

Architecture's Roots

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Abstract

This essay purposes to shed light on the impasse that architecture is currently experiencing. The essay argues that the way out of this impasse, out of an *architecture-of-the-moment* is by a comprehensive understanding of the historical roots of architecture. Each period has tended to choose from the past those elements that harmonized with its specific ideas and aspirations. Contemporary architecture seems to have become de-rooted from the past. The essay starts with a definition of creativity and the importance of image-creation as constituents of an architecture expressive of human identity. Different architectural periods are briefly examined while emphasizing the role of particular monuments as historical references albeit out-rooted from a contemporary architecture that is expressive of the chaos pervading today's societies.

Keywords: *Creativity, Truth, Spatial Progression, Dwelling, and Chaos*

Creativity

Creativity lies in the imagination, which manifests itself in the projection of images. From the void the man-artist conceives an image. Architecture then is by which man communicates his ideas, his conceptions of his universe. Egyptian rulers built and embellished their tombs to provide their needs beyond the grave. For architecture begins in imagery and image making of sanctuaries and castles; for history holds up the mirror to man, to his achievement as well as to his potential. Man sought safety in the confines of caves or built mud or reed huts. Primitive man was involved with architecture. Man constructs to house his body and provide refuge for his spirit, to secure dwelling places for his family and sanctuaries for his gods.

Originality and innovation were discouraged in the period of ancient Egyptian architecture to concentrate on technique and skill of execution. Egyptian society then was like a pyramid with the pharaoh as its apex. The guardian of the pyramids is the Sphinx which resembles the body of a lion, with a human head to symbolize immortality while the face is considered to be a portrait of king Khafre. The priests made their temples with inner forest of columns, each carved with hieroglyphic inscription. The building was not a mere pile of sticks and stones no matter how interesting the shapes of these materials may assume, but a created environment, a form of action for some social activity.

In one time and in one place the arts of architecture share a common constellation of ideas in relation to the contemporary social order and its spiritual aspiration. If one denies knowledge of the spirit and inner life of a people, one must look at its architecture where the spirit of the whole people is reflected. Architecture as the expression of the living units and being of man does not die but goes on to reveal the continuity of life. Through the study of architecture in relation to the life and time out of which it springs, a richer, broader, deeper humanistic understanding can be achieved. Architecture becomes the study of people reflected in the ever changing images of man as he journeys across historical time, as he searches restlessly for reality, and as he ceaselessly strives to achieve the ideals that create meaning for life.

All creative activity begins in the mind's eye of the architect. Imagination and knowledge must be summoned to supply the frame of reference and the aura that once surrounded the work of architecture in its original context. Hence it is necessary to know the period and style, the social and religious circumstances the type of patronage and social position realized by the architect.

The Parthenon

In Athena, the goddess of wisdom saw the birth of a new spirit to quicken the human heart and mind. Athens wanted victory in the struggle for supremacy over the Mediterranean world. Their philosophers searched for understanding the physical, social and spiritual nature of the environment they lived in. The philosopher Socrates brought order into human affairs. Palaces and temples were built over the hill and the people in the city below looked up with pride toward the acropolis that recorded their history; spreading out from the base was the agora, a meeting and a market place with its colonnade. The necessary materials for their building were available in abundance in Paros where the cream-coloured marble ideal for building and carving came. The acropolis was then, both the material and spiritual treasury of the Athenian people. Work continued until, by the end of the 5th century, the acropolis had become a sublime setting. The Greek temple architecture was a refining system of construction which allowed architects a steadily increasing freedom in design; using the Doric order with interesting visual rhythm. The outer surfaces of the columns have twenty grooves, or flutes, which form concave vertical channels from the bottom to the top of the shaft. This fluting served several purposes; the first being to correct an optical illusion. When seen in bright sunlight, a series of non-grooved round columns appear flattened. In addition to maintaining the round appearance, the fluting makes a constant play of light and shadow and creates a number of graceful curves to please the eye. Through the increased number of vertical lines, the visual rhythm is quickened and the eye is led upward toward the sculpture of the entablature. This arrangement made the Parthenon a work of art not a cold abstraction and its beauty is in simplicity. Restraint and simplicity were the rule in Greek architecture.

Greek architecture humanized the experience of space by organizing it so that it was neither too complex nor too grand to be fully comprehended. The Parthenon's success rests on its power to humanize the experience of space. Through its geometry, such visual facts as repeated patterns, spatial progression and intervallic distances are brought within easy optical and intellectual grasp. The harmony of the Parthenon depended on the module taken from the Doric columns, whose proportions were derived by Polyctius from the mathematical relationships for parts of the human body.

The Pantheon

Although, Assyrians knew the principle of the arch and vault long before the Romans came to the scene, the Roman sense of social organization was extended into the field of religion with the Pantheon. This Pantheon became a mirror of the world order, with statues placed in niches to personify the sun, the moon, and the so called "planetary deities" – Mercury, Venus, Mars, Jupiter and Saturn. The Emperor Hadrian himself had a hand in the design of this distinguished edifice, and he occasionally presided over meetings of the Roman senate held in its resplendent and masterly interior.

