 2005:273).



Fig_24: 20th Century: diagramme illustrating the typology of Arts & Crafts Style.



Fig_25: 20th Century: diagramme illustrating the typology of Abstract Style.



Fig_26: 20th Century: diagramme illustrating the typology of Abstract Style.

CONCLUSION

The Modern Movement's language of vision was the most important source of form in the first half of the 20th Century, the new approach was developed to satisfy building requirements of function and economy. The Post-Modern was the predominant source of form in the second half of the 20th Century. Affirming the belief in classical philosophy, form is derived from historic precedents and context.

The relationship between form and programme in this epoch is influenced by different -isms:

Neo-plasticism: The Modern relationship is based on the rationality of the machine ethic.

Eclecticism: The Post-Modern relationship is based on the subjective opinion of context.

Deconstructivism: The Deconstructivist relationship is based on the irrational and nihilistic.

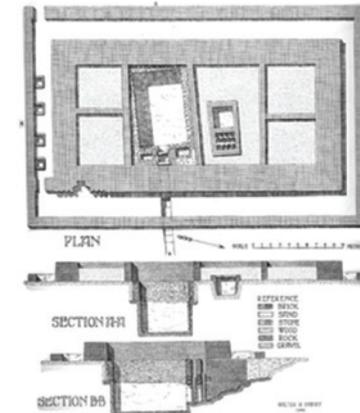
Use: Experimentation deconstructed all previous ideas of garden design, resulting in a multifaceted postmodern structural garden composition.

Form: Landscape form resulted through the process of layering, deconstruction and fractured geometry.

2000 BC – 1000 BC

In Antiquity form was minimally influenced by mathematics. It was derived from the empirical influence of gods and ritual sacrifices in temple and pyramid designs. Architecture and aesthetic gardens embodied the religious beliefs of spiritual places.

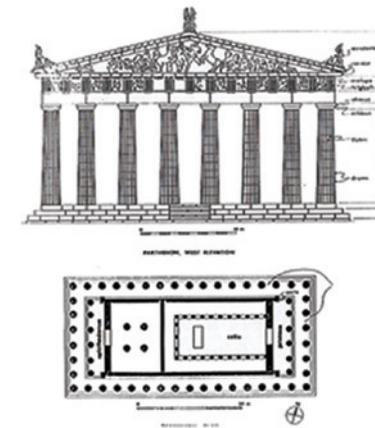
Synthesis of theory



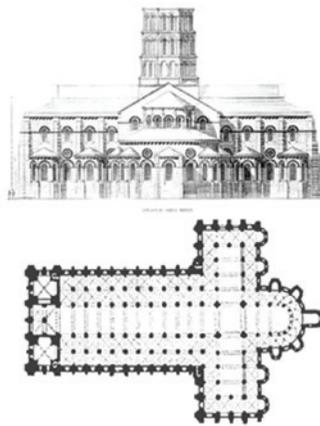
Fig_31: 1st Dynasty Egyptian tomb.

1400 BC – 500 AD

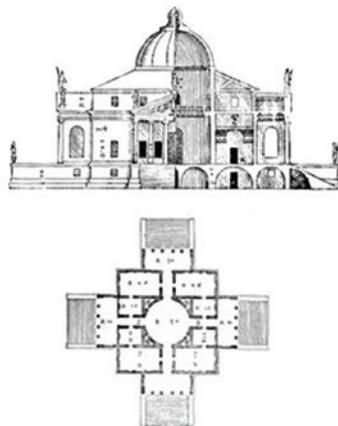
In the term Venustus (Beauty) Vitruvius expresses that the pleasure of form is made possible by the use of proportion. Form in Antiquity (ii) prescribed focus on the aesthetic in nature; a formal relationship between form and programme is rationally composed.



Fig_32: Parthenon.



Fig_33: Basilica of St. Sernin.



Fig_34: Palladio: Villa Rotonda.

600 AD – 1500 AD

Architecture sought to embody all aspects of Christianity as an arraignment in the building structure. Antiquity derived proportions from organic forms, with an underlying theme of transcendental/metaphysical. Scholastic philosophy of the Middle Ages prescribes that the relationship between architectural form and programme should adhere to an aesthetic approach moulded by divinely inspired geometric proportions.

1350 AD – 1650 AD

The Renaissance reasserted the Classical notion of form, derived from nature through rational thinking. Nature was perceived as source of form and rules of proportion. The relationship between form and programme was mathematically determined through rationalism and proportion. Form should resemble the styles of antiquity.

