The Spatial Arts

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This expression is inclusive of a number of creative efforts and products of the Muslim peoples, which have so many features in common as to make their conjoined treatment more suitable than an isolated presentation of each art form.

What are the "Spatial Arts?"

Space has sometimes been described as the opposite of mass, as the negation of the solid in architecture. According to that definiton, the spatial arts would include only those architectural monuments with interior spaces which it is possible to enter. A significantly different view contends that all the visual arts could be regarded as "spatial arts" since they embody two and sometimes three of the spatial dimensions?

Neither of these interpretations of the expression "spatial arts" is suitable for our purpose. The former is unduly limited since it excludes creations involving exterior space, the importance of wall treatments and ornamentation, and the aesthetic significance of the exteriors of buildings. All of these features have been crucially important in the experience and appreciation of an Islamic-built environment. The second theory is equally regected here, since it prevents our organizing the Islamic visual arts into the appropriate and meaningful subdivisions needed.

What then are the perimeters of the "spatial arts" that best suit a discussion of Islamic art? Would this category include, for example, sculpture in the round, an art that reproduces zoomorphic, human, or other figures from nature in stone, metal, wood, or plaster? Such works certainly involove spatial dimensions, but they are almost nonexistent in Islamic art. Their inclusion as examples of "spatial arts" would therefore be superfluous for this presentation. The use of naturalistic representations has not been favored for expression of the Islamic ideology, nor has it earned wide appreciation.

That does not mean that there is no sculpture in Islamic art, as some art historians have maintained. There is in fact a great deal of Islamic sculptured art; but, in keeping with the characteristic demand for abstraction, its examples have evidenced little noncern for plastic modeling and naturalistic figures. In stead, the most frequent and appreciated examples of sculpturd done by Muslims have been those relief carving that delineate infinite patterns. Such works can be found in abundance in all parts of the Islamic world; they use a great variety of materials as well as motifs. Despite the importance of its examples, we will not treat Islamic

sculpture in this chapter on the spatial arts, since in Islamic culture it is subsumed under the category of ornamentation. It draws its characteristic, functions, and forms from that aspect of artistic production.

The first category, therefore, to be included in the Islamic "spatial arts" is one which, though it has sculptural and ornamental characteristics, plays an extra-ornamentation role in Islamic art. Its examples make use of the horizontal and vertical dimensions of space, as well as the plastic quality of volume. These "volume units", as we shall refer to them, include such free-standing or semi-attached items as fountains, columns, towers, triumphal arches, bridges, and aqueducts.

As three-dimensional objects, they are designed to be seen from the exterior only. Like sculpture in the round, they can be contemplated and experienced from a number of viewpoints as the objects. They usually have no interior space that can be entered. They present the viewer with a succession of views and often incorporate a number of sides, planes, or superimposed bands, as well as the succession of units integral to the arabesque ornamentation covering their surfaces.

These structures differ from the arts of ornamentation by including the pronounced spatial qualities of volume and mass. They are affective not only in themselves but in the alteration of the exterior and interior spaces of the surroundings.

A second category of the spatial arts includes those artistic creations that add interior space and enclosure to the horizontal and vertical dimensions and give the perception of depth, volume, and mass. These are the arts commonly designated as "architectural".

A third constituent of the spatial arts is landscaping, an art form developed extensively and with outstanding success by the Muslim peoples. It includes the creative and beautiful features of horticulture (the planting and care of plants) as well as that of aquaculture (the science of the artistic use of water in canals, ponds, fountains, and waterfalls).

The aesthetic treatment of space involves a fourth component, which can be described as the relationship of one building to proximate buildings, to the open spaces around them, and to the compound, complex, village, urban quarter, or city of which the building is a member. Such features of the built environment are no less important to Islamic art.

Sometimes the expression "urban planning" is used to designate this subdivision of the spatial arts. That label is misleading, however, since it ignores the significance of such features in rural as well as in urban design. For the purposes of this discussion, we shall identify this fourth category of the spatial arts by the more precise though cumbersome expression "urban and rural design."