The Pantheon's geometry is based on the union of a cylinder and a hemisphere over a circular ground plan, with the interior diameter and the height of the dome both being a little more than 42.00 meters. The clarity of form achieved by the visible equality of horizontal and vertical dimensions, as well as by the simplicity of design, is evident to the casual eye. The satisfying sense of spatial proportion and the harmonious impression of the interior are based on a union of applied scientific skill and aesthetic feeling. In the Pantheon the Romans advanced architecture to the point where it achieved a significant interior. The inner surface of the dome is characterized by coffers which serve the dual purpose of diminishing the weight of the dome and furnishing the basis for its decoration. In the center of each coffer was a gilded bronze star, a motif that related the dome symbolically to the sky. The interior of the walls are sheathed in varicolored marbles of glowing ochre with red green and black contrast is still visible. Gone however are the gilded bronze tiles that once spread across the coffered inner dome like an expansive starry firmament mirroring the heavens. The sole source of light

is the single 7.70m, round opening in the middle of the dome. This oculus or "eye" as it was called can be interpreted as an illusion to the all-seeing eye of heaven. This oculus creates a great shaft of illumination that bathes the interior in light of high intensity.

The Roman contribution to architecture was fourfold: (1) The building for use, (2) development of the arch and vault as a structural principle, (3) emphasis on verticality, and (4) design of significant interiors. In the first case, Roman architecture was marked by a shift in emphasis from religious buildings to the civil-engineering projects that has such an important bearing on the solution of practical problems of the day.

Second, the Roman exploitation of the possibilities in the arch as a building principle to implement the above objectives. The construction of a true arch by means of the wedge-shaped blocks as voussoirs. When such arches are placed side by side in a series, the resulting arcade can be used for such structures as aqueducts and bridges. When placed in series from front to back, the result is a barrel vault which was used for roofing interiors when a series of arches span a given space by intersecting each other around a central axis the result is a dome. In greatly oversimplified form, these constitute the technical principles that underlie the Roman architectural achievement.

Third, by their technical advances they were able to increase the height of their buildings in proportion to the growing size of their large structures. The six-story mercantile buildings of Trajan's Forum were an impressive demonstration of the practical advantages of such verticality which allowed the combination of many small shops into a simple structure in a crowded city location. The trend was to be seen in the great height that imparted such pleasing spatial proportions to the halls in the Baths of Trajan and Caracalla as well as to the Pantheon – all made possible by cross vaulting and the dome.

Last, the enclosing of large units of interior space was made necessary by the expansion of the city's population. The direction of architecture thought in meeting this need can easily be seen by contrasting a Greek agora with the forum of Trajan, a Hellenistic theater with the Colosseum, or the Parthenon with the Pantheon. Special attention to space composition and the problem of lighting are evident in the planning of such interiors as those of Basilica Ulpia, the Pantheon, and the halls of the great baths. In all instances, the increasing Roman awareness of the value, tangibility, and reality of the spatial medium is discernible.

Roman civilization shared many of the basic ideas that produced the Hellenic and Hellenistic styles. The Romans significantly widened the scope of the arts to include not only works that were aimed at the connoisseur but also those that carried broad mass appeal. The two ideas that differentiate the Roman from earlier aspects of the classical styles and dominate the Roman expression in architecture are the genius for organization and the frank spirit of utilitarianism, evidenced in the conception of architecture as a means to popular enjoyment and the solution of practical problems. Older cultural centers, such as Athens and Pergamon, did not exert any appreciable influences of the forms of Western architecture until the archaeological discoveries of the 18th and 19th centuries. All intervening phases of classicism were revivals of the Roman style.

Ravenna's replacement of Rome as a capital city demanded a building program that would transform a minor town into a major metropolis. The principal architectural and decorative elements of the classic temples: colonnades, frieze, and pediments faced outward. The Christian basilica turned the Greek temple outside-in leaving the exterior quite plain, and concentrated attention on the interior colonnades and the paintings or mosaic embellishments of the walls and semi-domed apses. In keeping with the sheltered and inward orientation of these early basilicas, no windows gave view on the outside world; those windows at the clearstory were also too deeply set to allow even a glimpse of the sky. It was inner radiance of the spirit rather than natural light that was sought. As such, its modern architecture would attract only

passing attention, but the magnificent mosaics that decorate its nave are of major importance in art history. Although they present a harmonious design, the mosaics actually were made in two different periods and styles.

The attitude of turning away from the world found its architectural expression in the plain exteriors and rich interiors of monastic churches. Thus, the net effect of asceticism was to increase the fervor of the spirit and to express this with great intensity.

Gothic cathedrals

Gothic architecture is a struggling, striving, dynamic urge that reaches upward to embrace infinity. A cathedral needs the setting of a town where it can soar above the roofs and gables of the buildings that cluster around it. The most elaborate decoration of a cathedral points toward the dwelling of the people. The tall towers of a Gothic cathedral need space from which to spring and room to cast their shadows. A cathedral is of course primarily a religious center. Its nave was not only the place for religious services but, on occasion, a town hall where the entire populace could gather for meeting. The sanctuary served as a theater in which the constantly changing sequence of the religious drama was enacted. The pulpit was not only the place from which sermons were reached but also a podium for lectures and instruction. The stained glass was useful not only as illustrations for sermons but also as picture galleries to stimulate the imagination. The cathedral constituted the pride of the community and the ambitions and aspirations citizens. In those days, the importance of a town could be measured by the size and height of its cathedral.