1600 AD – 1750 AD

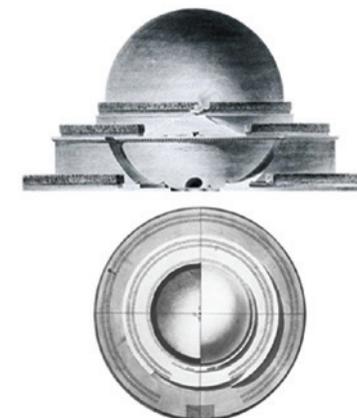
The epoch saw a development in the theory of rationalism. Form is derived from reason and rational structure. A belief in reason, orderliness and timeless principles of form referenced the Classical shapes of building and landscape form. The relationship between form and programme sought to reflect functional problems presented by different projects.

1700 AD – 1810 AD

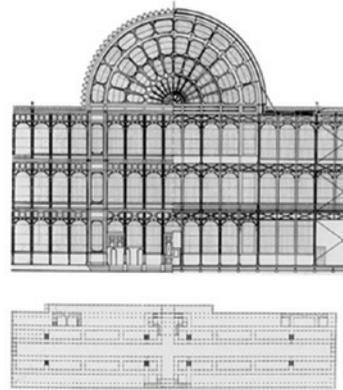
During the Enlightenment, contrasting views on form were shaped by Positivism, Romanticism and Neoclassicism. The Enlightenment held that form should conform to function, necessity and honesty in materials.



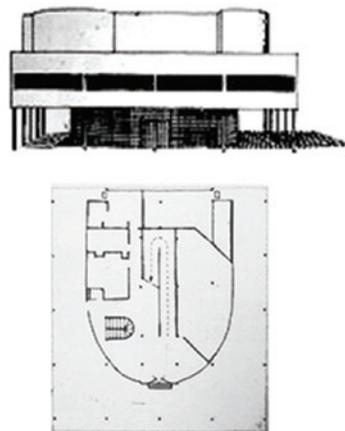
Fig_35: Borromini: San Carlino.



Fig_36: Boullée: Cénotaphe a Newton.



Fig_37: Paxton: Crystal Palace.



Fig_38: Le Corbusier: Villa Savoye.



1800 AD – 1900 AD

The 19th Century was characterised by the eclectic, the arts and crafts movement saw art as the creative expression of the designer. Form was influenced by economy and the financial expense involved in the production thereof. The relationship between form and programme was driven by efficiency in its production.

1900 AD – 2000 AD

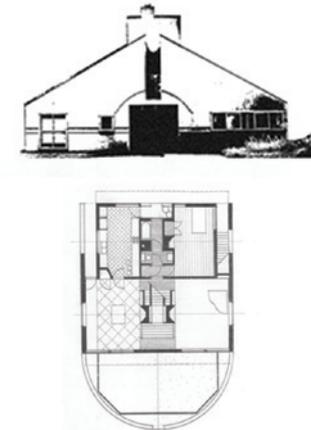
The Post-Modern was the predominant source of form in the second half of the 20th Century. Affirming the belief in classical philosophy, form is derived from historic precedents and context.

1900 AD – 2000 AD

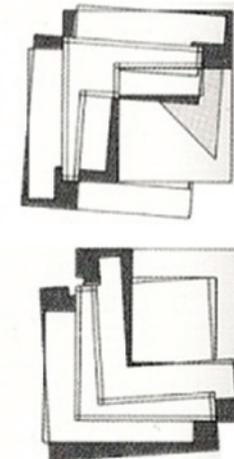
The Modern Movement's language of vision was the most important source of form in the first half of the 20th Century, the new approach was designed to satisfy building requirements of function and economy.

1900 AD – 2000 AD

The Deconstructivists undermined all previous concepts of theory and reasoning without supplying anything in its place, nothing means anything, and anything means nothing. Form expressed a world without order or logic through disorientated and dynamic geometry enforcing the idea that order is an illusion. The Deconstructivist relationship is based on the irrational and nihilistic.



Fig_39: Venturi: Vanna Venturi House.



Fig_40: Eisenman: Diagrammi concettuali.

Architectural form

** The diagramme on page 47 illustrates different relations between architectural form and programme. The pairing is an abstract synthesis, like an argument. It uses objects to illustrate the external logic. The search for form has concluded that architectural form making derives from either one or a combination of five different theoretical positions.*

FORM IS SHAPED BY ITS INTENDED FUNCTION

Buildings are shaped by the functional requirements it is expected to perform. The source of architectural form pre-exists in the functional aspects of building requirements (client's needs, climatic conditions, community values etc.), through this process, the diligent designer discovers form. Form and programme have a direct relationship.