The spatial arts of Islamic culture, therefore, will include four important subdivisions of artistic creation:

(1) volume units, the free-standing or semi-detached edifices without interior space;

(2) architecture, or structures with interior space;

(3) landscaping (both horticulture and qauaculture); and

(4) urban and rural design.

Like the other arts of Islamic culture, all the spatial arts give evidence of a determination by the Islamic worldview and God view-in other words, by Tawhid. Volume units, architecture, landscaping, and urban and rural design, as executed under the stimulus of Islamic culture, are as much expressions of Islam and its ideology as the calligraphic arts and those two-and three-dimensional ornamentations that transfigure Islamic art products.

We shall see below that these four categories of artistic creation are based on the same core characteristics relevant to all the Islamic arts.

The Core Characteristics

Abstraction

It may be fairly easy for the reader to imagine and comprehend the consequences of abstraction in the arts of ornamentation-a general rejection of figures as iconographic content, and the stylization or denaturalization of motifs used-but it may be less obvious how a tower, a building, a landscape design, or a city can give evidence of abstract quality. In the Islamic spatial arts, special methods and techniques have been developed and used to deemphasize nature and thus fulfill Islamic aesthetic goals. The transfigurations of nature as exemplified in the spatial arts belong to at least five major categories.

Overlay

One of these transfigurations runs parallel the overlay of materials. This applies to volume units, individual buildings, rest houses and pavilions which form an imprtant part of Islamic landscaping, as well as to complexes of buildings that make up major or minor portions of the rural and urban built environment.

Since the ideas presented in the discussion on ornamentation are equally applicable here, there is little need for further elaboration of this feature. We would like to reemphasize, however, that abstraction in the spatial arts would not be complete without the techniques of overlay which have been so consistently used by Muslim builders.

Transfiguration of materials

The transifuguration of materials in the spatial arts again conforms to that described earlier in connection with the arts of ornamentation. The perception of the naturalistic qualities of the materials used is rendered aesthetically unimportant, and the attention of the viewer is directed instead toward the beauty and intricacy of the infinite patterns. Textures, grains, and other natural properties of construction materials are denied attention by the infinite patterns that cover their surfaces.

As a result of the abstraction achieved through transfiguration of materials, the Islamic spatial structure that one find in village or city does not draw attention to the heaviness or lightness, the hardness or softness, the imperviousness of the structural materials, The weight of a facade is visually dissipated by indentations, blind arches, windows, doorways, and decorative patterns.

The slender pillars supporting a wall disguise its actual mass and weight. Domes are constructed with apertures and ornamentations that deny the bulk and heaviness of the bricks, stone, or concrete out of which they are made. In addition to the two-dimensional painted, ceramic, brick, or stucco decorations, three-dimensional muqarnas overlays hide the underlying materials.

The art of lanscaping makes some use of building materials for the construction of pavilions and other structures that are incorporated into the Islamic garden. Features similar to the transfiguration of materials found in major buildings pertain here, despite the limited size of these structures. Landscaping features another manner of transfiguration of materials which is peculiar to itself. The "materials" of the garden planner are trees and bushes, fruits and flowers, vines and grass, water and fountains. In the treatment of these materials, Muslim designers have dispalyed strikingly characteristic and innovative methods for achieving an abstract quality.

For example, there is a pronounced effort to present the fanciful and the denaturalised in the landscape artistry of Islamic culture. The Islamic garden is a formal one in which horticulture and aquaculture are applied to create stylized and infinite patterns. The Muslim landscaper does not preserve or imitate the uncultivated state of nature-however beautiful that may sometimes be.Instead, trees and bushes are planted, pruned, and trained in such a way as to create symmetrical and never-ending patterns. Rather than the earthly environment, it is the paradisiacal one that is cultivated.