In architecture, be it the interior or exterior of the Gothic cathedral, one has an awareness of the opposition between the masses and voids, the interplay of the thrust and counterthrust, and of the principle of attraction and repulsion that awaken dead weights into dynamic forces. In contrast to the monastic church that was based on the notion of excluding the outside world, the Gothic cathedral attempted an architectural union of the inner and outer world as the exterior and the interior followed together through the glass curtain walls. The thrust and counterthrust of the interior vaulting was paralleled on the outside by that of pier and flying buttress; the sculptural embellishments of the exterior were repeated in the iconography of the glass in the interior. Through the medium of stained glass, the iconographers endowed light with meaning by transforming physical light into metaphysical illumination.

The Gothic style must, in the last analysis, be viewed as a dynamic process rather than an end result. By contrast a Greek temple or even a Romanesque abbey is a completed whole, and, in both, the observer's eye eventually can come to rest. The appeal of the Gothic lies in the very restlessness that prevents this sense of completion. The observer is caught and swept up in the general stream of movement, and from the initial impulse, he gets the desire to continue it. The completion, however can only be in the imagination. There were in fact, no finished cathedrals, each lacked something, from a set of spires in some cases to a nave as at cathedral Beauvais.

The object of Gothic thought was thus to work out a method for comprehending the incomprehensible, for pondering on the imponderables, for dividing the indivisible. Gothic art as a whole was designed to bridge the impossible gap between matter and spirit, mass and void, natural and supernatural, inspiration and aspiration, the finite and the infinite.

The Renaissance

The famous Florence Cathedral begun by Arnold Di Campio, 1296 with its dome by Filippo Brunelleschi where the eyes and thoughts of all Florentines were directed upward to the mighty cupola that crowned the crossing of their cathedral and gave their city its characteristic profile. Brunelleschi's dome was constructed by Gothic vaulting methods;

Brunelleschi's dome was surely the first of such magnitude to be constructed since antiquity and which fell within the scope of the Gothic; the new emphasis was on smoother lines and shapes and the shapeliness of the external silhouette. In Italy, much more than in northern Europe, the classical tradition had been more or less continuous. Many Roman arches, aqueducts, bridges and roads were still in use.

From Lorenzo's time through the early 16th century, the greatest artists were intellectuals. Alberti was a scholar architect who wrote books on the subject, designed buildings on paper, and left the actual construction to a master mason, Botticelli associated with men of letters and worked elaborate allegories into his pictures. Leonardo Di Vinci though sculpture interior to painting because of the physical labor involved, and in his later years devoted himself more to science than to painting. Bramante and Rafael were to be artist-scholars as well as architects and painters. Michel Angelo hated the work shop, even though the realization of his grandiose designs depended on the work of many hands. He was to become the ideal of the modern individualistic artist, consciously an intellectual, dealing with the popes and princess as equals, insisting that he painted with his brains, not with his hands, and rejecting all offers of noble titles. When people began calling him "the divine", the cycle was complete.

Baroque Architecture

The increasing complexity of life, the proliferation of new knowledge, the deepening of psychological insights all shaped the course of Baroque architecture. As religious, social economic pressures mounted, people were increasingly inclined to resolve their insecurities by turning to the cults of visionary saints or to the power of the absolute state. Artists were enthusiastically enlisted to enhance the power and glory of both church and state. Counter-Reformation churches were spacious, light, and cheerful. Visual artists, dramatists, and composers joined forces to make them like theaters where a concert of the arts played a prelude to the delights of future heavenly bliss.

Renaissance clarity of definition and the compartmentalization of space into clearly perceived patterns gave way to an intricate baroque geometry that took fluidity of movement into account. Neat Renaissance lines, circles, triangles, and rectangles became the intertwining spirals, parabolas, ovals, elongated lozenges, rhomboids, and irregular polygons of the baroque. With Borromini, horizontal and vertical surfaces were set into waves of rippling rhythms; balance and symmetry yielded to restless, unsettled movement; walls were molded sculpturally; surfaces treated with a rich play of colour, light and shadow. Pictures escaped from their vertical walls and settled upon spherical triangular pendentives and spandrels concave and convex moldings, and the inner surfaces of ceiling, vaults and domes. With Pozzo's paintings, solid walls, vaulted ceilings, and domes dissolved into nebulous, illusionistic vistas of the great beyond. With Bernini, marble saints and angels floated freely in space. With El Greco, corporeal being almost ceased to exist, and his figures are more spirit than flesh; his landscape backgrounds more heavenly than earthly.

By adopting the baroque style as their own and helping shape the artistic vocabulary of the time, the Jesuits not only brought baroque art down from the exclusive aristocratic level but carried the new idioms with them wherever they went; thus brooding the baroque into an international style. Counter-Reformation baroque churches found afield as Mexico, South America, and the Philippines. The extraordinary vigor of the church militant thus succeeded in tapping new spiritual sources and invigorating Roman Catholicism to such an extent that it emerged one more as a popular religious movement.