FORM ORIGINATES FROM THE CREATIVE IMAGINATION

Buildings are conceived by drawing on the imagination for form. The process of the 'creative genius' does not conform to methodological processes of rational thought. Architectural form originates from the creative expression of the subjective mind, determined by the inner resources available to the designer. The theory views collective ideas pre-existing in the metaphysical world. These ideas manifest in the physical world through the process of design. The relationship between form and programme depends on the intuitive capacity of the designer.

FORM IS PRODUCED BY THE PREVAILING SPIRIT OF THE AGE

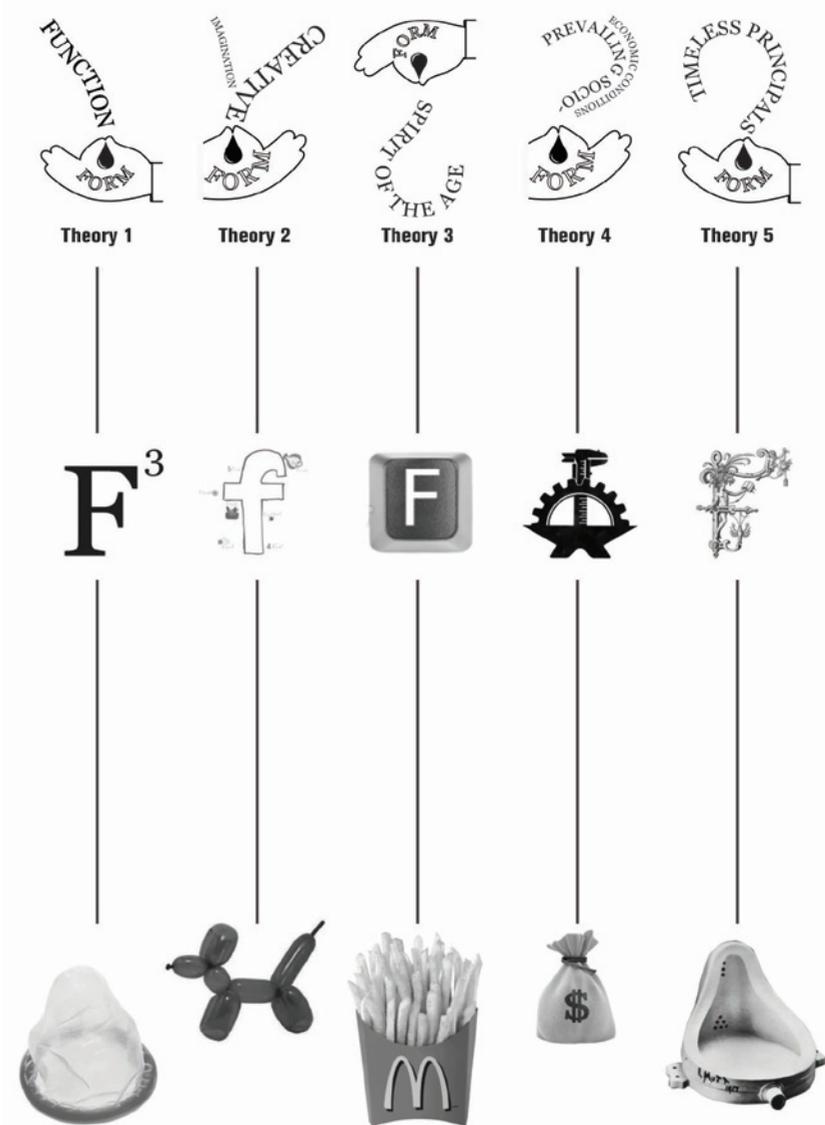
Taste and artistic values pervade from social views and shared attitudes in different cultures. The individual designer unconsciously responds to a collective world-view of artistic taste. Artistic design is formed by two attributes; the overriding characteristics of the epoch and individual skills exhibited by the designer. Form and programme have a direct relationship determined by specific social norms.

FORM IS DETERMINED BY SOCIAL AND ECONOMIC CONDITIONS

Shared economic and social forces shape individual artistic efforts. Socio-economic systems play a further role in the production and distribution of building materials, shaping the design and making of building forms. The relationship between form and programme is dependent on a larger context/culture that determines the trade and industry of the built environment.

FORM EXISTS AS AN UNCHANGING LANGUAGE THAT TRANSCEND ANY PARTICULAR CULTURE OR TIME

Universal forms underline the discipline of architecture; these principals transcend the boundaries of history and culture. Universal principles of form translate into building typology. Variations and original types are geometrically determined, building through logic and historic precedents. The relationship between form and programme is preconfigured for specific types of buildings.



Fig_41: Diagramme of theories on form.