Water and planting are never incorporated in their rough and natural state. A spring is not left to gush forth unrestained from the mountainside, nor is the garden built to contain the natural

bed of a brook or stream. Even waterfalls are rarely the result of natural phenomena in the Islamic garden.

Their inclusion always entails a disciplining and transfiguration of the materials of nature. The controlled and patterned use of water disciplines and alleviates the natural characteristics of the surrounding environment rather than emphasizing them. Thus the treatment of these materials is again reflective of the desire of Muslims to shape object and environment into an expression of Islamic identity and an example of infinite patterning.

Transfiguration of structures

The transfiguration of structures, like the overlay characteristics and the transfiguration of materials, is often a function of ornamentation in the Islamic arts. As such, it pertains to the embellishment of the spatial arts as well as to that of movable objects by providing another means of abstraction of architectural structures, but there are some aspects of this particular method of transfiguration of nature that apply specifically to the spatial arts, contributing further to the fulfillment of Islamic aesthetic goals.

Let us investigate these additional methods for abstraction which Muslims have incorporated in the tower or bridge, the mosque or palace, the garden or the plan of a city incorporating built up areas, passages for movement, and open spaces for commerce and recreation.

Whether seen or experienced from an internal or an external vantage point, the volume unit, the building, the garden, the complex, or the city give little hint of an overall plan. This is not to say that there is no plan. On the contrary, the spatial arts of Islamic culture have carefully organized and intricate structurers which become apparent and clear on investigation of a detailed blueprint or by experiencing the spatial work of art in a temporal way, that is, by moving around and through it. For example, the much-used aisled hall or hypostyle plan as embodied in the Mosque of Qurtubah cannot be experienced except by leisurely walking through its many aisles.

Upon entering the mosque we can observe the intricate decorative treatment of the area near its mihrab. Despite the richness of the mihrab decoration and that of the areas nearby, the structure denies a single aestheitc focus for the building as a whole. Instead, this mosque is an additive compositon of repetitive arches and aisles. This fact made successive enlargements to the original construction possible without damage to its aesthetic quality and perfection.

The exterior impression given by any example of the Islamic spatial arts is no less revealing of its transfiguration of structure. An Islamic structure is rarely set off on a mountain top or isolated from its surroundings in ways that would provide visual perception of its overall plan.

On the contrary, there is no understanding of the whole until each of its parts has been experienced by moving in and out and through and around its structures and the spaces between them.

The town facade or the monumental gateway is so massive that it hides all notion of the rest of the building or buildings beyond. Structures are enmeshed with their surroundings in a way that disguises their outer limits. Even external walls are backed to shops or dwellings, and the walls of one hayy, or quarter, blend with those of another.

Transfiguration of enclosure

A fourth way in which the Islamic spatial arts enhance abstraction or denaturalization is through the transfiguration of enclosure. This consists not in the destruction or actual elimination of enclosing walls but in such treatments as would deemphasize their solidity and thus the impression they give of spatial limitation and confinement. We have already spoken briefly of the effect Islamic ornamentation has had on reducing the massiveness and opaqueness of walls, vaults, domes, and roofings. These features are of course, equally important in the deemphasis of the solidity of enclosure.

Another characteristic feature that exemplifies transfiguration of enclosure occurs in those structures that incorporate an internal courtyard. Where solid walls surround three sides of an enclosed space, a fourth side is often left open to the adjacent courtyard. This device for transfiguration of enclosure has the effect of visually denying any antagonist, or opposition between man and the spatial enclosure or environment in which he lives and moves.

Niche-like rooms abound in Islamic structures. While maintaining their identity as enclosures, they are, at the same time, part and parcel of the adjacent open or enclosed court into which they expand and for which they provide an element of protection and of enlargement of space. Windows sometimes proliferate until walls could accurately be described as window screens rather than enclosing masonry barriers marking off human space from that of the larger world beyond.

Archways and doorways are enlarged and multiplied to facilitate physical and aesthetic movement from one spatial module to another and to deny any impression of confinement. Arcades link the surrounding rooms to an open couryard of a dwelling, mosque, or madrasa, thereby negation the feeling of sharply defined inner and outer spaces.