In 1665 BC Louis XIV requested the pope to permit his principal architect Gian Lorenzo Bernini to come to Paris to supervise the rebuilding of the Louvre Palace. Bernini's palace with its ballrooms and monumental staircases was truly grand in style, but it actually left the

king housed no better than before. After Bernini returned to Rome, his plan was scrapped, and a French architect, Claude Perrault, was appointed to finish the job. This little episode proved to be a turning point in cultural history. It marked the weakening of Italian artistic influence in France; it also indicated that Louis XIV had plans of his own. Perrault's façade incorporated some parts of Bernini's project, such as the flat roof concealed behind a Palladian balustrade and the long straight front with the wings extending laterally instead of projecting forward to enclose a court in the traditional French manner. Perrault's own contribution can be seen in the solid ground floor, which is relieved only by the seriate windows. This story functions as a platform for the classically proportioned Corinthian colonnade, with its rhythmic row of paired columns marching majestically across the broad span of the façade. The space between the colonnade and the wall of the building allows for the rich play of light and shadow that was so much a part of the baroque ideal. But Louis allowed the Louvre to be completed as a concession to Paris because Louis had conceived a royal residence outside Paris where he could escape the restrictions of the city. But his real capital destined to be Versailles.

The Versailles Palace, therefore, was not so much a monument to the vanity of Louis XIV as it was a symbol of the absolute monarchy and the outstanding example of aristocratic baroque architecture. It represented a movement away from a feudal, decentralized government toward a modern centralized state. Versailles pointed the way to the planning of whole cities from the start without the vicissitudes of haphazard growth and change. In this light, Versailles is seen as one of the earliest examples of modern urbanism and city planning on a large scale.

In the 17th century the focus of interest of the Dutchman's home was not even his castle, it was just his solid, comfortable, plain, brick house. Instead of the cult of majesty, his was the cult of the home. Religious activity took place in the home. Music, therefore, like all the other aspects of Dutch life, was centered largely in the home. The wealthy burger however did not build a palace – though he certainly had the means to do so. He was content with a comfortable house that was functionally suited to his needs.

Philosophy, philology, social theory and the natural sciences flourished in Dutch universities. These intellectual pursuits speculated the existence of an ordered and regulated universe in which everything could be measured and understood. Hence, an ideal universe had considerable appeal for a bourgeoisie whose security and comforts could be perpetuated by it. Descartes' rationalistic cosmology and psychology and Spinoza's mathematically demonstrable ethical system paralleled the concept of art as a form of reasoned organization, but it took a Rembrandt to illustrate this age of reason with an inner glow to warm this rational world with the fire of human feeling. Baroque rationalism, however, had remained restricted to a relatively few eminent minds.

The various aspects of the bourgeois baroque style find a common undercurrent in the idea of domesticity but the unity lies in the cult of the home. Bourgeois house comforts, for instance, were never so highly cultivated in the warmer, friendlier south, where recreational activity can occur in the open air, while the northern climate was conducive to the concentration of communal pleasures in the home. No riotous living or public displays of luxury were possible when the church permitted no embellishment in its buildings and no musical elaboration in its services. Dutch architecture was, for all intents and purposes, domestic architecture. The major domestic aesthetic expressions occurred in painting and music, together with all the minor decorative arts that added to the comfort and beauty of the home, Easel pictures rather than murals became the norm for Dutch painting.

In England, in the year 1661, when Charles II and his principal architect Sir Christopher Wren came to build a new cathedral, they thought in terms of the richly embellished classical orders, the splendor of spaciousness of the Louvre and Versailles, and the central-church plans of Palladio and Michel Angelo. The Church of England clergy and their lay advisors, however, still thought of a cathedral as a tall imposing Gothic structure. Wren wanted it to be

crowned with a dome. The churchmen thought it should have a spire. So Wren built his dome and put a high lantern tower on top of it. Charles wanted the London parish churches to be free of Gothic gauntness and gloom, but the parishioners insisted on belfries with tall-spired steeples. So Wren gave them their steeples, but with classical geometrical flourishes.

Rococo

The rococo is the French words for "rocks" and "shells" which were so widely used as decorative motifs in the rococo style. The rococo must be considered a modification or variation of the baroque rather than a style in opposition to baroque. The style affected both the major art forms and decorative arts. The known architectural orders as points of reference have all but disappeared. The triangular repose of the temple pediments and window brackets of the academic style have dissolved into a pattern of undulating curves and broken rhythms.

The counter-reformation fusion of the arts in order to produce mystical emotion excitement is well exemplified by the Benedictine abbey church at Melk, built in a commanding position on a rocky ledge overlooking the Danube. In its colourful interior, designed by the Viennese theater architect Jacob Prandtauer, red marble columns and pilasters rise upward toward the flowing lines, undulating curves, and visionary vistas of the heavens that enliven the vaulting.