Balconies and terraces, courtyards and squares provide exterior additions to the living and working areas of a building. Even domes lose their impression of enclosure and confinement as decorative overlays and the proliferation of window cause the viewer to move to

aesthetically and imaginatively into the space beyond.
Sometimes a series of semidomes and exedrae bubble forth from the central dome to visually expand its limits, or a series of small domes replace the more confining barrier of a flat ceiling. Space seems to be set free for human movement as well as aesthetic perception in these examples of the spatial arts.

Transfiguration of ambiguity of function.

As a fifth feature of abstraction, the Islamic spatial arts exemplify the transfiguration or ambiguity of function. The individual room is not restricted to a single use. Furniture is sparse and leaves much of the space free for a variety of activities. Both public and private needs may be filled by a single room at different times of the day.
Utilization of rooms may also vary from season to season with the changes of weather-the warmer parts of the house serving for more general use during the winter months, and the cooler ones during the summer. Whether built as a school, a dwelling, or a mosque, there is little evidence in an Islamic building that it must be used for one specific purpose only. The architectural members regarded as characteristic of the mosque have not only been used in that context.
A wide variety of other structures built for public as well as private of other structures built for public as well as private use have incorporated the same elements. The sahn or open courtyard, for example, has been a predominant feature in domestic structures of both palatial and modest dimensions throughout the centuries of Islamic history.
It has also been a common feature of such public buildings as the mosque, the caravansary, the madrasah, the hotel, and the office building. The mihrab niche, which indicates the direction of prayer in a mosque, is an aid to the worshipper wherever he lives or works.
Therefore, this element is often included in buildings for which the major purport is not that of worship. The niche as an architectural element has in fact been used for a great variety of purposes-for entrance or portal, verding stall, or semi-secluded area for sleeping, eating, or conversation. Arcades are another element of mosque constructuon which are found as well in other private and public buildings.
They are even outstanding elements of those spatial constructions that include no interior space, the aqueducts, bridges, fountains, triumphal arches, and so on, identified as volume units. The dome is commonly identified as an outstanding feature of mosque architecture, but it plays an equally important role as roofing for other types of buildings.
Function is also transfigured or disguised in the spatial arts by the fact that practically the

same techniques, materials, and motifs of ornamentation are applied to all structures, whether built for what would be considered a primarily religious purpose or a secular one.

Although in specifically religious structures figural art is consistently avoided, most other examples of the Islamic spatial arts also make use of nonfigurative artistic motifs. Calligraphy, geometric figures, and vegetal motifs have been the ubiquitous vocabulary of decoration throughout Islamic history, in every region of the Muslim world, regardless of the function of the building or architectural complex. Building techniques and materials have differed according to locale and availability, but never because of the function of the finished construction.

Related to the transfiguration of function is the fact that, in an Islamic context, there is little desire to provide and isolated environment for any human activity. The life of the Muslim community is, in fact, a constant intermingling of religious activities with secular pursuits. Such integration of the secular and the religious is also evident in the spatial arts.A polyvalent use of public and private space charaterizes the Islamic-built environment.

Although the suq (bazaar) is an urban quarter where much of the buying and selling of the Islamic city is negotiated, it is not isolated from the other activities of life, In addition to the shops, banks, and warehouses, which are necessary for the shopkeepers' trade, the mosque of the quarter is always close at hand for customers' and proprietors' use. The shopkeepers make their homes over their stores or in nearby low-income apartments. Residential facilities, as well as the caravansary, often interpenetrate the space of the suq, and are themselves multifunctional building or complexs.

The caravansaries or hostels of the Islamic world have traditionally included living space for both residents and travelers on the upper floors, while space for storerooms, shops, and even accommodations for animals was provided on the lower levels. Every madrasah has its mosque, and architectural complexes of all regions and periods give evidence of this multipurpose character which is implied in the transfiguration of function.

The mosque itself exemplifies transfiguration of function in still another way by often being flanked with commerical spaces, the rent of which provides a permanent source of income for maintaining the structure. It is frequently combined with areas for eduacative, funerary, and residential purpose.

This lack of explicitness in function, which is another aspect of abstraction, has not only been demanded by the desire to create artistic expressions of tawhid; it has also been required by the social and religious customs of the Muslim people. The Muslim believes that religion has an imprtant role to play in every aspect of life, and, as a corollary, that all aspects of life are in

some sense religious.

There is no sharp differentiation between the sacred and the profane, no cleavage between the religious and the secular. The aesthetic transfiguration of function through the varied use of buildings and architectural elements has provided the individual architectural monuments, as well as the built environment, with a generally multifunctional character. All monuments, even those of primarily secular function, are linked somehow to the religious dimension of Islamic life by inclusion of a place for prayer, a well or fountain donated by the pious for the benefit of the poor, or a religiously significant inscription added for decoration on a wall.

Units / Modules

In discussing the various aspects of abstraction in the Islamic spatial arts, we have touched on a number of the other five core characteristics of the Islamic arts in general. In the remainder of this section on the spatial arts, we will discuss specific examples of these other aestheic aspects as they pertain to the spatial arts.

Just as the transfiguring ornamentation patterns on small objects or architectural monuments feature a number of internal modules or units which are combined in an additive way, the spatial arts are collectives of smaller modular entities. The Islamic palace is not a single block of rooms leading to one important hall or throne room. Instead, it is often a combination of courtyard units, each open court acting as a nucleus surrounded by its ancillary rooms. The madrasah comprises a number of self-contained segments: one for prayer; four wings for each of the schools of law; a dormitory section; and perhaps an apartment complex or a mausoleum.

The lanscaped garden is made up a series of carefully laid out and planted modules of ground interspersed with separate pools, pavilions, and arbors. The apartment complex has various internal segments, some for the reception of guests, and others for family use, storage, or commerce. The caravansary has one module for guest rooms, another designated as a mosque, others for shops, animal quarters, and so on.

Even the urban quarter, or the city as a whole, is divided into a number of selfcontained architectural-social -administrative-living units. Each of these is known as a harah ("place for turning") or hayy ("living space"). The former is generally equivalent to a small street open only at one end, which leads to a number of houses or places of business. The term hayy is used for a larger, autonomous segment of the town or city. In an Islamic environment, every nieghborhood is a complete and integrated entity, an environmental module, with its mosque, shops, restaurants, residences, and areas for recreation.

Successive Combinations

The modules of the spatial arts are combined to form larger combinations on a number of levels. For example, separate rooms of a dwelling, which constitute the most basic and simple of spatial modular elements, are combined to form the bordering rooms of an open courtyard. On a successively more expansive level of combination, a number of courtyard and room units produce the domicile or palace. On a still wider level, they are added to an adjoining garden module or to one or more adjacent structures.

The mosque may comprise an additive series of domes units on one level of combination. These may be joined to an arcaded courtyard, a gateway, or a pavilion on a more inclusive level. As we have seen, a religious complex may contain a prayer hall, a mausoleum, a sahn or courtyard, dormitories, a hospital, a museum, as well as separate sections or modules for teaching. Each section retains its identity as a selfcontained unit while forming part of a larger identity as it combines with similar or different modules around it.

City planning evidences a similar series of combinations which assures "a clear functional subdivision of the urban system, but also a total integration of single buildings into a comprehensive urban fabric. Each dewlling is a tight enclosure ensuring privacy and security, its walls often built back-to-back with an adjacent structure. A number of such buildings. and perhaps open spaces for movement and recreation, form a more comprehenisive urban combination.

These in turn combine as an urban quarter, and on still another level, a number of such neighborhood combinations are joined to produce the town or city. None of these additive segments takes aesthetic precedence over another. Instead, the integral parts of the built environment fit together like the tesserae of a giant mosaic.