The 18th century styles either continued, modified, or departed from the high Baroque. The shift of audience from a declining aristocracy to the rising bourgeois was accelerated, and the final phase of the aristocratic baroque style was reflected in the rococo.

The rococo is the last Western style that can lay claim to the universality and the last to adhere strictly to the canons of beauty. After the French revolution and the Napoleonic wars, rationalism grew, substituting reason for custom and tradition, and questioning everything. Pure science and nature in this case were less important than technology and artifact. The belief was that if the rational processes could be properly applied, they would eventually surpass the ancients in all fields, and eventually man could control his environment. As early as 1756, Burke's *Essay on the Sublime and the Beautiful* insisted that in art there is an element more important than beauty. This is the Sublime, which transcends mere beauty and can even admit of the ugly. "Whatever is fitted in any sort to excite the idea of pain and danger", he said "Whatever is in any sort terrible, or conversant about terrible objects, is the source of Sublime". The free exercise of the emotions and the imagination, even if it meant experiencing the painful, the astonishing, the horrible, was therefore legitimate territory for art to explore.

Such were the social, ideational, and emotional impulses that defined the horizon before which the panorama of the 18th century arts unfolded. Early 19th century Napoleon was determined that Paris should be re-planned as a new Rome. He therefore undertook the ordering and commissioning of buildings with the same incredible vigor that marked his activities in other fields. Napoleon commissioned Percier and Fontaine, his favorite architects, to redesign the Rue de Rivoli, which intersected the axis at right angles and ran parallel to the Seine. Elsewhere throughout the city, triumphal arches and monumental columns were to proclaim to the world the presence of a new Caesar and Trajan.

In 1806, Napoleon entrusted to Percier and Fontaine the building of a triumphal arch. Now known as the Arc de Triomphe du Carrousel, it was designed as a gate of honor to the Tuileries Palace. It turned out to be a rather slavish imitation of the Arch of Septimius in Rome, though of more modest proportions. After Napoleon's era, the desire for freedom collided with the need for order, the rights of man conflicted with the might of man and spiritual well-being was pitted against material considerations. New scientific and technological advances competed for attention with revivals of ancient glories. Aside from the shape and spirit a revival assumes, it is largely a matter of selectivity.

Each period has tended to choose from the past those elements that harmonized with its specific ideas and aspirations. Florentine Renaissance humanists, in their reaction to medieval Scholastic thought and the traditional church interpretation of Aristotle, turned to the Pagan beauties of antiquity in general and the philosophy of Plato in particular. Neoclassicism, was mirrored in forms of government, became the officially approved art style, and rested on a base of broad popular acceptance. Baroque classical interests reflected an aristocratic image of man and were restricted to courtly circles. Napoleon neoclassicism, by contrast, was oriented toward the comfortable middle class, which saw a congenial hedonistic image in the living standards of ancient Pompeii and Herculaneum but tempered luxury with the stricter moral standards of a revolutionary regime. What appeared as a period of comparative quiescence, however, was but the calm before the storm. The prelude to a social explosion that brought the aristocratic rococo to a violent, revolutionary end.

18th Century

In the 18th century, the scientific knowledge of Newton and the social theories of John Locke became the common property of educated classes. Rationalism broadened into the movement known as the Enlightenment, a term – like rococo – that generally refers to the period between 1715 and 1789. As the streams of rationalism and academicism converged. Reason was considered to be a mental faculty shared by all who chose to cultivate it. Among its implications were common sense, exercise of good judgment, and the development of taste. As applied to the arts, reason meant the search for expressive forms. Through the power of knowledge released by the Enlightenment, the ideas of freedom championed by men of reason were eventually written into the American Declaration of Independence and Bill of Rights and became the moving force behind the French Revolution. The philosophy of the Enlightenment did not, however, go unchallenged and undercurrents of irrationalism were found in movements that presaged 19th century romanticism. Rousseau gave sensibility a deeper emotional tone. In Germany, emotionalism burst out in the more violent form of the so-called "Storm-and-Stress". Truth was one of feeling than logic, and their curiosity proved insatiable. By bursting the bonds of civilized restraints, they were in full rebellion against hereditary aristocratic privilege as well as stern middle-class morality. Their freedom was far from that of the Enlightenment; it was in fact anti-rationalistic, anti-universal, powerfully pro-individualistic freedom that bordered on self-destruction and anarchy. While it is often called the age of Reason, the 18th century gave birth to some of the most bizarre and irrational beings, real or imaginary ever to populate the mind of imagination.

In 1827 Victor Hugo published *Cromwell*, a drama with a preface that served as the manifesto of romanticism. Romantic architecture became popular in the late 18th century and became the architectural whims of wealthy eccentrics of England. There the Gothic revival in architecture gained momentum exemplified in the Houses of Parliament begun by Sir Charles Barry in 1839 and the new Law Courts by George Street, both of which are familiar Landmarks in the London today. In France as previously in England and Germany, romantic architecture was associated with the resurgence of patriotic and nationalistic sentiment, channeling French national energies into new flights of imagination and providing French minds with an escape from recent dreams of Roman imperial glory that had turned into the nightmare of the Napoleonic defeat. This not only revised 19th century architectural thought but also laid one of the bases for the 20th century return to functional building. As comparative late comers on the medieval revival scene, the French architects were in no hurry to leave their reconstructions and design new buildings. The advantage was theirs when they did so, however, because they could review all the previous experiments and avoid the follies and excesses that characterized the movement elsewhere.