Repetition

The characteristic of repetition, which was found to be so important for the creation of two- and three- dimensional ornamentation in Islamic art, is also a common factor in the spatial arts. The units that are the components of successive combinations of open or enclosed spaces are repeated in identical or varied form in these additive spatial structures. This also occurs on the internal units of individual buildings and gardens, as well as in the combinations of buildings that constitute a public or private religious, domestic, economic, or educational complex; an urban quarter; or a complete village or city. The repetition of rooms and open courts, of garden plots and foundations, of ahya (sing. hayy) and neighborhoods contributes to the symmetrical organization of the Islamic design, the denial of particularism of its parts, and

the additive quality of the spatial arabesque.

Dynamism

The comprehension and appreciation of any example of the Islamic spatial arts must be achieved by moving sequentially through its spatial units. A total impression or view is never possible from afar. There is no development or architectural evolution to a single point of aesthetic climax. The individual building is so enmeshed and interwined with its surroundings that it is difficult to know where it ends and an adjacent structure begins. Even city walls are "virtually invisible and materialize only by gates... Other-wise they are totally entrenched in the urban structure, being composed of the walls of individual houses located on the border of the corresponding spatial zone. The example of Islamic spatial art must therefore be experienced in a dynamic way, not in a single, static moment of time. Like the other Islamic arts, it must be comprehended through a sequential appreciation of its multiple parts.

Intricacy

Comparable in intricacy to that of the two-or three-dimensional decorations of Islamic art are the combinations of spatial units that make up a volume unit, a building, a garden, or an Islamic built environment. No less than the inlaid, sculpted, or painted design, the examples of spatial art is a complex organization of artistic elements.

In part, the quality of intricacy is enhanced by the ubiquitous patterns of interior and exterior decoration. This is true for all the spatial arts. But structural complexity is also present.Contemplating or experincing an aesthetic product with an overall unity may enable the percipient to gain a quicker and easier grasp of the whole than can be achieved by a similar perusal of a nondevelopmental work. Some measure of intricacy in the process of perception is thus inherent in the Islamic art work. Its many-layered organization, its repetitions, and the dynamism of experiencing it all contribute to its impression of intricacy.

Although the modules on each level of combination within the built environment provide autonomos divisions ensuring internal separateness and privacy, that seclusion is not achieved through an external isolation of the structures from each orther. On the contrary, adjacent buildings in a traditional Islamic city form a contiguous and intricate mass, broken only by the openings for air and sun provided by the inner courtyards. only the major passageways for movement are highly visible, for pedestrian thoroughfares are often semiprivate, or roofed passages providing access from public sectors into private space.

Still another factor in creating the impression of intricacy in the spatial arts is the fact that the

structures of an Islamic village or city are not confined to the identical square blocks created by the intersection of perpendicular roadways. Instead, the arteries of movement are determined by the extremities and access needs of the internal modules and modular combinations. This can be seen as a sharp contrast to the earlier Roman plans with their parallel and perpendicular street grids.The lack of regularity or obvious grid plan is an important factor contributing to intricacy in the Islamic-built environment.

The Islamic city has often been compared to a maze by visitors who did not understand its internal logic. Intricate it is, like any other Islamic infinite pattern; but chaotic, it is not. Recent studies of the traditional built environment in Muslim cities have proven the social, economic, political, and religious logic of these towns and cities and their compatibility to the human beings who inhabited them. We would only wish that those in charge of contemporary building and renovation schemes were as knowledgeable and would see to it that the new environments be in accordance with, supportive of, and representative of the residents' life and traditions.

The Use of the Arabesque Structure in the Spatial Arts

The four structures that were found to be embodied in the designs of Islamic ornamentation are also relevant for the spatial arts of the Muslim peoples. It would impossible here to describe and discuss all the different kinds of structures that have been created by Muslim architects, landscapers, and rural/urban planners throughout more than fourteen centruries of Islamic history. The following examples must therefore be acknowledged as only a sample of the many representations of these structural types. We make no attempt to be exhaustive of the spatial art materials found in the Muslim world. Instead, the examples show the relevance of those organizational models and thereby help readers to discover and recognize other representations on their own.

Multi-Unit Structure

The disjunct "multi-unit" plan has been given a wide range of different realizations in the Islamic spatial arts. It has been used as the framework individual buildings, for garden plans, as well as for rural or urban complexes. One of the most common architectural realizations of multi-unit structure is the mosque with multiple domes. Such buildings have constituted a particularly significant model for Turkey and the Indian subcontinent.

Some of these buildings consist of a series of two or three rooms, each covered by a dome and serving as one module of the overall plan. Other plans typical of the multi-unit structure

combine a large number of smaller domed units to roof an enclosed space. The domes of the latter type rest on heavy columns or piers, thus providing a segmentation of floor space, roofing, and spatial volume division of the interior into sepatate rooms.

Not only religious structures have used the multi-unit plan. The suq of Isfahan is an example of a similar structure for secular use. Garden plans are made up of a number of separate plots, with points of emphasis or punctuation provided by fountains, pools, and pavilions. The descriptions and maps of traditional cities show them to be no less representative of this disjunct structure. In such cases the constitutive modules are neighborhoods rather than individual rooms.

Interlocking Structure

Like Islamic ornamentation, spatial art constructions often combine modules in ways that result in an ambiguous role for the individual segments of the structure. Rather than detracting from the effectiveness of the design, this feature enhances it by stimulating multiple interpreatations and different ways of viewing the constituent parts. This method of combination, which has been referred to as an "interlocking" structure of arabesque, realizes all of the important core characteristics of an Islamic art work.

A stunning example of interlocking arabesque structure in the spatial arts is found in the Taj Mahal complex. It contains the mausoleum built by the Mughal ruler Shah Jahan in 1631-1648 for his wife Mumtaz Mahal, as well as elaborate gardens and a number of subsidiary buildings. The main building, the mausoleum, is composed of a central domed chamber flanked by four subsidiary domed rooms. Each room represents one unit within the modular combination of this architectural masterpiece. The central domed chamber has a number of roles to play. It is a satisfying entity which includes many walls and panels of Islamic decoration. It also acts as a nucleus of the four repetitive chambers that surround it. The building provides only one level of combination in a much larger design.

Four towers or minarets approximately 140 feet in height are placed at the corners of the plinth on which the mausoleum rests. These represent additional modules which, in combination with the domed mausoleum, contribute to a larger structural complex. Each minaret, like the individual rooms of the main building, can be appreciated as an individual module or as part of a larger combination.

In a still larger combination, two other buildings flank the funerary structure at opposite extremities of a rectangular environment. To the left is the mosque; to the right, a guest house of symmetrically balanced size and shape. Each of the three buildings - mausoleum, mosque,

and guest house - is a self -contained design unit as well as part of a larger organization. Nearby, another area, nearly three times as large, provides still another segment of this "spatial" design. This is the garden of the complex. Within that lanscaped area, a number of smaller combinations of modules are arranged in an intricate and symmetrical example of Islamic design. Instead of emphasizing the naturalistic qualities of the river which flows nearby, the landscaper has led its waters into small troughs and canals which divide the garden area into four large units of equal size.

Each of these segments is further partitioned into four smaller modules; and those are subdivided into four still smaller segments. Each segment serves as a modular entity and as a constituent part of a successive series of larger combinations. Several garden pavilions, smaller tombs of relatives or ladies-in-waiting, and a gatehouse act as additional modular units within the overall plan.

Meander Structure

The "meander" arabesque structure evidenced in the spatial arts, like its counterpart in ornamentation designs. reveals a less regular and less symmetrical organization of internal parts than is generally found in the multi-unit or interlocking structures. It is exemplified, for example, in the plans of those buildings in which internal design modules exist without pronounced disjunction.