The dynamics of the revolutionary period with its social, political, and industrial upheavals, confronted artists with the image of a rapidly changing world. An architect could no longer count on one patron for a single monumental project but had to cater to many clients with

smaller buildings involving many different tastes and styles, because of the shift of wealth from the aristocracy to the middle class brought about a corresponding change in the patron for whom the buildings were to be built.

Above all, perhaps, romanticism involved the psychology of escapism from an increasing industrialized and mechanized world. The mainstream of romantic ideas, then, followed from alliance of the architecture, colourism, individualism, and nationalism to the various escape mechanisms, revivals of the past, back to nature, and exoticism. Napoleon, yielded to the advice of David and others and allowed the establishment of École des Beaux-Arts in 1806. The construction techniques of building tended to be divorced from the stylistic aspects of architecture.

The yearning for the past periods – whether ancient Greco-Roman or medieval – was expressed in the various revivals. Since the classic and medieval revivals were accepted as official styles, and since they lingered longer than other aspects of romanticism they have been dwelt upon at greater length. But the fuller vocabulary of romantic escapism included the "Back to Nature" movement, a longing for the lost paradise of a simple pastoral life, and exoticism, with its fantasies of life in far-off places. The back-to-nature idea took root and became one of the more popular 19th century escape mechanisms. The oriental world was added to the imaginative repertory, and its changing image in one guise or another has been mirrored in the arts up to the present time. Towards the end of the 19th century exoticism had begun to pall, and the realistic novelist Zola was making fun of his romantic colleague Gautier because "he needed a camel and four Bedouins to tickle his brains into creative activity".

England and Germany both claimed the Gothic style as their own, and to them it was a conscious departure from the Greco-Roman ideals of antiquity as well as their rebirth in the Renaissance, baroque, and neoclassical styles. The medieval revival is also found on the American scene. In New York the Gothic spires of Trinity Church rise among lower Broadway's skyscrapers. Many American colleges and universities, in their zeal to be identified with ancient and honorable causes, were also built in the neo-medieval style, and other public buildings show the wide influence of the medieval on 19th century American architecture.

The Industrial Revolution

In the late 19th century, while neoclassicism and romanticism were dominated by flights from reality, realism and impressionism tried to come to terms with the contemporary world. Radical changes were initiated by the Industrial Revolution. The application of modern scientific knowledge to industrial progress opened up many novel possibilities in architecture. Such new materials as cast iron facilitated the rapid construction of buildings and furnished the means whereby complicated decorative devices, could be produced quickly and cheaply to satisfy the demand. Architects were wondering how their work could still remain in the realm of the fine arts and yet make use of the new materials and technological methods they now commanded.

Throughout the 19th century there was a sharp division of thought about the work of an architect. Was he primarily an artist or a builder? A designer or engineer? Should he concern himself more with decoration or with structure? Was his place in a studio making drawings or in the field working with his materials? Architects thought that it is practically to produce on their drawing boards a design based on any known building from the past. Late in the century, all historical styles had been so carefully catalogued and documented that the range of choices was almost unlimited. The term for such a freedom choice is eclecticism. The classical was considered best for commemorative buildings and monuments. The century was eventually the spanning of broader widths, the enclosure of more cubic space, and

projections toward greater heights. The Crystal Palace that Joseph Paxton constructed to house the exposition was designed to eclipse the exhibit themselves and to find for itself a unique place in the history of modern architecture. The rapidity of its construction was no less remarkable than its form. Nothing seemed impossible to the machine age. Mr. Paxton and his green house had to wait more than half a century before the architects fully caught up with him.

Material progress continued to be an indisputable fact, but what was rapidly becoming apparent was that it did not go hand in hand with moral, spiritual, and aesthetic progress. With this came a corresponding shift from a rational world view toward an increasingly irrational one.

The completion of the industrial Revolution, the progress of electronic technology, disunity is ascendant over unity, discontinuity is more familiar than continuity. In the late 19th century relatively simple aesthetic creeds as realism, naturalism, symbolism, and impressionism had their folks of faithful followers. By comparison the 20th century had become an angry Tower of Babel in which such gospels as constructivism, dynamism, intimism, orphism, parallism, purism, suprematism, synthetism, and vorticism have been promulgated. Still in common currency are the movements known as cubism, Dadaism, fauvism, and surrealism. Too often these organized art movements have been used to provoke lively discussion, attract attention, and arrange for exhibits, concerts, and publications. The passions associated with these 'isms' have usually generated more heat than light, more confusion than clarification.

Modernism

The tempo of change has been so swift that 20th century man cannot keep pace with his scientists and artists. The discoveries of Frank Lloyd Wright Gropius, and Le Corbusier in architecture, of Picasso, Kandinsky, and Mondrian in painting, of Schoenberg, and Stravinsky in music rank as major breakthrough in the history of art and architecture. With the growth of cities modern architects have had to construct facilities ranging from airline terminals, suspension bridges, and low cost public housing to such entirely new capital cities as Brasilia and Chandigarh. Side by side with the steel – and – glass office buildings and urban – planning projects of the industrialized society, 20th century architects have been called upon to build a host of new churches and Mosques in daring designs. Drama has expanded from the live theater to include the motion picture and television media.

In architecture, the international style, using steel and glass, was able to incorporate in a structure the simultaneous, experience of outer and inner space. More than any of the other 20th century arts, architecture has exhibited a greater sense of responsibility, reached a more homogeneous crystallization of style. The architect is no more a stone mason – he is an engineer of society, a social philosopher, a poet and idealist, as well as practical builder.

The needs for a complex, modern, urbanized society and the availability of new materials and structural methods have made a new architecture both possible and necessary. Frank Lloyd Wright on one side and Walter Gropius with Le Corbusier on the other were the leaders of two opposing schools of architectural thought. Wright spoke as romantic in terms of the union of nature and man that could be realized through his organic architecture. Gropius and Corbusier were exponents of the international style and its emphasis on building for the machine age. Louis Sullivan's slogan "Form follows Function" is subject to a variety of interpretations but the line of thought it provided led to an important re-evaluation of architectural forms in relation to human activities and to re-examination of basic architectural methods, materials, and purposes. Sullivan's disciple Frank Lloyd Wright, and the architects identified with the international style, accepted the principle that stone should behave like stone, wood like wood, and steel like steel, and design should be modified by the materials

used. The criterion for a successful building, then is no longer what it looks like, but how well it fulfills its purpose.

The skyscraper, among the earliest and boldest instances of modern architecture made possible by steel – Skeleton construction and the elevator. It came out of the American Middle West as an answer to the need for commercial centralization. In the hands of Louis Sullivan, who put up the Wainwright's building in St. Louis in 1891, the skyscraper was a proud and soaring thing. Wright's philosophy of architecture was that of liberating force, and his creative freedom allowed for decorative motifs to grow organically out his basic designs, the relations of masses to voids, the fenestration, the colours and grains of wood, and the textures of stone. Through his masterly articulation, space for living and working comes to life and breathes.

The architect, according to Frank Lloyd Wright, is the poet who imagines the ideal life and fashions the forms, shapes, and spaces that guide men to live in. His organic architecture was based on the unity of site, structure and decoration, and the early houses he built in and around Chicago were his first claim to fame. For him a dwelling had to be home for the human spirit as well as the human body. A man's house, he thought, should express warmth, protection, and seclusion. The heart of the home, according to Wright, is the hearth in the form of a massive fire-place, and all the other rooms should be built around this. Interior spaces, moreover, should not confine but expand without interruption from the inside out to bring men closer to the earth, plants trees and water.

The International Style

The international style crystallized in Germany with the work of Walter Gropius and Mies van der Rohe, in France with Le Corbusier, and in Netherlands with J.J. Oud. When Gropius was commissioned to recognize a German art school after World War I, he renamed it the Bauhaus (Building Institute) and made a technical school of design with special emphasis on the industrial arts and the study of modern materials and methods. For the plant he brought together the complex of studios, machine, shops, administrative offices, and professors' houses into a single masterly group of interlocking and interrelated cubes. Smaller units had chaste Mondrian – like facades, others like the Machine Shop, were open structures with glass-curtain walls. As an exponent of the international style, Gropius started with the open box as the basic unit of space, varied its volume, and grouped several spaces in a related pattern of cubes. The Bauhaus has proved to be one of the most influential buildings of its decade.

Le Corbusier, unlike Wright's naturalistic approach, thought of houses as a machine for living, extensions for public services. For him architecture was the masterly and magnificent play of masses brought together in the light. Le Corbusier raised his structures on piers to assert the independence of things human. He built apartments vibrating with colour, light, and air. To do so he cantilevered his Unite d'Habitation over a double row of massive pylons. The exterior is honeycombed with shallow balconies, which have sun breakers tinted in polychrome shades on the inner sides. Each floor has duplex apartments reserved by a skip-stop elevator system.

Today's architect has once again become the partner of the painter, sculptor, and mosaicists. From the bleak utilitarianism of the early international style, architecture has turned once more to the principle of ornamentation; not however extraneous embellishment or mere architectural embroidery, but the inclusion of murals as integral part of the larger architectonic statement. Well placed frescoes or mosaics as points of interest can always give definition to exteriors and interiors; serve as symbols of human involvement or images of social activities, and unexpected turn here or twist there can create an element of fantasy, whimsy, warmth and delight.

The new technology has greatly expanded the possibilities inherent in dome, membrane, and shell constructions. For his Trans-World Flight Center, Saarinen designed flowing concrete forms and dynamic stresses to convey the idea of flight while providing an airline terminal facility. Four large concrete shells resting on supports of abstract shape enclose an interior remarkable for its elastic space and sculptural plasticity.