An architectural plan that exemplifies the meander arabesque with great success is the aisled or hypostyle hall. This plan, which was used from the time of the Holy Prophet Muhammad(S.A.W.) (in his seventh-century mosque in Madinah), has been a favored plan for mosque construction through-out the Muslim world. It has been especially prominent in the Maghrib, Middle Africa, and the Mashriq.

One example of a spatial meander arabesque is the Mosque of Qurtubah. The organization of aisle or arch units in that building constructed in the eighth century and enlarged and enhanced in the ninth and tenth, cause the visitor to move visually in all directions: to the front and back, to left and right, as well as diagonally toward the unseen extremities of the building.

There are no sharply separating boundaries between the constituent modules nor an organization into interpenetrating combinations. Instead, arch after arch and aisle after aisle provide contiguous units of the meander arabesque. There is no aesthetic impression of finality as the last arch or aisle on any side is encountered. The builder could have added another arch or another aisle without destroying the beauty of this infinite pattern.

In fact, successive architects who enlarged the Mosque of Qurtabah actually made such

additions. The original structure was repeatedly increased in both length and breadth without destroying the aesthetic appeal and basic organization of the structure.

A landscaped garden or a complex of buildings can also feature the characteristics of a meander arabesque. One example of such organization utilizing both open and enclosed spaces is the complex of Fatehpur Sikri in India, a city built for Akbar, the Mughal ruler who reigned from 1556 to 1605. The buildings of that royal city number more than two dozen entities.

Placed in and around several open courtyards, they include palaces and domiciles, public and private reception halls, a mint and treasury house, a school and playground, mosques and tombs, a hospital and bathhouses, a gatehouse and caravansary, pavilions and gardens, a records house, and servants' quarters.

Buildings succeeds building, garden follows garden, and open courts abound. Each structure or garden of the complex acts as one module of a meander design. None is placed in a position of unique importance or emphasis, and there is no impression of a single focus for aesthetic emphasis. Unfortunately, the royal city was abandoned by the emperor shortly after its construction, when the water supply of the area proved inadequate to fulfill the royal needs.

Expanding Structure

A fourth kind arabesque structure that has been successful for ornamentation and transfiguration designs of the Muslim peoples has been designated as an "expanding" arabesque. It gives the impression of a core of nucleus that is progressively enlarged through its combination with additional motifs or modules. The additions to the nucleus produce a series of new and successively larger entities. Such structures can also be found in the spatial arts of Islamic culture. Here, the spatial expanding structure is composed of individual rooms, interior spatial volumes, segments or plots of a garden, or the districts or quarters of a town.

A particularly successful example of the expanding structure is mosque built for Sultan Salim II in Edirne, Turkey (1569-1674). The mosque was designed by Sinan, master architect of the Ottoman sultanate, when he was eighty years old. This vision of the expanding arabesque has an octagonal central core beneath its massive dome. A primary-level combination of floor plan segments and spatial volumes adds four semidomes to the large, centrally domed area. These are placed at the corners of the building's outer rectangular walls.

On a second level of combination, arcaded galleries on the east and west sides of the building are joined to the expanded central space. They are constructed in such a way that they seem to meld with the area under the dome as the fill in the space between the semidomes spanning

the four corner of the building. So many windows pierce the side walls below the dome that the impression is that "no wall space remains." Thus even the masonry boundaries of this architectural expanding arabesque draw the imagination of the viewer toward exterior space and to another level of combination.

One can find many examples of expanding structures in the spatial arts. Numerous are the garden plans, for example, that include repetitive and successive additions to star-shaped center. These can be found in many regions of the Muslim world, in tact, wherever Muslims have lived and Islamic culture has flourished.

The plan of Caliph Mansur for ninth-century Baghdad is historical example in urban planning of the expanding structure. Whether done consciously or unconsciously, it was another attempt to produce and environment that would be consistent, aesthetically as well as politically, economically, and socially, with and supportive of the Islamic ideology.