As another instance, Buckminster Fuller's geodesic domes span large light-filled spaces with airiness and strength. "Bucky's biggest bubble" as his friends dubbed the project for the United States Pavilion at the Montreal Exposition of 1967, is a three-quarter sphere that measures 75.00 meters in diameter and 60.00 meters in height and encloses almost 3000.00 cubic meters of space. Its construction consists of prefabricated metal bolted into place so as to support the buildings' plastic skin. Such geodesic domes are practical for industrial complexes, sports stadiums, and greenhouses, but Fuller has proposed one for New-York city large enough to cover some 3.5kms of mid-Manhattan. Here, complete climate control would become possible, eliminating all excessive heat, cold, rain and wind, while admitting the sun, moon, and stars.

Louis Kahn

Philadelphia architect Louis I. Kahn was one of the first Americans to make a significant break from the international-style tall boxes of glass and steel that in the postwar period have come to line both sides of New-York's Park Avenue, as well as many other streets all over the nation. While the Bauhaus-inspired architects strove to make their buildings look light and airy by denying the weight of the materials and structure that hold them together, Kahn designed massive structures whose monumentality had the grandeur of Gothic Cathedrals and Egyptian Temples. Indeed, they proclaim the drama the architect finds in the materials and processes of building. Kahn wanted the buildings to be legible and because they reveal how they were made.

Kahn identified not with the architects who pretend to solve problems presented by the client but with the designer – artists who want to provide a society with spaces the client never dreamt of. Thus he demanded complete freedom to program the life that would take place in buildings. He received this from Dr. Jonas Salk, who specified for the Salk Institute for Biological Studies, only that the laboratory provide 900.00 meters square of work space for 10 scientists. Thus when Kahn found that he disagreed with the biologists in the program for their work, he set about to redirect their attitudes. "I did not follow the dictates of the scientists, who said they are so dedicated to what they are doing that even when lunchtime comes, all they do is clear test tubes away from the benches and eat their lunch right there. I asked them: Isn't it a strain to always hear the noises of the refrigerator and the centrifuges and the air conditioner? Yes, they said, the noises are terrible. So I refused to listen to them about what should be done. I realized there should be clean-air and a stainless-steel area, and a rug and oak-table area".

To work out his program, Kahn posed such simple questions as: "What does the space want to be? What is a wall, what is the use of this building?" His purpose was to discover the right program and convey it to architectural life. "When I am designing a school, I am seeking the nature of school, not just the solution for a school. This is before the many problems of the spaces and their services may be brought into unity".

Post-Modernism

Robert Venturi declares that "The world can't wait for the architect to build his utopia and the architect's concern ought not to be with what it ought to be but with what it is and with how to help improve it now. This is a humbler role for architects than the modern movement has wanted to accept". Thus the Venturis have sought out the urban environment on its own

terms, because it is there. They have studied the highway strip and the subdivision, to see why and how those ubiquitous and despised features of the modern scene may have the vigor to make chaos work.

With insight and analysis, the Venturis have reasoned back through the history of style and symbolism so as to come forward with a concept of a new architecture capable of responding to the speed and mobility of a society caught in the never ending cycle of changing life styles. Admirers of pop art, the Venturis accept the premise of the commonplace and of the cheap, expedient, and practical ways that mass culture has of serving its needs. But like pop artists, they possess the education, wit, and irony to deal in paradox and perversity. They point out that, having renounced decoration, modernist architects manipulate structural forms until the entire building takes on the quality of decorative sculpture.

Using the theory of the building as a symbol, they cite the building on the highway in the shape of birds or animals?! The Venturis even think Main Street "is almost alright". The dictum of Miës van der Rohe was: "less is more". The Venturis turned this inside out and assert that "more is not less".

Taking the label meant an insult and outraged modernists. The Venturis call modernists' work "dumb and ordinary", all the while they are filtering the ordinary through their taste and erudition until it becomes extraordinary. A case in point is the Guild House, an apartment building sponsored by the Society of Friends to house elderly tenants who wanted to remain in the old neighborhood, a lower middle class district of Philadelphia.

The 20th century has witnessed vast advances in scientific knowledge, the development of nuclear energy, the expansion of electronic communication, the convenience of jet transportation, the computerization of knowledge, the exploitation of the wealth of nations, the exploration of the moon and planets, and the significant breakthrough in the ways man perceives his world through, art, music, poetry, and literature.

Conclusion

The possibility of a sudden end to the human species has led to a psychological disorientation that makes the past seem obsolete if not abhorrent for the very reason of its having produced this impasse, which renders the present futile and meaningless and any future ridiculous and fanciful. Certainly such an attitude is reflected in architecture, where the critical measurement of contemporary works by past standards of classical craftsmanship and excellence has broken down, and where traditional forms have fragmented and fallen into disintegration. Architects may now feel that they are creating only for the moment rather than for the future, and a neo-Dadaist sense of absurdity and futility pervades many of their works. Ultimately, if nothing is to last, why bother to write it down. Why not just consider architecture as a strategy of the imagination, as the aspiration or fantasy of a dream.

Nietzsche said "you must have chaos in you to give birth to a dancing star. I say unto you: you still have chaos in yourselves". So it becomes possible to foresee a shining creative future, a whole galaxy of dancing stars. Because when we look at the world around us, the supply of chaos seems truly inexhaustible.